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AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature: change it rather
The art itself is nature."—*Shakespeare.*

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TO

CHARLES TURNER,

Of the Royal Nurseries, Slough,

THIS TWENTY-FIFTH VOLUME OF "THE GARDEN"

IS DEDICATED IN RECOGNITION OF HIS GREAT SERVICES TO FLORICULTURE.

W. R., July 1, 1884.

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INDEX TO VOLUME XXV.

A.

Abies Fortunei, conea of, 222; religiosa, 440
Absorption of water by plants, 501
Abutilon venosum, 286
Acacia dealbata, 140; platyptera, 34
Acacias, note on, 334
Acanthomintha ilicifolia, 298
Aceras anthropophora, 454
Acer japonicum aureum, 420, 443; septemlobum elegans purpureum, 420
Achmea Marie Regiuæ, 180
Acineta sulcata, 397
Aconites, winter, 100
Acrocliniums, note on, 122
Ada aurantiaca, 114
Adiantum cuneatum deflexum, 444; cuneatum strictum, 309; farleyense, 524; rhodophyllum, 203, 266; strictum, 266
Adenises, the, 490, 510
Adonis pyrenaica, 357
Æschynanthus tricolor, 71
Æsculus sinensis, 230
Æthionema coridifolium, 454
Æthionemas, the best, 39
Afghanistan, fruits and vegetables in, 142
African Lilies, 99
Aganisia cœrulea, 132
Agapanthus umbellatus, 99
Agathæa cœlestis, 394, 437
Akebia quinata, 383
Allamanda Hendersoni, 58
Allium Clusii, 441; oviflorum, 71; triquetrum, 401; Wallichianum, 68
Almond tree, the, 194
Aloe ciliaris, 244
Alonsoa linifolia, 255
Aloysia citriodora, 247
Alpine Catchflies, 514
Alpine flowers, the, 484
Alpine forest, an, 404
Alpine Wallflowers, 442
Alpines and slugs, 206
Alstrœmerias, note on, 441
Alternanthera aurea nana, 38
Alyssum saxatile Tom Thumb, 316
Amaryllises at Chelsea, 241
Amaryllis Colonel Burnaby, 264, 266; General Gordon, 221; Madonna, 266; Mrs. Shirley Hibberd, 264; Ne Plus Ultra, 221; new, 291; new seedling, 261, 326; Sir Redvers Buller, 263, 266; Virgo, 209; Zitella, 309
America, hard weather in, 176
American orchards, 2
Amortiser insecticide, 540
Andromeda floribunda, 69, 286; japonica, 118; tetragona, 5
Androsaces, Indian, 453
Anemone apennina, 219; apennina alba, 286; coronaria, 54; double scarlet, 220; Dutch grown, 466; fulgens, 100, 224; varieties of, 180; hortensis, 441; japonica and intermedia, 256; Robinsoniana, 144, 165, 383; white Apennine, 286
Anemones and Æthionemas, alpine, 320
Anemones as annuals, 142, 228; crown at Birdhill, 290; double, 442; double crown, 286; during winter, 101; from seed, 427, 490; Irish, 161; semi-double, 312
Anemonopsis macrophylla, 388, 472
Angræcum Ellisi, 288; fastuosum, 352; hyaloides, 200
Anguloa uniflora, 71
Annuals, late blooming, 430; raising, 269; some useful, 183; tender, 344
Anopterus glandulosa, 356
Anthuriums, seedling, 375
Ants and emmets, 294
Anthurium Andreanum, 312; Scherzerianum, progeny of, 439; a fine, 380; Scherzerianum Cypheri, 443; Scherzerianum, fine-flowered, 466; Scherzerianum, varieties of, 472; splendidum, 99, 114; Scherzerianum var. Vervaeneanum, 441
Ants, destroying, 339
Apple, Blenheim Orange, 32, 49, 104; Barthelemy du Mortier, 126; Golden Reinette, 147; High Canons, 352; Lord Derby, 3, 49; Mr. Gladstone, 386; A Perkins, 1, 137; statistics of, 138; stocks, 405
Apple tree, a large, 126
Apple trees and Strawberries, 28, 49
Apple trees, canker in, 66, 191, 250
Apple trees in pleasure grounds, 394
Apples as ornamental trees, 351, 379, 435
Apples, cider, 29; early market, 465; for cider making, 29; good, 47; prices of, 28; prices of good, 1; two good kitchen, 147
Apricot, Musch-Musch, 327
April Roses, 377
Aquatic plants, 297; choice, 318
Aquilegia vulgaris grandiflora alba, 68
Arabis blepharophylla, 363
Aralia Sieboldi, 18
Aralias, select, 56
Araucarias, transplanting, 399
Arbutus photiniæfolia, 180
Arctotis aspera var. arborescens, 69
Arenaria balearica, 16
Aristolochia gigas, 380
Arnica montana, 472
Arpophyllum giganteum, 306
Arrhenatherum avenaceum, 429
Arthropodium cirrhatum, 439
Art in the garden, 203
Arundo Donax, 103
Arum Lilies, 174, 313, 378
Arums, cultivated, 87
Asparagus, 501; culture of, 541
Asparagus beds, making new, 209
Asparagus decumbens, 331; or Buda Kale, 258; preserving, 323; tenuissimus, 196; tinned, 304
Asphodel, the yellow, 472
Asplenium horridum, 420
Aster Bigelovi, 68; Bigelovi lilacinus, 68
Asters, miniature, in pots, 260
Aubrietias, dividing, 95
Aucuba berries, 349
Aucuba japonica, 153
Aucubas, fringed, 484
Auricula Conservative, 309; Hetty Dean, 263; Maud Browne, 312; Mrs. Moore, 266; Mungo McGeorge, 308; offsets, 77; show, the, 353; Sir W. Hewett, 266
Auriculas, 120; and woolly aphis, 144; General Gordon, &c., 266; new, 89, 143, 382; and good, 182; preparing for exhibition, 270
Australian Tree Ferns, 34
Autumn and winter flowers, 260
Autumn sowing, 470
Awards of the Floral Committee, 4
Azalea Balwelli, 180; Baron Nathaniel de Rothschild, 309; B. S. Williams, 309; Comte de Germiny, 309; Comte de la Torre, 309; Comte de Paris, 309; Prince Henry, 209; indica out-of-doors, 486; J. D. T. Llewelyn, 309; La Merveilleuse, 266; Little Beauty, 291; Mdlle. Marie Stockman, 309; mollis, 155, 196; Mrs. Alfred Heaver, 221; Mrs. Buist, 282; not flowering, 260; obtusa, 224; Princess of Wales, 309; sinensis alba, 290; Souvenir de Duc d'Albany, 309; Souvenir de Marie Rossell, 352
Azara microphylla, 102
Azolla caroliniana, 248
Azaleas, Ghent and English, 373, 536; new, 89; new hybrid, 380; not flowering, 214

B.

Backhouse, Messrs., Nurseries, York, 246
Baden-Baden, notes from, 267
Balm of Gilead, 103
Balsam, culture of the, 97
Balsams, 226
Banana, new variegated, 393; the red, 523
Bananas, culture of, 259
Banyan trees, the, 446, 494
Barberries, evergreen, 219
Barberry blight, the, 47
Baskets, hanging, 167
Batchelor's Buttons, 363
Bath and West of England Show, the, 330
Bauhinia purpurea, 287
Beans, best broad, 301; early kidney, 198; the best, 91
Bearberry, the, 244
Bee Orchids, 386
Beech trees, planting, 153
Beets, the best, 91
Begonia Carrierei, 221; Comtesse Louise Erdody, 280; Froebeli, 250; insects on, 304; insignis, 414; Lubbersi, 279; Lynchiana, 489, 534; manicata, 222; ornamental-leaved, 38; Roezli, 464; socotrana, 6; undulata, 14
Begonias, 443; new, 89; new tuberous, 509; tuberous, 120, 336, 344; for bedding, 181; storing, 57
Benefits of glass coping, 460
Benthamia fragifera, 3, 245
Berberis Aquifolium magnifica, 219; aristata, 194; Darwini, 131, 230, 305, 412; japonica, 194; stenophylla, 349
Berries and birds, 112
Bessera elegans, 42
Biennials and perennials, 337
Bignonia radicans, 93; Unguis, 414
Billbergia nutans, 14; Wetherilli and Bakeri, 118
Bindweed, the Hungarian, 102
Birds and berries, 52; and Cotoneaster berries, 93; and garden crops, 288; and seeds, 314, 209; and vegetables, 199; destructive, 176, 218
Blechnum Spicant and its varieties, 442
Blinds, lath, 261, 449
Blue flowers, 358
Blue-flowered greenhouse plants, 97
Blue Marguerites, the, 437
Bog garden, a natural, 16
Boilers, coil, 226
Bomarea conferta, 6, 118; finely-flowered, 312
Bones *v.* crocks, 203
Books—
"Les Clematites à grandes fleurs," 111
"Books on Gardening, new," 304
"Guide to Methods of Insect Life," 110
"Guide to the Kew Museums," 158
"Paxton's Flower Garden," 407
"Scripture Botany," 268
"The Books of Health," 92
"The English Flower Garden," 32
"The High Alps of New Zealand," 172
"Treatise on the Cultivation of Fruit for Market and Family Use," 130
"Wood Forests and Estates of Perthshire," 50
Border Carnations, 429
Borders, inside *v.* outside, 147
Borneo, English flowers in, 52
Boronia heterophylla, 334; megastigma, 415
Bossiæa linophylla, 441
Bottle-brush plants, 486
Bottom-heat, 368
Bouquets, fashionable hand, 275
Bouvardia strigosa, 441
Bouvardias, propagating, 37; propagating double, 348; propagating and culture, 88; striking, 30; summer treatment of, 449; their culture, 133
Bower, a summer, 363
Bowling green, a, 399
Bramble, double white, 6
Brambles, ornamental, 435
Brassia antherotes, 426
Briers for budding, 474
British plants, exterminating, 381; three interesting, 510
Broccoli and Cauliflower, 210; for winter and spring, 21; late, 370; seed, 450; Snow's Winter White, 47, 197, 209
Broccoli, 258; spring, 450; Veitch's Autumn and Snow's Winter, 175; Veitch's Spring White, 175
Bromeliads at home, 374
Bromus inermis, 429
Bronze Leaf, the, 404
Broom, double Spanish, 111
Broom Rapes, the, 381
Browallia elata, 226; Jamesoni, 221
Broxbourne Alps, the, 384
Brugmansia suaveolens, 441
Brussels Sprouts, 72, 258
Bryngwyn, Hereford, conservatory at, 214
Buda Kale, blanched, 209
Buddleia globosa, 466; in pots, 402
Buds, fruit, and temperature, 22
Bulbines, note on, 442
Bulbous plants, 467, 507
Bullfinches and fruit buds, 219
Bulrushes, propagating, 151
Burchellia capensis, 118
Burghley, notes from, 116, 175
Burnham Beeches, *Funny Folks* on, 436
Burning Bush, the, 229
Bushey Park in June, 467
Bush trees, dwarf, 394
Butterfly Orchid, the rosy, 474
Button-hole and other bouquets, 243

C.

Cabbage, Ellam's Dwarf Early, 310; red, 324; White Heart, 109
Cabbages and Cauliflowers, 258
Cabbages, early, 324
Caladiums, 443; new and choice, 436
Calanthe discolor, 339; Regnieri, 177 Veitchi, 100; varieties of, 42
Calanthes at Christmas, 500; at Sioglelon, 13; culture of, 260; pruning, 251, 307, 324
Calceolarias, 462; herbaceous, 465; judging at the Crystal Palace, 484
Calendula maritima fl.-pl., 68; officinalis var. Meteor, 256; sicula fl.-pl., 68
California, mountain lake in, 281
Calla æthiopica planted out, 375
Callas, double-spathed, 19, 58, 180
Calochortus Benthami, 420; double, 445; double-flowered, 445; the genus, 342
Camassia esculenta, 380; esculenta alba, 380
Camellia, a noble, 318
Camellia borders, making, 168
Camellia C. M. Hovey, 380; M. Raymond Lemoinier, 114
Camellias, 226, 243, 536; notes on, 375; outdoors in Wales, 289; pruning, 448

Campanula Allioni, 182; cenisia, 182; latiloba, 206; planiflora, 182; thyrsoidea, 182; Waldsteiniana, 182
Campanulas, a few alpine, 182; tall growing, 206
Canadian fruit, 2
Candollea tetrandra, 283
Canistrum roseum, 279
Canker, 104; in Apple trees, 81, 191, 250; on fruit trees, 148
Canna Ehemanni, 287; liliflora, 279
Cannell's nursery, notes from, 457
Cannes, flower garden at, 253
Capri, flowers from, 6; notes from, 33
Capuchin monastery at Syracuse, 426
Caragnata lingulata, 74
Cardiospermum Halicacabum, 439
Carnation Andalusia, 283; Eureka, 441; Mrs. Maclaren, 420; Painted Lady, 469; Pink, white, 510; W. P. Milner, 463
Carnations, 256; and Picotees, 336; new, 80, 162; border, 429; Clove and border, 62, 120; fringed, 510; new race, 422; perpetual flowering, 196, 286, 344; propagating, 384; Tree or perpetual, 388; seedling, 267; Valencia, 357
Carrot Guernsey, 109
Carrots and their culture, 174
Carse of Gowrie, fruit culture in, 430
Cassandra calyculata, forced, 259
Cassiope fastigiata, 164
Castor-oil plants, 259
Catchflies, the alpine, 514
Caterpillar on Auriculas, 510
Cattleya amethystoglossa, 200; a new, 52; citrina, 307; Eldorado var., 11; labiata, varieties of, 288; Loddigesi, 264; Mendeli, 417; Mendeli marginata, 443; Mendeli selborniensis, 420; Mossiæ, 464; Mossiæ and Mendeli, 424; Mossiæ grandis 464; Percivaliana, 13, 31, 42, 114, 156; Percivaliana alba, 136; Reineckiana superbissima, 398; Schroederiana, 463; Skinneri, a monster, 507; speciosissima, 94; Trianæ, 334; Trianæ alba, 219; Trianæ at Birchill, 307; Trianæ Backhouseiana, 113; Trianæ Bonnyana, 178; Trianæ Dodgsoni, 113; Trianæ Leesna, 262, 263, 266; Trianæ Popayan variety, 157; Trianæ princeps, 113; Trianæ Russelliana, 113; Trianæ splendidissima, 221; Trianæ, striped, 200; Trianæ, the white, 52; Trianæ varieties, 157; Warscewiczi delicata, 52
Cattleyas from Southport, 261, 262; Mr. Percival's, 523; Popayao, 242; potting, 11, 14, 41
Ceanothus, a new, 400; rigidus, 334
Ceanothuses under glass, 375
Celery culture, notes on, 409
Celery maggot, the, 10, 21
Celery, stewed, 109
Celery trenches, 349
Celsia cretica, 468, 526
Cement for mounting plants, 375
Centropogon Lucyanus grown cool, 219
Cercis, the genus, 347
Certificates, first-class, awarding, 318
Certificating old plants, 465
Channel Islands, April in the, 445
Chatsworth, beauties of, 539
Chaumontel Pears, 250
Cherry, double-flowered, 70
Cherry Plum, double rose-coloured, 304
Cherries, Morello and Kentish, 103
Chicory, blanched, 110; forced, 71
Chimonanthus fragrans, 112
Chinese Primroses v. hardy, 251
Chimonanthus fragrans fruiting, 93
Chionodoxa Lucilliæ, 220
Chionodoxa v. Scilla sibirica, 336
Choisya ternata, 439, 446
Chorozema Chandleri, 428; cordatum splendens, 154; flavum, 334, 533
Chou de Burghley, 10, 21, 47, 135
Christmas blooming Calanthes, 509
Christmas Roses, 77; preserving flowers of, 60; protecting, 102; seedling, 509; soil for, 163; St. Brigid's, 6, 15
Chrysanthemum Mycomis, 68; reform, 4, 19, 100
Chrysanthemums, 243; at Christmas, 6; at Tokio, 100; from Derry, 364; in January, 155, 195; in Japan, 122, 145; late, 6, 197, 219, 220; new, 4, 88; planting out, 438; segetum, 506; three new, 208
Cineraria Challenger, 221; Great Eastern and Lottie Williamson, 136, 226; Lady's Favourite, 140; Polite Charming, 221; Royal Standard, 221
Cinerarias, 313; double, 451, 493; large, 282, 313; note on, 456
Citrus medica acida, 199
Clematis alpina, 439; cirrhosa, 117; coccinea, 32, 38; indivisa, 270; indivisa lobata, 286; Jackmanni alba, 208; Jackmanni, origin of, 122; montana, 337, 380; Jackmanni, 326
Clematises and their culture, 126; for out-door culture, 472; the best varieties of, 126
Clerodendron fragrans, 220
Clerodendrons planted out, 466
Clethra arborea, 58
Clianthus punicens, 224, 526
Climate, deterioration of our, 387; our, 401, 425, 465
Climbers for shaded walls, 75; on trees, 425, 472
Climbing Sundew, 493
Clipping Box edgings, 258
Clove Pink Mrs. Sinkins, 458
Cobweb Houseleek, 232
Coccocypselum discolor, 58
Cockroaches in Peach houses, 124
Cocoa nut, milk of the, 203
Cocoa plant, fruiting of the, 400
Cologyne cristata chatsworthensis, 114; pandurata, 397
Coffee plant, the, 263
Coffea arabica, 263; travancorensis, 298
Colchicum crociflorum, 207
Coleus Mrs. G. Simpson, 155
Collector's journal, notes from a, 232
Columbines, 485; seedling, 466, 486; white, 445, 506
Committee of the Royal Horticultural Society, 32
Composts for Orchids, 251
Conophallus Titanum, 11
Conservatory at Bryngwyn, 214
Conservatory, flowers for the, 195
Convolvulus minor, 255
Cooking vegetables, 474
Corbularia citrina, 140, 185, 224
Coreopsis, annual and perennial, 104; lanceolata, 256
Cornflower, the common blue, 270
Coronilla glauca, 287, 374, 402
Coryneum Bejerinckii, 222
Costus igneus, 399
Cotoneaster frigida, 90; Simonsi, 372
Cotton Thistle, the, 193
Cotton Plant, 226
Covent Garden Flower Market, 330
Cowslips, monstrous, 484
Cowslip, the Imperial, 189
Crocks v. bones, 203
Crocus alatavicus, 180; Imperati, 54, 74, 96, 286; Imperati albus, 94, 108; minimus, 94; pusilus, 118
Crown Anemones, 54
Crown Imperial, yellow, 363, 380
Crystal Palace Summer Show, 461
Cucumbers, culture in summer, 109; and Melons in pits, 248; diseased, 135, 470; from cuttings, 501; long, 324; remedy for gumming in, 501
Cucurbitaceous plants, 361
Cupressus Lawsoniana, the garden, 245
Curculigo recurvata variegata, 10
Current topics, notes on, 191
Cuscuta trifolii, 137
Cyclamen Crimson Beauty, 31; Dame Blanche, 136, 266; giganteum delicatum, 136; hardy, 74; nursery, a, 166; Princess Ida, 221
Cyclamens, Rose Gem and Purity, 266
Cymbidium eburneum, 200, 288; elegans, 11; Lehmanni, 329; Mastersi, 432
Cypress tree, old, 93
Cypripedium Argus, twin-flowered, 213; caudatum, 523; caudatum roseum, 464; ciliolare, 309, 443; Curtisi, 288; Druryi, 266; Godefroyæ, 396; grande, 420; Leeanum, 31; Robelini, 443; spectabile, 262; Spicerianum, 12; superciliolare, 397; sylhetense, 397; venustum, twin flowered, 14; villosum var., 241
Cypripediums, hardy, 156
Cytisus Adami, 3, 14; filipes, 31; filipes, grafting, 155

D.

Daffodil and Narcissi, double, 206
Daffodil, beauty of form of the, 318
Daffodil conference, 201, 233, 267, 289, 315, 381
Daffodil culture for market, 355
Daffodil Early Sulphur, 185; freaks of, 446; the great, 269, 317; the white, 248
Daffodils, 290; classification of, 362; colours of, 213; double, 286, 481; dwarf, 272; early, 180, 185; early single, 73; fair, 404; from Cork, 368; in the lake country, 270; notes on, 236, 395; the renaming, 318; single and double, 407; becoming double, 362, 383; Tenby, 272; the home of white, 353; Trumpet, 270; when to cut, 273; Dahlia coccinea var. Paragon, 279; excelsa, 286; how to propagate the, 205
Dahlias, 120; single from seed, 102, 470
Daisies, diseased, 114; Ox eye, 509
Dandelion, 324
Daphne Genkwa, 293; indica, 194; Mezereum, 132, 142, 194; neapolitana, 244
Datura (Brugmansia) sanguinea, 358
Davallia bullata, 32; Mariesi, 138; Mariesi cristata, 300
Decaisnea insignis, 71
Deciduous trees, 245
Decorations, floral, 321
Delphinium trollifolium, 68
Dendrobium aureum, 52; Bensoniæ, 522; Falconeri, 464; fimbriatum oculatum, 200; Findleyanum, 52; Findleyanum giganteum, 221; Harveyanum, 382; macrophyllum Burkei, 177; Parishi, 484; suavissimum, 464; thyrsiflorum, 329, 402; thyrsiflorum Walkerianum, 424; Wardianum, 178, 213; Wardianum Lowii, 219
Dendrobiums, 324; pruning, 424
Dendrometer, Kay's, 60
Dentaria digitata, 219; polyphylla, 140
Deoxidisation of chlorophyll, 32
Derbyshire wild gardening, 341
Desmodium gyrans, 55; penduliflorum, 194
Deutzias, finely-grown, 313
Dianthus Atkinsoni, 22; deltoides, 144
Dianthuses, the best cultivated, 22
Dichopogon strictus, 109
Dichorisandras, 36
Dieffenbachia Jenmani, 31, 206
Dielytra spectabilis, 178
Diosma ericoides, 140
Diosmas, 247
Dionæa muscipula, 24
Discaria longispina, 442
Discords in gardening, 468
Donner Lake, the, 281
Doryanthes excelsa, 334
Double Daffodils seeding, 509
Double Poet's Narcissus, the, 427
Downhill, Coleraine, 33
Dracæna gracilis, 17; Lindeni, 442
Dracænas, 37; the best, 472
Drosera auriculata, 493
Dublin, plants in bloom in, 53
Dunlop House, Ayrshire, Orchids at, 13

E.

Ealing Horticultural Society, 138
Early flowers, 159
Earthenware rings for bulbs, 485
Echeveria agavoides, 268
Echinocactus mammillosus, 466
Edelweiss of New Zealand, 203
Edging plants, dwarf, 238
Effects of the frost, 356
Elæagnus longipes, 378; macrophyllus, 192
Elder, the variegated, 280, 349
Electric light and vegetation, 45
Elliam's Cabbages, 45
Endive Grosse Pancalière, 109
Epacris Diadem and The Premier, 136; onosmæflora, 261
Epacrises, new, 160
Epidendrums, rare, 397
Epilobium Fleischeri, 68
Epimedium pinnatum, 224
Erica codonodes, 318
Erigeron aurantiacus, 486
Erythrina crista-galli, 280
Erythroniums, 220
Eucalypti as water drinkers, 202
Eucalyptus from Tonquin, a new, 304
Eucharidium Breweri, 491
Eucharis amazonica, 22, 175, 226, 437; flowering the, 191; bulbs diseased, 439; candida, 226, 374; candida, double, 14; failure of, 373; grandiflora, 252; Hartwegiana, 253; Sanderiana, 252; subedentata, 252
Eucryphia pinnatifolia, 194
Euonymus fimbriatus, 69
Euphorbia fulgens, 196; jacquiniæflora, 24
Eurybia Gunniana, 357
Evergreen shrubs, 349
Evolution, note on, 326
Exacum macranthum, 442
Exhibition at Holloway, 268; at St. James's Hall, Manchester, 485
Exochorda (Spiræa) grandiflora, 305; 359

F.

Fabiana imbricata, 141
Facts with regard to trees, 426
Fashionable flowers, 440
Favourites, some garden, 296
Fawcett to Flora, 222
Fens, wild flowers in the, 147
Ferneries and their arrangement, 153; unheated, 415
Fern frond insects, 281
Ferns and their culture, 12; hardy for cutting, 341; new Maiden-hair, 414; of Carnarvonshire, 339; propagating and raising, 165; the best cultivated, 18, 61, 107, 276, 363, 498; choice small, 314; filmy, 415; tree, 142; tree at Kew, 311; tree in Australia, 34
Ferns and clubbing, 541
Fertilising Moss, 263, 372
Festuca elatior, 429
Ficus elastica, propagating, 282
Ficus elastica albo-variegata, 443; indica, 446
Figuses, planted out, 10
Fig culture, 215, 460
Fig tree insects, 288
Fig trees on the south coast, 139, 187
Filberts and Cob nuts, 115
Filmy Ferns, 153; for unheated ferneries, 521
Fire Bush, the, 402
Flora of North America, 388
Floral committees' awards, 4
Floral decoration, 455, 495
Floral photographs, 420
Floral time table, a, 500
Florentine Iris, the, 439
Florist's flowers, hardy, 120; new, 122
Flower drawing, 242
Flower fragrance, 73
Flower garden, 321
Flower garden, present day, 428
Flower gatherer, the, 372
Flower glasses, the Munstead, 218
Flower packing, 525
Flower-pots, glazed, 118, 155
Flower-pot reform, 185
Flowering shrubs, 304
Flower shows, popularising, 243
Flowers and Grapes together, 356
Flowers and plants in the house, 277
Flowers, autumn and winter, 250; early, 159; hardy, for cutting, 508; from Alloa, 358; from Cornwall, 402; hardy, in January, 5; hardy in midwinter, 6; best of the year, 12; mummy, 178; old-fashioned, 490; sweet-smelling white, 369; worth improvement, 491
Food and feeding, 360
Food plants injured by insects, 464
Forced plants, after treatment of, 57
Forced Roses, 264
Forsythia suspensa, 280
Fortune's yellow Rose, 422
Fowler's lawn seed, 442
Foxglove, monstrous, 544
Francoa appendiculata, 155
Fraudulent fruit packing, 118
Freesia Leichtlini alba, 318; new hybrid, 61, 136; refracta, 74; refracta alba, 215, 318; refracta as an annual, 168
Freesias, 155
French Beans, 450
Fritillaria kamtschatcensis, 232
Fritillaries, chequered, the, 305
Frogoal, Chislehurst, 79
Frosts, effects of the, 470
Frosts in the United States, 158
Fruit and flower boxes, 266
Fruit and other trees in rubble, 124
Fruit and vegetable show, 463
Fruit buds and temperature, 22
Fruit cracking, 160
Fruit crops, S. Hants, 533; culture in pots, 491; culture in the Carse of Gowrie, 430; farming, 2; in Kent, 360; farm, Lord Sudeley's, 2; importations of, 2; out-of-doors, 175; packing, 513, 525; frauds in packing, 81; preserving, 138; prices of, 100; prospects of, 133, 147, 273, 525; the cheapest food, 366
Fruit tree borders, watering and treating, 80
Fruit trees and the season, 250
Fruit trees in pots, 531; manuring, 275; protection of, 187; regrafting, 231; renewing old, 81; top-dressing, 320; watering, 303
Fruits and flowers together, 487
Fruits and insects, 540
Fruits and vegetables, 454
Fruits, flavour of, 28; scarcity of home-grown, 469
Fuchsia Gustave Doré, 38; syringæflora, 358; fumigator, new patent, 400

G.

Gardeners' Royal Benevolent Institution, 331, 419
Gaillardia hybrida splendens, 256
Galanthus Elwesi major and G. virescens, 371
Garden, an informal, 114
Garden at Signa, a, 404
Garden of the Capuchin Monastery, 426
Gardener, a witty, 186
Gardeners' meeting at Munstead, a, 495
Gardenia Stanleyana, 160
Gardening, illustrated, 185
Gardening, past and present, 337
Gardens at Palermo, 338; in the desert, 185; note on, 403; old Irish, 372
Garrya elliptica, 34; in fruit, 290
Gas as a heating medium, 399
Gas tar dressings, 492, 493
Gas tar on Vines, 28
Gaultheria trichophylla, 271

Gentiana acaulis for edging, 300; verna, 316; Walujewi, 199
Geraniums, scented-leaved, 247; sweet-scented, 247
Germao Irises, 446
Geum, double scarlet, 509; miniatum, 357
Giant Fennels, 455
Gilliflower, what is a? 75, 101, 122, 161
Glacioli, 120; among Roses, 78; and their culture, 208; note on, 162; planting, 382
Gladioli sporting, 526
Gladiolus Colville's Bride, 538
Gladiolus The Bride, 466; tristis, 241; Quartinianus, 114
Glamis Castle in January, 463
Glasnevin, Palm house at, 268
Glass copings v. houses, 511
Glasshouses, shading for, 439
Glass, ornamental, 429
Glaucium tricolor, 63
Globe Artichoke, 258
Gloriosas and their culture, 36
Gloxera jasminiflora, 441
Gloxinias, 443; at Chelsea, 448; in winter, 58
Glazed pots, 57, 116; for Orchids, 13, 42
Godetias, 255
Godwinia gigas, 74
Gossypium herbaceum, 223
Golden Feather, double-flowered, 246
Gooseberries, our, 80
Gorey, flowers from, 96
Gourd Olive, 109
Grape culture, 274; at Argenteuil, 405; notes on, 216
Grape, Gros Colmar, 3; Gros Maroc, 125, 147, 172, 188; Mrs Pince's Black Muscat, 158, 172, 188; Pearson's Golden Queen, 373; trade, the, 445; Trebbiano, 81, 125
Grapes and Figs outdoors, 492; and flowers, 333, 356, 379, 487; and in the Channel Islands, 307; raising and proving new, 365; shrivelling, 66, 82, 125, 147; soil on, effect of, 231; stoneless, 132; thinning, 533; thinning and shouldering, 470
Graveyard gardening, 247
Greenhouse bulbs, 467
Greenhouses, Lilies for, 75
Greenhouses without pots, 30
Grevillea Manglesi, 414
Grubs, note on, 396; of the daddy-long-legs, 233
Gum Cistuses, 380, 419
Gum disease in trees, the, 173
Gumming not contagious, 210
Gymnogramma Schizophylla var. gloriosa, 489
Gymnopsis uniserialis, 293

H.

Habrothamnus Newelli, 74
Habrothamnuses, 526
Hackney Downs, Orchids at, 113
Hakea laurina and other species, 97
Hamamelis arborea, 69, 118; japonica, 111; varieties of, 194; virginica, 79
Hampton Court, at, 244
Haplocarpha Leichtlini, 68
Harefield Grove, Rickmansworth, 395
Haricot Beans grown in France, 301
Haricot Flageolet Merveille de France, 109
Harpalium rigidum, 256
Harpur Crewe, the late, 310
Hawkers, 399
Heatherbank, Weybridge, notes from, 474
Hedera Helix auruntiaca, 178, 199
Hedge, an improved, 435
Hedges for sea coasts, 349
Helichrysum grandiceps, 203
Heliopsis lævis, 236
Heliotropes, 247
Helleb re Apotheker Bogren, 144
Hellebores and Narcissi, 144
Hellebores as cut flowers, 144; crossing, 164; hybrid, 144; identification of, 183; new, 54; new seedling, 119; not seeding, 526; seed of, 464; seedling, 96
Helleborus Commerzienrath Benary, 119; fetidus, 208; niger, 243; niger maximus, 184, 223; olympicus, 169; synopsis of, 183
Helerotoma lobelioides, 69, 118
Hibbertia dentata, 14
Hibiscuses and their culture, 56
Himalayan Heather, the, 161
Holly berries, 4
Holly Golden Queen, 3
Hollyhocks, 317
Holly seedlings, raising, 3
Homeria collina, 446
Honesty, note on, 383
Honeysuckle, the Trumpet, 334
Hoop petticoat Narcissus, 402
Horticultural books, 192
Horticulturists, two classes of, 252
Hose-in-hose Primroses, 380
Hospital gardens, plants for, 495
Hothouses, ventilation for, 252
Hot-water pipes, joints for, 38
House with north aspect, 533
Hovea Celsi, 97
Hoya bella in basket, 463
Huntsman's Cup, the, 395
Hutchinsia stylosa, 298
Hutton Hall, Vine borders at, 250
Hyacinth General Gordon, 263; Harlequin, 263
Hyacinths at the Bristol exhibition, 263; grown in the dark, 222; improved, 266
Hyacinthus candicans sweet-scented, is, 270; Minerva and Harlequin, 263
Hydrangea, a little-known, 75; scandens, 358; Thomas Hogg, 286
Hymenanthera crassifolia, 192

I.

Imantophyllums and their culture, 166
Imantophyllums, fungus on leaves of, 38
Impatiens flaccida albiflora, 454, 494; Sultani, 374
Increase of heat, 259
India, letters from, 95, 142, 200
Indoor plants, 321
Informal garden, an, 114
Inner Temple Gardens, the, 484
Insects, 250, 259, 312; injurious, 407; in soil, 58
Inside and outside borders, best, 319, 320
Inulas, a few of the best, 101
Ipomœa coccinea, 257; pandurata, 68, 168, 208; Thomsoniana, 410
Ipsea speciosa, 94
Iris, a stove, 313; fimbriata, 180; Florentine, the, 286; Kolpakowskyana, 118; pallida, 506; pretty stove, 272; reticulata, 118; reticulata Krelagei, 74, 155; reticulata in pots, 168; varieties of, 139; Spanish, 535; stylosa, 14, 220, 305; susiana, 15, 38, 102, 122, 144, 451; ruthenica, 356
Irises and other spring flowers, 224
Irises, dwarf, the, 317; German, 446
Irish Daffodils, 430
Iron tanks, 58
Isle of Wight, notes from the, 15
Ismene Andreana, 257, 454
Isoloma hirsuta, 356
Isopyrum biternatum, 181
Italy, notes from, 404
Ivies, tree, 70
Ivy, forms of, 141, 200
Ivy, the tree, 112
Ixia crateroides, 456

J.

Jackson, David, of Middleton, 378
Jam making, 2
January flowers, 54, 117
Japanese and Indian mat house, 305
Japanese Bamboos, 317
Japanese Maples, the, 247
Japan Quince, white variety of, 192
Jasmines, shrubby and climbing, 133
Jasminum multiflorum, 39, 100; for hedges, 194
Jeosenian system of Potato culture, 300
Jointing pipes, 148
Judas tree, the, 347
July flowers for cutting, 238

K.

Kalosanthes coccinea, 494
Kalanchoe farinacea, 279
Kale, Read's Hearting, 175; Scotch, 258; variegated, 110
Kauri Pine, the, of New Zealand, 245
Kay's Dendrometer, 66
Kenwood, Albany, 132; Orchid notes from, 397
Kew report for 1882, 351
Kew, the gardens at, 500
Kidney Beans, trial of, 324
King's Signet, the, 468
Kniphofia foliosa, 199, 202
Knockmullen, notes from, 411

L.

Labichea lanceolata, 298
Laburnums, the, 518
Lachenalias, culture of, 414; planted out, 140; select, 150
Lachenalia Nelsoni, 83
Lady's Slippers, hardy, 466; hybrid, 32
Lælia anceps, 534; a. Percivaliana, 113; a. rosea, 14; a., varieties of, 11; a. Veitchi, 113; a. venusta, 114; a. Williamsiana, 136; a new, 52; autumnalis venusta, 396; Callistoglossa, 263; Crawshayana, 11; grandis, 288; purpurata Bysiana, 522; Wolstenholmiæ, 308
Lapageria, training, 251
Lasthenia californica, 470
Lath blinds, 226, 261, 293, 321, 400, 414, 449
Lathyrus latifolius splendens, 256
Lattice leaf plant, the, 214
Laurie Park, Orchids at, 40
Laurustinus hedges, 3
Laurustinus, seeding of the, 3; varieties of, 71, 220
Lavatera arborea variegata, 63, 182, 419, 490
Lawns and their formation, 77; repairing, 143
Lawn mowers, 399
Lawn tennis, 69
Lawn weeds, 270
Laxton's King of the Earlies Strawberry, 514
Leaves of gold, 538
Leiophyllum buxifolium, 293
Lemoula trifoliata, 419
Lenzites gibba var. tenuior, 137
Leonotis Leonurus, 69
Leschenaultia biloba, 534; biloba major, 97, 446, 494
Letters from India, 95, 142, 200
Lettuce, Mortatella, 109; white Cos Burgundy, 109, 200
Lettuces, early, 46, 109; summer, 370
Leucojum carpaticum, 140; pulchellum, 305; vernum, 102, 130, 160, 375; fl.-pl., 144; twin flowered, 224
Leucojums, the, 164
Lichens on Pear trees, 104, 125, 148
Lifeguard Potato, 258
Lilies and the weather, 362; earthing up, 214; note on, 162
Lilium auratum, newly imported, 151; out of doors, 59; elegans guttatum, 380; giganteum, 153; lancifolium rubrum, 69; Melpomene, 82; origin of, 149
Lily shoots, hardiness of, 477
Linaria anticaria, 445; pallida, 538; pilosa var. longicalcarata, 71; triornithophora, 526
Lincolnshire trees, large, 419
Linum grandiflorum, 255; trigynum, 86, 345
Lisianthus Russellianus, 345
Liverpool Winter Garden Association, 242
Loasa hispida, 451
Lobelias from seed, 16; North American, 59, 103
Lomaria, the genus, 18, 61
Lonchitis, the genus, 107
London flowers, 343; gardens, 468
Long service, a, 138
Lonicera Standishi, 70; fragrantissima, 132; sempervirens, 334
Loropetalon chinense, 192
Lotus pelliorhynchus, 71
Love lies-bleeding, 270
Loxford Hall, late vinery border at, 431
Lucuma gratissima, 58
Lycaste costata, 199; Skinneri alba, 54; S. delicatissima, 242
Lychnises, alpine, 514
Lychnis pyrenaica, 486
Lygodium, the genus, 107

M.

Magnolia conspicua, 244; Soulangeana, 290; S. nigra, 276; parviflora, 93; purpurea, 93; stellata, 191, 224
Maiden hair Fern, new, 414
Maidstone, show at, 485
Manchester Whitsuntide show, 484
Manure, liquid, for fruit trees, 28
Maples, red, 286, 419; Japanese, 70
Maréchal Niel Roses, 402, 424
Maréchal Niel house at Bath, 415
Marguerites, 14, 276
Marica cœrulea, 272; gracilis, 214
Maricas, 393
Marigold Meteor, origin of, 120
Marigolds, French, 255
Mariposa Lilies, the, 342
Market fruit garden, 413
Market garden notes, 198
Masdevallia Chelsoni, 266, 420; Estradæ, 242; Harryana, 503; racemosa Crossi, 483; Schlimi, 114, 266
Masdevallias, 184, 522
Massing v. bedding out, 505, 528
Maxillaria Harrisoniæ alba, 398
May-day idyl, a, 371
Meads of Asphodel, 100
Meconopsis Wallichi fusco purpurea, 430
Medinillas, 526
Medlars and Quinces as ornamental trees, 419
Melon Bellegarde Cantaleup, 109
Melons and Cucumbers, 145, 248; early in pots, 26; for preserving, 82; setting, 431
Melville's Snowdrops, 54
Mesembryanthemums, 490
Mesochlæna javanica, 457
Mexican Orange, the, 439
Mexican Bird flower, the, 118
Mice v. Peas and Beans, 258, 302, 349
Microsorium trioides, 457
Midlands, February flowers in the, 139
Mignonette, 247; Garraway's white, 257; new and old, 271; spring, 57; wild perennial, 39
Mimulus Cloth of Gold, 420, 463
Miniature Roses, 474
Modern florists, the, 436
Mohria thurifraga, 458
Moneywort, golden, 535
Monogramma linearis, 459
Montbretia crocosmæflora, 363, 526
Morina Coulteriana, 71
Moss culture, 500; advantages of, 494; Dumesnil's, 318
Mountain Tobacco, 472
Mummy flowers, 178
Munstead flower glasses, 248
Munstead, gardeners' meeting at, 435; March notes from, 230
Murray's composition, 444
Musa rosacea, 461
Muscari concinnum, 266; Heldreichi, 244; moschatum flavum, 189; racemosum, 283
Musch-Musch Apricot, 250
Mushroom beds, 152
Mushroom failure, 47
Mushroom spawn, 10, 21, 46, 222
Mushrooms, 72; in cellars, 198; in sheds, 239
Musk, 247
Mycsotis dissitiflora alba, 383
Myrtles, 247

N.

Narcissi and climate, 270, 325; culture of, 383; double, seedling of, 179, 471; identification of, 183; in the Scilly Isles, 117, 179, 244; Italian, 298; new seedling, 357; nomenclature of, 375, 401; parti-coloured, 317
Narcissus calathinus, 318; cernuus, habitat of, 380; Dickson's Peerless, 305; double minor, 290; double Poet's, the, 427, 510; farming, 51; incomparabilis, fertility of, 489; James Dickson, 309, 428; Queen of the Netherlands, 309; J. B. M. Camm, 309; juncifolius, 305; lecture on the, 283; Queen of England, 309; monophyllus, 14; montanus, 372; pallidus præcox, 96; pallidus præcox, 136, 185; poeticus, 371; poeticus bifloras, 309; princeps, 224, 258; recurvus, 473; the double Poet's, 38), 446
Nasturtiums, 257
National Chrysanthemum Society, 52
Natural bog garden, a, 16
Neapolitan Crocus, the white, 208
Neottia Nidus-avis, 543
Nephrodium, the genus, 458
Nerine Fothergilli, 266
New plants of 1883, 89
Newry, flowers from, 441; notes from, 289
New Zealand Edelweiss, 203
New Zealand Hops, 11
New Zealand, horticulture in, 19; the Kauri Pine of, 245
Nice, notes from, 401
Nidulariums, 291
Nierembergia rivularis, 144
Nomenclature of Daffodils, 363
"North" Gallery at Kew, 368
Norway Spruce, weeping, 229
Notes from a collector's journal, 232; from Capri, 33; from Duneevan, 525; from Heatherbank, Weybridge, 474; from Pilrig Park, 539; from Wilton House, 537
Notholæna Lemmoni, 93
Notospartium Carmichaeliæ, 114
Nottingham Horticultural Society, 116
Nuttallia cerasiformis, 160
Nymphæa candidissima, 527; Nymphæa zanzibarensis, 210

O.

Oaks, variegated, propagating, 70
Odontoglossums at St. Albans, 423
choice, 395; in winter, 11
Oleanders, the, 404, 536
Omphalodes verna, 208
Onion culture, 197

OBITUARY—
Atkins, James, 310
Balfour, John Hutton, 138
Brittain, Thomas, 94
Buccleuch, Duke of, 332
Carr-Ellison, Ralph, 116
Engelmann, Dr. George, 222
Lavallée, M. Alphonse, 385
Manle, A. J., 422
Milner, Edward, 310
Moore, Alexander, 378
Speed, Thomas, 12
Verschaffelt, M. Jean, 378
Odontoglossum adspersum, 54, 94; Alexandræ, 464; Alexandræ mirabile, 523; a new, 264; Pollettianum, 136; Cervantesi decorum, 334; cinnamomeum, 352; crispum aureum, 136; Ballantinei, 423; dellense, 420; fine variety of, 242; finely flowered, 260; guttatum, 369; cordatum, 135; Edwardi, 178, 242; elegans superbissimum, 443; hybrid, 288; Insleayi splendens, 148; macrospilum, 266; nebulosum album, 11; nevadense, 329; Œrstedi, 263; polyxanthum, 443; Roezli, 94, 308, 417; R. splendens, 358; Sanderianum, 156; Shuttleworthi, 309; vexillarium, a white, 464; v. splendens, 352; Wilckeanum, 358; Littleanum, 266
Oncidium anthocrene, 136; cucullatum giganteum, 309; fuscatum, 157; Jonesianum, 136; pumilum, 11; sarcodes, 397
Onions, James' Long Keeping, 108
Onopordon Acanthium, 173
Orange, time of the, 439
Orchards, shelter for, 2
Orchid culture, spread of, 328
Orchid exhibition, Mr. Peacock's, 524
Orchids from Bridge of Allan, 329, 397; from Perth, 52; from Rosefield, Sevenoaks, 423; in glazed pots, 13; at Holloway, 543
Orchid houses, arrangement in, 213; temperature for 481; at Hackney Downs, 112; at Sudbury House, 155; at Kenwood, Albany, 132; at Kew, 135; at Laurie Park 40; at Manchester, pruned, 483; at Silverdale Lodge, 40; at St. Albans, 297; at Royal Exotic Nursery, Chelsea, 521; at Waltham Hall, Lincolnshire, 135; composts for, 186, 251; hardy, 424; in the United States, 206; in vineries, 117; miniature, 465; new, 89; prices of, 157; pruning, 200, 213, 268, 288, 317, 329, 339, 398; rare in flower, 11; sales of, 52, 351, 464; sale of flowering, 114, 202, 329, 368; Sir W. Marriott's, 242; spot in, 262; stimulants for, 506; temperatures for, 40
Orchis Robertiana, 95; Spider, the, 312; undulatifolia, 454
Orchises, hardy, 446
Orobus canescens, 486
Orvilandra fenestralis, 214, 393
Oxalis articulata, 298
Oxyura chrysanthemoides, 470
Oyster shells, pounded, 226

P.

Packing flowers and fruit, 488; fruit, 513
Paconies, Tree, 451
Peony, the old yellow, 117
Palermo gardens, 338
Palm house at Glasnevin, 208
Palms for indoor decorations, 437; from seed, 168; stove, at Kew, 225; white scale on, 226
Panax Victoriæ, 480
Pandanus odoratissimus, 312; other species of, 134
Panicum variegatum, 456
Pansies all the year round, 382
Pansies and Fuchsias, 120; and Violas, 267, 490, 531; French, 402; seedling, 445, 484, 486
Pansy Cliveden Yellow, 258
Papaver umbrosum fl.-pl., 68
Paraffin casks for covering Scakale, 324
Parcels post and flowers, 158
Paris, show at, 462
Parks railway, the, 251
Parochetus communis, 538
Parottia persica, 136
Parrot Tulips, 339
Passiflora alata, 401; Constance Elliott, 463; rubra, 71
Patersonia longiscapa, 441
Pavias, two handsome, 486
Pavonia Makoyana, 74
Peach bloom, setting, 186
Peach culture, secret of, 176; culture under glass, 123
Peach Golden Eagle, 366
Peach houses, fermenting material in, 81, 82
Peach buds dropping, 104
Peaches as a market crop, 147; colouring and flavouring, 514; on open walls, 81; setting by syringing, 400; setting in dull weather, 125; sun for early, 366
Peacock Iris, the, 416
Pea, dwarf Capucin, 109; Earliest of All, 21; Laxton's Marvel, 109
Pea show, a, 302
Pear Beurré Rance, 49; culture of the, in Jersey, 387; Olivier de Serres, 27
Pears, Chaumontel, 260; for stewing, 202; on the Quince, 66; ripening prematurely, 65; scale on, 125
Peas and vermin, 71; early, 21; garden, 135; tall v. dwarf, 45; v. mice, 349
Pelargonium Belle Nancienne, 420; grandiflorum, 494; Harvester, 443; Isidor Feral, 463; Ivy-leaved, 533; Rev. W. Atkinson, 10; Wonderful, 241
Pelargonium seedlings, 402, 491; new, 89; propagating, 205; raising, 534; winter, 20, 449
Pentas carnea, 456
Pentstemon labrosus, 69, 114; Murrayanus, 269
Pentstemons and their culture, 59; seedling, 271
Pepper tree, the, 418
Perfume and colour indoors, 185
Pernettya mucronata, 305
Pescatorea Lehmanni, 329
Petunias, striking, 38
Phaclia campanularia, 71, 509
Phædranassa Lehmanni, 71
Phaius irroratus purpureus, 369; interculosus, 178; tuberculosus, 228
Phalænopsids at Egham, 114
Phalænopsis amabilis Dayana, 11; finely-flowered, 262; grandiflora, 522; Sanderiana, 397; Stuartiana, 157; sumatrana purpurea, 420
Philodendrons, the best, 30
Phlox amœna, 418, 439; divaricata, 356; Drummondi, 171; setacea Vivid, 420
Phloxes, 256
Phyllocacti, 442; the best, 406
Phylloxera in Victoria, 32
Physianthus albens, 531
Picea ajanensis, 199
Pick for plant collecting, 174
Picotees and Carnations, new, 163
Pictures of plants, 560
Pieris japonica, 70, 153
Pine-apple, notes on the, 171; abroad, 72; St. Michael's, 251
Pine Barren Beauty, 226
Pine culture, 406; does it pay, 248, 307, 324, 366
Pinguicula caudata, 184, 356; hirtifolia, 118, 291; lutea, 220
Pink Mr. Sinkins, 510, 520; white, 408
Pinus Ayacahuite, 193
Pipes, hot-water joints for, 137, 148, 192
Piptanthus nepalensis, 356
Pitchery-bidgery, 116
Plagues of the rockery, 163, 208
Plant arrangement, 560
Plant-collecting tool, 174
Plant culture in Moss, 443
Plant food in solution, 500
Plant houses, shading for, 350
Plant pictures, 500
Plant portraits, 71, 114, 199, 279, 440, 454, 489
Planting Gladioli, 337
Planting and training, 248
Planting out v. pot culture, 98, 292
Plants at Manchester, hardy, 509; certificating old, 465; choice hardy, 490; cultivated, 506; desirable for baskets, 225; for frame culture, 442; for moist walls, 53; for the dinner table, 116; for town gardens, 336; for winter beds, 206; hardy under glass, 87; in rooms, 515; new, of 1883, 89; rare bulbous, 280; strong v. weak growing, 184; table, 539; to avoid on rockwork, 239
Platanus asplenifolia, 93; liriodendrifolia, 93; quinquelobata, 93
Platystemon californicus, 470
Pleasure grounds at Kew, the, 444
Plectranthus fœtidus, 312
Pleione humilis tricolor, 185
Pleopeltis irregularis, 457
Pleroma elegans, 97
Plumbago capensis, 260
Plum, the double for forcing, 140; the Wyedale, 218
Plums as dwarf bushes, 231
Poinsettia pulcherrima, varieties of, 58, 313; ditto and Crotons, 32
Polyanthuses and Primroses, 370; as cut flowers, 341; hybrid, 312; Scotch, 445
Ponthieva maculata, 261, 262
Poppies, Iceland, 538
Poppies, oriental, 466
Popularising flower shows, 243
Portulacas, 255
Potato, Adirondack, 109; a new, 72; as a field crop, 540
Potato culture, Jenscnian plan of, 137, 300
Potato fungus, the, 31
Potato disease, prevention of the, 191, 222
Potato, Inaho, 109; Lifeguard, 175, 258; new species of, 403; Scotch Champion, 47, 72; ditto and Magnums, 175; the best, 21; the source of the, 100
Potatoes, Adirondack and Triumph, 46; early, 10, 46; ditto and their culture, 108; forcing, 72; frosted and cold water, 370; in Jersey, 239; new, 72; new species of, 137; sclerotia in, 31; two large, 209
Potentilla fruticosa, 111; pots, glazed, for Orchids, 42; pots or no pots, 489
Present day flower gardens, 428
Primrose, a lilac Hose-in-Hose, 208; Harbinger, 175, 180; James Douglas, 241; League, the, 117; or Polyanthus, 290, 536; Princess of Wales, 221; Scott Wilson, 118; the Japan, 491; white, 334
Primroses, 264, 234; and Hepaticas, 160; and Polyanthuses, 271, 358, 363; ditto, double, 423; double crimson, 312; hardy, under glass, 238; hardy v. Chinese, 251; Madonna and Ambrose Balfe, 357; new, 312; notes on, 333; raising from seed, 121
Primula Croussi plena, 219; denticulata, 257; floribunda 96; japonica, 491; obconica, 219; Parryi, 68; prolifera, 71, 73, 189; rosea, 247; r. grandiflora, 363; Sicholdi and its varieties, 166, 250; sikkimensis, 471, 510; sinensis Emperor, 126; double Chinese, 154; improved Chinese, 281; seedling, 142
Prior wood, Melrose, 228
Profits of Strawberry culture, 159
Prometea citrina, 242
Protecting plants too much, 53
Protection or no protection, 467, 489, 492, 512
Provence Reed, the, 103
Pruned Orchids, 262, 417, 483
Pruning Calanthes, 251; Dendrobiums, 424
Pruning or no pruning, 394
Pruning Roses, 176 204
Pruning fruit trees, where to cut off limbs, 470; young Vines, 387
Prunus sinensis, 298; tomentosa, 244, 301; triloba, 305
Ptychosperma singaporensis, 38
Public parks, 138
Puya cærulea, 311
Pyrenean Adonis, the, 357
Pyrethrums and Paonies, 484
Pyrus japonica, 372; Maulei, 410; spectabilis, 200
Pyxidanthera barbulata, 226

R.

Rainfall in 1883, 158
Raising Gladioli from seed, 427
Ramondia, white Pyrenean, 490
Ranunculuses, 486, 530; planting, 122; sporting, 453
Raphiolepis ovata, 486
Raspberry, Carter's Prolific, 3
Raspberry shoots, thinning, 524
Raspberries, yellow and white, 3
Red spider, 188
Regent's Park exhibitions, 5
Reidia glaucescens and Grevillea robusta, 456
Reineckia carnea, 117
Reseda lutea, 39
Rest for plants, 191
Retinospora filifera, 193; lycopodioides, 193
Rheum nobile in Aberdeenshire, 401
Rhodanthe Manglesi, 260
Rhododendron argenteum, 74, 96; ditto and grande, 219; ditto and macrophyllum, 177; Aucklandi, 333; barbatum, 193; calophyllum, 402, 506; Championæ, 466; Countess of Haddington, 312; Curtisi luteolum, 118; exoniense, 401; Falconeri, 140; Forsterianum, 312; fulgens, 223; grande, 264; Hookeri, 201; hybrid, 334; Nobleanum, 93; parvifolrum, 193; pendulum, 312; poisoning by, 12, 14; Princess Beatrice, 221; seedling, 456; virgatum, 312
Rhododendrons at Kew, 486; at Regent's Park, 524; early-flowering, 219; in different soils, 453, 474, 500, 505; new, 89; notes on, 201; tropical, 325
Rhodotypos kerrioides, 194
Rhubarb, early, 302
Rhynchospermum, propagating the, 276
Ribes Gordonianum, 290; speciosum, 140
Riviera, notes from the, 53, 73, 95, 159, 179
Rock and wall plants, 263
Rockery, plagues of the, 163
Rockets, double, 525
Rogiera cordata, 180
Room plants 418
Root cuttings, 538
Roots, peculiarities of, 267
Rosa Brunoniana, 506; polyantha, 18; rugosa, 424, 526; ditto as a lawn shrub, 498
Rosarian's year book, the, 40
Rose, Anna Marie de Montravel, 263; Baroness Rothschild, 398; Céline Forestier, 398; Climbing Devoniensis, 272; Countess of Pembroke, 398; Etendard de Jeanne d'Arc, 352; 443; Fortune's yellow, 398, 457, 499; Gloire de Dijon, 62, 92, 422, 457; Grace Darling, 221; Harrison's yellow, 326; Homère, 148, 177; Lady Mary Fitzwilliam, 272, 402; La France, 289; Madame Oswald de Kerchove, 18; Maréchal Niel, 399, 466; Queen of Bedders, 6; Seline, 334, 398; Souvenir de la Malmaison, 40; Banksian, 398
Roses all the year round, 272; and Gladioli in April, 398; and the weather, 62; in April, 290, 311; a puzzling time for, 33; at Manchester, 497; climbing, 535; climbers and annuals, 455; disbudding, 177; in different soils, 457; in March, 271; in May, 473; large, 272; monthly, 457; new year's, 14; on their own roots, 40; propagating, 203; pruning, 176, 203; selection of, 148; Tea, 223; the time of, 538; too many Hybrid Perpetuals, 204; transplanting, 17; yellow, 204
Royal Gardens, Kew, the, 500
Royal Horticultural Society, 116, 419, 541; committee meetings of ditto, 32
Royal parks and pleasure gardens, 72
Rubus nutkanus, 486; odoratus, 111
Rudgea macrophylla, 286
Runner Beans in succession, 451
Rush Lily, the, 100
Russia, gardening in, 302
Rust on Grapes, 432

S.

Saccolabium curvifolium superbum, 420; giganteum, 154
Sagittaria montevidensis, 326, 440
Salting walks, 95
Salvia boliviana, 96; elegans, 96; Greggi, 60, 313, 384
Salvias, 536
Sands, fixing blowing, 50
Saponaria ocymoides, 526
Sarana Lily, the, 232
Sarcochilus Hartmanni, 262
Sarcococca Hookeriana, 349
Saxifraga Burseriana, 136; Fortunei, 55; longifolia, 509
Saxifrages, 6
Scabious, dwarf, 77
Scale on Peach trees, 81, 82
Scarecrow, an explosive, 384
Scarlet Mitre flower, 402
Schinus Molle, 418
Schismateglottis pulchra, 489
Schizanthus Grahami, 466; papilionaceus, 226;
Schizostylis coccinea, 188, 220, 237
Schlumbergera Liodeni, 279
Science and non-science, 72
Scilla sibirica, 7; verna, 402
Scillas, early, 140
Scilly Isles, Narcissi in the, 179, 244
Sclerotia in Potatoes, 31
Scolopendrium vulgare crispum, 215
Scotch Kale, 258
Scotch Polyanthuses, 445
Scrapers, kitchen garden, 349
Screw Pines, the, 134, 201
Seakale, propagating, 43
Seedling Amaryllises, 261
Seedling Pansies, 415
Seed saving, 417
Seeds, treatment of, 214
Selaginellas, note on, 459
Senecio abrotanifolius, 486; pulcher, Serapias cordigera, 454
Sermons in stones, 506
Setting and thinning Grapes, 386; ditto Peaches by the syringe, 386
Shading, 265, 459
Shakespeare, the country of, 469
Shelton Abbey, 520
Shirley Vicarage, notes from, 383
Shrubs, berry-bearing, 131; evergreen, 349; flowering, 349, 359; flowering, notes on, 327; for pot or boxes in windows, 327; golden-leaved, 359; notes on, 111; sweet-scented, 132; pruning, 111
Siberian Crab, the, 318
Sigma, a garden at, 404
Silene pendula compacta fl.-pl., 68
Silver Birch, the, 70
Silverdale Lodge, Sydenham, Orchids at, 40
Single Daffodils doubling, 427
Singleton, Calanthes at, 13
Single v. double flowers 326
Sirop, 94

Sisyrinchium grandiflorum, 54, 100, 102
Sium latifolium, 237
Slugs and alpines, 206
Slugs, destroying, 326
Snowdrop, green-petalled, the, 272; with white spathes, 219
Snowdrops, early, 74; forcing, 37, 86; two good, 161
Snowflake, the Spring, 102, 305, 335; varieties of the, 160
Snow Glory, the, 247
SOCIETIES—
National Dahlia, 330
Auricula and Carnation, 138
Caledonian Horticultural Society, 329
Cottage garden, 293
Crystal Palace spring show, 308
National Auricula, 353
Royal Botanic, 266, 353, 443, 523
Royal Horticultural, 31, 136, 221, 263, 309, 330, 352, 377, 420, 463, 484; annual general meeting, 137
Royal Horticultural Society of Ireland, 331
Sale Botanic, 330
Solanum betaceum hæmatocarpum, 317; crispum, 439; Maglia, 440
Solanums, tuber-bearing, 400
Soldanella alpina, 160; minima alba, 146
Sollya linearis, 486
Solomon's Seal, 439
Sophronitis grandiflora, 14, 178
South American forests, 404
South coast, Figs on the, 139
Spanish Broom, the, 441
Sparmannia africana, 72
Sparrows and green fly, 404
Spawn, Mushroom, 46
Specimen plants, 191
Spinach, culture of, 287
Spiræa, a new, 328; confusa, 34; confusa and Thunbergi, 112; Thunbergi, 224
Spot in Orchids, 261
Spring bedding, 257
Spring flowers at The Holme, Godalming, 201
Spring flowers, hardy, 76
Spring gardening at Belvoir, 335; possibilities of, 191
Spring notes, early, 121
Squills, blue, 185
St. Brigid's Christmas Rose, 15
Stagea, moist and dry, 166
St. Albans Orchid Nurseries, 227
Stanhopeas, hardy, 137
Stanhopea tigrina grandiflora, 279
Staking Calceolarias, 472
Statice Suwarowi, 68
Stenomesson incarnatum, 454
Stenorhynchus speciosum, 113, 404
Stephanotis floribunda, 313, 374; large, 486; and Gardenias, 344
Stendneria colocasiæfolia, 118, 489
Stigmaphyllum ciliatum, 442
St. Michael Oranges, 404
Stock, influence of, on graft, 62
Stock, night-scented, 184
Stocks, 442, 486; and Rockets, 506; culture of, 471; East Lothian, 506
Stoke Newington Chrysanthemum Society, 158
Stony land, utilising, 410
St. Petersburg, flower show at, 105
Strawberry beds, dressing, 126
Strawberry Crinoline, 28
Strawberry crop, value of a, 186
Strawberry, culture of, for profit, 159, 217; notes on, 273; forcing the, 22; General Chanzy, 250; King of the Earlies, 514
Strawberries, digging among, 81, 103; Strawberries, forced, 275; Hazel supports for, 514; in the Channel Islands, 146; market, 232; plants forced, 514
Streams, double fringed, 142
Street flowers, 86
Strelitzia reginæ, 14
Strelitzias, culture of, 168
Streptocarpus cauleacens, 287
Streptosolen Jamesoni, 160
Strobilanthus isophylla, 14
Strophanthus Bullenianus, 286
Sub-tropical bedding, 60
Sudbury House, Orchids at, 481
Sugar Beet, white-fleshed black, 109
Summer-flowering plants, select, 162
Sunflowers, annual, 184; in shade, 308; perennial, 510
Sutherlandia spectabilis, 441
Sweet Pea Invincible Carmine, 503; Princess Beatrice, 68
Sweet Peas, 270; in a cut state, 230
Sweet-scented plants, a few useful, 247
Syringa vulgaris fl.-pl. Lemoinei, 352
Syringe v. camel's-hair brush, 366

T.

Tabernæmontanas at Lythe Hill, 386
Tamarisk used in Paris gardens, the, 442
Tanks of iron, 58
Tar dressings, 442, 472
Taymouth gardens in December, 161
Tea gardens and Tea planters, 142
Tea Roses, 223, 334, 473
Tecophilæa cyanocrocus, 244
Tenby Daffodil, 160, 256
Tennis lawns, 60
The Hall, Stamford Hill, 42
The Holme, Godalming, spring flowers at, 201
Theophrasta imperialis, 9
Theory v. practice, 373
Thinning and shouldering Grapes, 432
Thinning flowers and fruit, 432
Thistle, a new scarlet, 402
Thorn, perpetual-flowering, 246
Thunbergia Harrisi, 58, 244
Thyrsacanthus rutilans, 244
Tigridia Pavonia alba, 6
Tigridias, wintering, 77
Tilia petiolaris, 114
Tillandsias and their culture, 29
Tillandsia streptophylla, 440
Tinnea æthiopica dentata, 199
Tobacco juice, 144
Tobacco plant, the white, 494
Todeas and Trichomanes, 345
Todeas, culture of, 99
Tomato, Hackwood Park, 135
Tomatoes and their culture, 110; in pits and frames, 300; in pots, 91; in the open air, 349, 400; note on, 456; under glass and out doors, 287
Torenia Fournieri, 298
Torenias and their uses, 98
Town flowers, 334
Toxicophlæa spectabilis, 96, 220
Training and planting, 248
Transplanting, best season for, 245, 246
Transplanting large trees, simple method of, 152
Transplanting shrubs, on, 203
Trees, ages at which to transplant, 245; berry-bearing, 131; climbers on, 425; love of, 440; on the North Pacific Railway, 280; our ornamental, 399; select flowering, 229; wall climber, under, 61
Tree Ferns in Australia, 34
Tree Mallow, variegated, 182
Tree or perpetual Carnations, 429
Trichinium Manglesi, 99
Trichocaulon piliferum, 489
Trichocentrum porphyrio, 114
Trientalis europæa, 490
Triteleia uniflora, 6
Tritoma corallina, 69, grandis, 257; Saundersi, 69; Uvaria nobilis, 69
Tritonia aurea, 279
Tropæolum Gærtnerianum, 454; speciosum, 324
Tropical vegetation, 89
Tsuga canadensis globularis erecta, 93
Tuberoses for forcing, 196
Tuberous roots, planting, 324
Tulip, Kaiser Kroon, 257
Tulip show, 336
Tulipa Alberti, 489; Elwesi, 454; Greigi, 441; Kesselringi, 440; Ostrowskiana and T. triphylla, 279
Tulips at Clifton, 310; early, 52; late flowering, 402
Turf, charring, 38
Turnip culture, notes on, 440
Tydæas in winter, 36

U.

Urn flower, the, 282
Uro-Skinnera spectabilis, 74

V.

Valerian, varieties of, 486
Vanda cristata, 424; insignis Schroederiana, 108; coerulescens, 372; tricolor, 114; Sanderiana, 104, 288; suavis, 503
Vaporised tobacco juice v. fumigation, 372, 425
Vegetables, cooking, 474; cropping, 175; for May sowing, 409; new, 169; neglected, 12; notes on forcing, 19; preserving, 110; worth growing, 19, 47; some good, 91; young, planting out, 459
Vegetation and the electric light, 45
Veitch Memorial prizes, 11
Veitch's Virginian Creeper, 76
Ventilation for hothouses, 252
Verbascum ferrugineum, 290
Verbena, sweet-scented, 255
Verbenas from seed, 164
Veronica Girdwoodiana, 506; Hulkeana, 439
Veronicas, New Zealand, 53
Viburnum Opulus, 112; Tinus hirtum, 220; Tinus pyramidalis, 220
Vienna, notes from, 360
Villa gardens, 445
Vine borders, 29; at Hutton Hall, 250; at Wynyard Park, 218; covering, 251; inside v. outside, 1, 48, 65, 80, 103, 124, 275, 366; watering, 125, 188, 532; without soil, 40, 218
Vine canes, fruiting, 28, 65
Vine culture, 187; incidents in, 431, 472
Vine leaves, 354, 387
Vine roots, 387, 405; going outside, 146, 250, 308; testimony respecting, 373
Vine weevils, 288
Vines, 536; at Lambton, 532; bleeding in, 192, 250, 268, 387; diseased, 66, 320; earliness of, 406, 460; fertility of extension-trained, 373; gas tar on, 28; large, 492, 493; mildew on, 319; planting, 28, 385; pot, 3, 29; pruning young, trained horizontally, 147
Vielas and Pansies, 257, 490, 531
Violet, Comte Brazzi's white, 15, 34; culture of, 144; Marie Louise, 6, 316
Violets, 342; culture of, 316; note on, 120; out-of doors, 75
Virginian Cowslip, 290
Vriesia Duvaliana, 282; hieroglyphica, 279

W.

Walks, salting, 95, 144
Wallflower Bedfont Yellow, 233; Harbinger, 184
Wallflowers, alpine, 472; double, 247, 358
Wall fruit trees, 319
Wall garden, a, 318, 468, 505
Wall trees, nailing, 60; spur pruned, 512
Walmer Castle, the garden at, 239
Water Parsnip, the, 237
Water Lilies, 487
Watsonia aletroides, 483
Weeds on gravel walks, 144; on lawns, 122, 123, 164
Weeping Norway Spruce, 229
Weigela rosea, 112
Wexford, flowers from, 244
White Cup and Maiden Pink, 144
White Tiger flower, the, 6
Wicklow garden, a, 202
Wild gardening in Derbyshire, 311
Windflowers, 527
Window boxes, 174
Window garden, a new year's, 38
Window plants and glazed pots, 174
Winter borders, plants for, 206
Wistaria sinensis, 441
"With Daffodils bedight," 372
Woolly aphis on Auriculas, 144
Worms, 400
Wych Hazel, Japanese forms of the, 228
Wyedale Plum, the, 218
Wynyard Park, Vine borders at, 218
Wythenshawe, Cheshire, notes from, 410

X.

Xanthocephalum (Gutierrezia) gymnospermoides, 451
Xiphion Histrio, 15

Y.

York Nurseries, the, 246

Z.

Zanzibar Water Lily, the, 210
Zephyranthes Treatiæ, 212
Zinc and water, 268
Zygopetalum Mackayi, 11

ENGRAVINGS.

Acer palmatum 70
Acineta Humboldti 482
Adiantum cuneatum deflexum .. 415
Adiantum rhodophyllum 415
Adonis pyrenaica 471
Æthionema grandiflorum 39
Agathæa cœlestia 437
Alphonse Lavallée 385
Amaryllis house at Chelsea, the .. 240
Anemone decapetala 527
Anemonopsis macrophylla 383
Ant, common garden 204
Apple-drying apparatus 134
Arrhenatherum avenaceum .. 429

Bambusa Metake and Mazeli .. 317
Banyan, or Sacred Tree of India .. 447
Barberry blight, the 50
Benthamia fragifera at Fota Island, Cork 245
Bridges for garden paths 323
Bromeliads at home 374
Bromus inermis 429
Bryngwyn, conservatory at .. 215
Bushey Park, lake and fountain in 467

Cabbage, White Heart 109
Calanthe discolor 339
Calamus Lindeni 393
Calla, double spathed 19
Campanula rapunculoides 207
Carrot Guerande 109
Cattleya Skinneri, a monster .. 507
Cercis canadensis 347
Cercis Siliquastrum 347
Chateworth, from the Park 539
Chrysanthemum frutescens 181
Conservatory at Bryngwyn, Hereford 215
Coreopsis lanceolata 165
Cotton, or Scotch Thistle 173
Cotton plant 227
Crimea, Palace of Livada 303
Crocus Boryi 371
Crocus Imperati albus 209
Cypripedium Godefroye 393

Daffodil flowers, half-expanded .. 273
Daffodil flower, section of 284
Daffodil flower, showing the different parts 283
Daffodil, the great 269
Dendrometer, Kay's (5 illustrations) 67
Dianthus deltoides 145
Donner Lake, California 281

Eremurus himalaicus 446
Erica carnea 140
Erica codonodes 180
Erica propendens 373
Erigeron glabellum 123
Erigeron roseum 5
Erigerons, showy 123
Erysimum Peroffskianum 122
Eucharidium Breweri 491
Eucharis (Calliphruria) Hartwegiana 257
Eucharis (Calliphruria) subedentata 253
Eucharis candida 260

Ferns, group of exotic 153
Ferns, Tree, in Australia 35
Festuca elatior 428
Ficus indica at Bridgnorth 417
Flower glasses, the Munstead .. 249
Frognal, Chislehurst 79
Fumigator, new patent 400

Galanthus Elwesi major 371
Galanthus Melvillei and Elwesi .. 161
Galanthus virescens 371
Gamolepis Tagetes 407
Glamis Castle 403
Gossypium herbaceum 227
Gourd, Olive 109

Hakea laurina 97
Hedera canariensis 141
Hedera digitata 141
Hedera hastata 141
Hedera lucida 141
Hedera pedata 141
Hedera Rægneriana 141
Hellanthus orgyalis 511
Helichrysum grandiceps 203
Helicodiceros (Arum) crinitus .. 87
Heliopsis lævis 237
Helleborus Commerzienrath Benary 119

Indian mat houses 307
Inula glandulosa 101
Ipomœa Thomsoniana 440

Judas tree, the 347

Kale, curled green dwarf 109
Kay's dendrometer (5 illustrations) 67

Laburnum alpinum 519
Laburnum, the Scotch 519
Laburnum vulgare 518
Laburnum vulgare pendulum .. 522
Laburnum vulgare quercifolium .. 520
Lake, the Donner 231
Lasius flavus 294
Lasius niger 294
Lavallée, Alphonse 385
Leucojum vernum 335
Lilium speciosum 83
Livada, palace of 393
Livistona Hoogendorpi 392
Loasa hispida 451
Lobelia cardinalis and L. splendens 59

Madagascar vegetation 99
Maidea Pink, the 145
Marica cœrulea 313
Mat houses, the 307
Melon Bellegarde 109
Montbretia crocosmæflora 363
Munstead flower glasses, diagrams of 249
Myrmica rubra 295

Narcissus flower, section of 284
Narcissus maximus 269
Narcissus minimus 272
Narcissus minor 272
Narcissus nanus 272
Narcissus Pseudo-narcissus pallidus præcox 185
Nephrolepis davallioides furcans .. 499
Nephrolepis Duffi 502
New Zealand Edelweiss 203
Nierembergia rivularis 145

Orobanche ruhra 381
Onopordon acanthium 173

Palace of Livada, Crimea 303
Palm house at Kew, view in .. 225
Pandanus utilis at home 134
Pear Olivier de Serres 27
Pepper tree, the 418
Philodendrons at home 30
Pick for plant collecting 174
Pinguicula hirtiflora 291
Pinus Ayacahuite, young tree, cones, and leaves of 193

Red Broom Rape 381
Rhododendron ericæfolium 325

Sarcococca Hookeriana 359
Saxifraga Fortunei 55
Schinus Molle 418
Scraper for kitchen garden 349
Screw Pine, the, at home 134
Sedum kamtschaticum 531
Selaginella viridangula 459
Sicyos angulatus 361
Sium latifolium 237
Snowflake, the Spring 335
Spiræa astilboides 328
Stenorhynchus speciosum 491
Stewart Larch, the, at Bonskeid .. 50

Tomtits at work 176
Tree Ferns in Victoria, Australia .. 35

Vanda Sanderiana, plant of .. 104
Vines on trees in North Italy .. 425
Violet, Comte Brazzi's white .. 15

Washingtonia filifera 393
Water Lilies, colony of 487
Weeping Norway Spruce 229
White Cup, the 145

Xanthocephalum gymnospermoides 451

Yellow ant, the 294

COLOURED PLATES.

ÆTHIONEMA PULCHELLUM 320
ANEMONE VERNALIS 320
BESSERA ELEGANS 42
CALOCHORTI, GROUP OF 342
CARNATIONS, CLOVE 62
CARNATIONS, NEW TREE 388
CHRYSANTHEMUMS, THREE NEW 298
CLEMATIS JACKMANNI ALBA 126
CYMBIDIUM MASTERSI 432
DIANTHUS ATKINSONI 22
EUCHARIS SANDERIANA 252
FRITILLARIA KAMTSCHATCENSIS 232
ISMENE ANDREANA 454
LELIA ANCEPS, VARIETIES OF 534
LELIA AUTUMNALIS VENUSTA 366
LILIUM SPECIOSUM MELPOMENE 82
LYCASTE SKINNERI ALBA 410
LYCHNIS LAGASCÆ 514
MAGNOLIA SOULANGEANA NIGRA 276
NYMPHÆA ZANZIBARENSIS 210
ODONTOGLOSSUM INSLEAYI SPLENDENS 148
POTENTILLA NITIDA 514
SCHIZOSTYLIS COCCINEA 188
SEMPERVIVUM ARACHNOIDEUM 232
SOPHRONITIS GRANDIFLORA ROSEA 471
STENORHYNCHUS SPECIOSUM 491
TIGRIDIA PAVONIA ALBA 6
VANDA SANDERIANA 104
VANDA INSIGNIS SCHROEDERIANA 168

CHARLES TURNER.

The king of the florists has been on his throne for a longer period than the Queen of England. He began to reign when, some half century ago, he received, as a boy of fourteen, his first prize for Pinks. The flower which was his first love was then

The pink of fashion
And the mould of form,

and that first prize was *a crown*. Ever since, victorious as Victoria, he has maintained his royal supremacy. Jealous rivals, many and potent, have sought to depose him, and have gained now and then some small advantage when King Charles has been constrained to divide his armies, or when they have been exhausted by a long series of success; but whenever he has concentrated his forces, and brought them fresh into the tented field, his adversaries have sighed as they beheld the approach of his *van*—"see the conquering hero comes." No living man has won so many prizes for Pinks, Picotees, Carnations, Auriculas, Cinerarias, Pelargoniums (fancy and show), Dahlias (ditto, ditto), Azaleas, Roses in pots (fertile as is the soil of Slough, there are gardens in Herts, Herefordshire, and Essex more favourable to the Rose *al fresco*), and had all the "cups" which he has won been goblets, he might drink from a different chalice every day of his life. As to medals, I have been informed that there is a person at Cambridge who calls himself Senior Medalist; can the University authorities be ignorant of the fact that this title belonged to Charles Turner exclusively before their demented graduate was born?

I remember in my floricultural infancy, when "I began," as they say of babies, "to take notice" (I was a baby of twenty-four summers, and weighed fifteen stone), that our old Yorkshire gardener was wont to talk to me about "Mestur Turner," speaking of him with bated breath, as a recruit might have spoken of His Grace the Duke of Wellington, or a village cricketer of Fuller Pilch. "He had seen him," he said, "with his own eyes (I assured him that the suspicion never occurred to me that he had seen him with anybody else's), seen him take a poor, mean-looking bit of a Carnation, just turn his back to the company for a couple of minutes, and then face round again with a prize bloom in his hand!" I asked him, on one occasion, how long he thought it would take Mr. Turner to turn a Daisy into a Dipladenia, but he only regarded me with a reproachful silence, and seemed to think my levity profane. I sympathised, nevertheless, with his admiration, and was delighted to make the acquaintance of his hero, first through the pages of the "Florist," which was edited jointly by Charles Turner and John Spencer, and to which I became a contributor some thirty years ago, and then personally at the shows and elsewhere. Our first important meeting was when, with that "grand old gardener," Mr. Rivers, of Sawbridgeworth (his handsome presence suggested an archbishop, a field marshal, or a speaker of the House of Commons; but could he have done more good in any of these positions than he did in his own by teaching his fellow-men to love the beautiful, and by showing them how to increase it?), Mr. William Paul, of Cheshunt, Mr. Francis, of Hertford, Mr. John Edwards (retained by Mr. Turner, and the best organiser, director, and supervisor of a flower show in all England), we originated the first National Rose Show. No one worked harder for its success, lovingly, and as in duty bound, than the king of the florists for the queen of flowers.

Referring to my friend as an exhibitor, I do not hesitate to say that no man knows how to grow and show, develop, train, and stage, with such a knowledge of habit and treatment, and with such consummate taste of arrangement. On one occasion the success of his culture became an embarrassment and perplexity, and made him an example of the "vaulting ambition which o'erleaps itself," for it was discovered on the eve of a great London show that one of his Azaleas had attained such dimensions that it could not be brought out of the house in which it grew until a doorpost was removed. (This incident reminded me of a wheelwright in my own neighbourhood, who constructed a charming light cart in a spare room over his shop, not discovering until it was finished that there was not the slightest possibility of the vehicle being brought downstairs or through the window. It finally emerged from a huge opening in the wall, amid the derisive cheers of the spectators.) This Azalea gigantea must almost have disturbed the calm equanimity which I have so often admired in the grower. I have seen him set down a box of matchless gems, cut flowers, or giving a final look at a magnificent group of plants without a sign of those intense feelings of delight which must have been surging and dancing under his waistcoat, surveying his achievements with a matter-of-course sort of look, which contrasted amusingly with the lineaments of other exhibitors in the same class, to whom he might have sung (and very few amateurs can sing so well), "Thou art so near, and yet so far"—so very near in person, but so very far off in plants. With the same felicitous tranquillity I remember him, when, after a great public dinner of florists, a dear old clerical friend thought to astonish us at dessert with some Strawberries which he had brought from Dorsetshire, badly packed in a hamper, and showing manifest signs of attrition. I remember him quietly placing at the other end of the table a large dish of Doctor Hogg, then a new variety which C. T. was "sending out," every berry of uniform size, and colour, and freshness, a pyramid of beauty, and how my ecclesiastical brother, as soon as he saw them, hastily collected his respectable, but contused, specimens, and chucked them, cabbage leaves, hamper, and all, with a good-natured grunt into a distant corner.

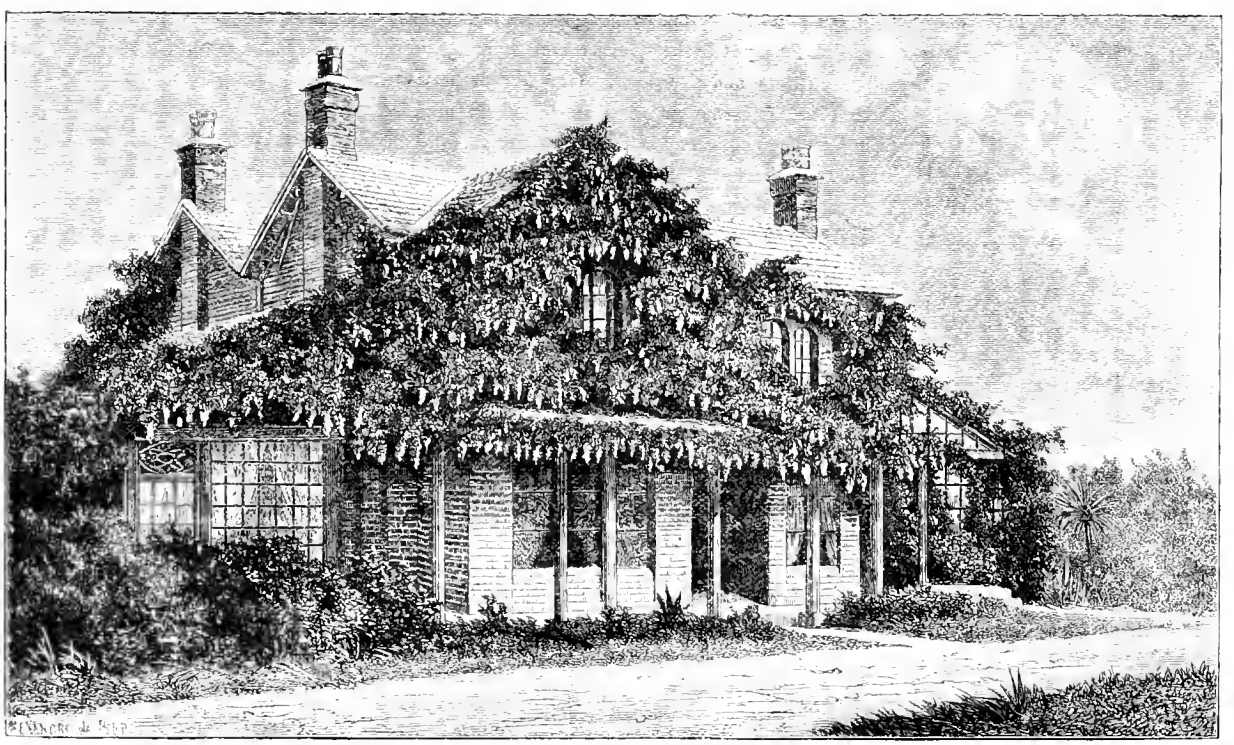
As I write the words "sending out," I am reminded how much that sender-out has done for the delectation of those who love flowers—and he who loves them not

> Is fit for treason, treachery, and spoil;
> Let no such man be trusted—

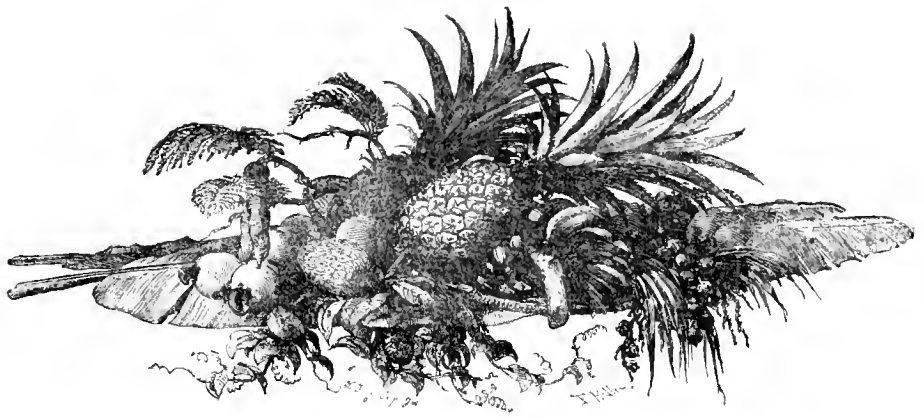
by the production and purchase of new varieties which have been manifestly improvements in size, shape, or colour (often in all these qualities) upon their predecessors. As we read the names of Stainer and Sullivan upon the title-pages of exquisite music, so we find the name of Turner associated with some of our most charming flowers—Carnations, Pelargoniums, Auriculas, Cinerarias, &c.

As a censor, he is the quickest and most reliable of the many with whom I have been associated in a judicial capacity. I have met once or twice in my shooting experience with highly gifted dogs, who, when they entered a field, seemed to go by instinct to that part of it in which the partridges were located—in fact, they made a point of it. So my friend, entering the exhibition tent, seems drawn by some mysterious sympathy to the most meritorious of those collections to which he is to adjudge the honours; and though he seems to give a hasty verdict, in nineteen cases out of twenty the subsequent scrutiny confirms the primary impression. There are certain exhibitors who persist in believing that their Buttercups are Allamandas, and their White Currants Canon Hall Muscats, even as there are people who come to the Rose shows, and, standing before the collections which have been sent from the most favoured soils and most accomplished growers, assure their companions that "they are not to be compared for a moment with their own Roses at home;" but with all rational plantsmen and florists the fiat of Charles Turner admits of no appeal.

As a man of business, he is universally respected for his punctuality and liberality, for the quality of the plants, which are sent from Slough, and for his willingness to give information about them. I would, however, advise amateurs not to presume on his good nature; but, instead of boring him with questions, to go and see what earnest love, thoughtful observation, and patient work can effect in floriculture. When they have seen the gardens and the houses under the guidance of the proprietor, or his worthy sons, or his famous foremen (who has not heard of Frost and his Pelargoniums, Gater and his Roses, John Ball and his Carnations?), they will know what can be done, and how to do it; and as they leave the Royal Nursery, at Slough, they will join with me, heart and voice, in wishing long life to the king of the florists. S. R. H.



CHARLES TURNER'S HOUSE AT SLOUGH IN WISTARIA TIME



THE GARDEN.

VOL. XXV.

GOOD APPLES.

BLENHEIM ORANGES at £12 for twelve bushels ! * Where can a market be found where Apples bring such a price ? This year, when growers were gathering Apples for storing, they could be purchased (fine sound fruit) for from 2s. to 2s. 6d. per bushel in some country places in Essex. Blenheim Orange always commands a good price, but it is a shy fruiting variety in comparison with some others, and is not usually planted to give speedy returns. Cornish Gilliflower is a scarce variety, because few people would care to plant it for profit. We had a fine healthy tree of it at Loxford Hall; it was abont twenty years old when we left there, and I am within the mark in saying that it did not produce an average of six Apples a year from the date of its being planted till we left. It is difficult to get a juicy Ribston, because such fruits have no existence; it is a hard-fleshed kind, and only those with good teeth and good digestion can do anything with it uncooked. Moreover, the Ribston is a difficult subject to deal with as a tree, being very liable to get into bad condition. I admit it does fairly well in some soils, but these are exceptions. In our light gravelly soil both old and young trees were very liable to canker. I consider that the best Apple by far for dessert purposes is Cox's Orange Pippin; it is not only juicy, but excellent in flavour and a certain cropper. It succeeds better on the Paradise than on the Crab stock. Next to this I would place Mannington's Pearmain, a variety which I never knew to fail to produce a good crop. The fruit ought to hang on the trees abont two weeks after it is apparently ripe, as it has a greater tendency to shrivel than most other varieties. The Scarlet Nonpareil is another Apple of great merit. Three parts of each fruit is usually flushed with deep red; this is one of the earliest of the Nonpareils. The latest is also a choice dessert Apple—viz., Lodgmore Nonpareil. This is perhaps the smallest of the family, but excellent in flavour in March and April. The Blenheim Orange is not well adapted for small gardens. It makes a fine lawn tree where it has plenty of room; indeed, few more beautiful sights are to be seen than a large tree of this Apple in flower in spring, leaving out of the question its handsome fruit in autumn. We have planted two standard trees of it in our flower garden. Golden Noble also finds a place there with some others; they will scarcely be touched with the pruning knife, all they need being the branches thinned out where crowded. It was thought that this year American Apples would not be required, but the demand for them is as great as ever; indeed, Baldwins, Russets and Newtown Pippins may be said to have found a permanent market in England. They ought to be sold at a lower price than an average one of 2d. each. The wholesale price of Apples is from 1s. to 4s. per half sieve. J. DOUGLAS.

* See last week's GARDEN (p. 563).

INSIDE V. OUTSIDE VINE BORDERS.

THERE can be but one opinion as regards inside borders being more in favour than outside ones, and they would gain ground even faster than they are doing if we could get rid of that mistaken notion, now so prevalent, that Vines planted in inside borders are short-lived. Such an opinion has evidently been produced by two causes—the first, shallow borders, and the next an insufficient supply of water at the roots. It was stated in one of your contemporaries not long ago that Vines with all their roots confined to inside borders always began to get weaker after they had been planted nine years. Now, I am in a position to prove that such is not always the case, and if there be one case, why not others ? I planted an inside border with Vines here fifteen years ago. They have borne every year good crops, and are as vigorous now as at any time previous, and they will doubtless go on for other fifteen years in a fruitful state. I do not know that my management differs from that of other people, but as it may be useful to give an outline of it, I will describe the border and the way in which it is managed.

THE BORDER is 30 feet long and 10 feet wide, the whole of it being inside the house. About the beginning of the new year all the plants standing on the border are temporarily removed and about 3 inches of the surface soil is taken away. In doing so great care is used that the roots near the surface are not injured. In places where the roots are numerous we only use a trowel to work out the soil between them. After this is done we set the water-barrows to work and give the border 300 gallons of manure water obtained from a tank into which all the drainage from the hotbeds flows, and as some surface water also finds its way into this tank, it is never too strong for our use. When the watering is done we surface-dress with a mixture of half turfy loam and half rotten hotbed manure, putting on the same thickness of new soil as was taken away. Except watering, this is all the attention our border receives during the year. In regard to the

QUANTITY OF WATER necessary to sustain Vines with their roots in an inside border in a vigorous and fruitful condition, I believe they require considerably more than is generally imagined. I am of opinion that our success is in a great measure to be attributed to the liberal supplies of moisture which we make a point of giving the roots. As to water, we are favourably circumstanced, as we have only to attach a hose to a water tap inside the house to get an unlimited supply. On referring to my diary, I find that the hose was laid on the border early in April for a part of two days, or seventeen hours in all, and as the supply gives as near as can be 1 gal. per minute, a little calculation will give the aggregate for that month. On May 21 and 22 the water was running upon the border about eleven hours. About the middle of June, when we had just finished thinning the berries, we gave the border abont 130 gallons of manure water. On July 9 and 10 the tubing was again laid on the greater part of two days, or about sixteen hours. On August 29 it was running for 9¼ hours, and in October, having plenty of manure water in the tank, it had between 200 and 300 gallons given it. The quantity of water thus given may appear to be large, but I have quite underrated the number of hours during which the tubing was at work, and I have no hesitation in saying that when I first began with this border I did not give it so much. In the first place, there was not so many roots to use up the water, and in the next I used the water cautiously until I found how much the Vines were capable of bearing.

confess I have been astonished at the quantity given and the luxuriance which it promoted in the Vines, acting on which all our vineries receive a proportionate supply, and I have no reason to feel dissatisfied with the results. With reference to the

Depth of inside borders, I am convinced that they require to be deeper than those outside, for the reason that, as the space is restricted, the roots require greater depth than when they have a wide outside border to work in. The depth of the border to which I have referred is 3 feet; it was originally made for Peach trees, 3 inches of drainage being placed in the bottom. Looking at the length of the rods and the heavy crops which they carry annually, it is certain that support could not be found in a border of less depth. A deep border is also necessary for the retention of sufficient moisture in the soil, so as to maintain the roots in a uniform condition as to water. Under the drying influences of a high temperature inside the house, and the large quantity of water necessary to supply the wants of the Vines, it is quite plain that a shallow border would prove insufficient, unless carefully attended to. With respect to the

Drainage of inside borders, I certainly do not agree with "W. W. H." (p. 535) when he asserts that more drainage is needed for draining inside borders than outside ones. It does not appear reasonable that a border on which it is impossible for a drop of rain to fall should require to be better drained than one exposed; moreover, it is not quite clear to me that it should be necessary to provide extra drainage in a case in which every drop of water which the border gets is under the control of the cultivator. I am quite prepared to believe that Vines growing in inside borders require very liberal supplies of water, but I have yet to learn that it is a good plan to give them so much as to require special preparations to provide an outlet for it. According to my experience, inside Vine borders only require draining in the very worst cases; in fact, I believe, whether the roots are inside the house or outside, most of us err on the side of draining too much, and many of us have yet to learn what a cold undrained Vine border means. Too often this bogey is made to cover the fault of overcropping, which sooner than anything else will cause shanking and all the other ills the Vine is heir to. As to

The aeration of inside Vine borders, no doubt it might prove an incentive to a more healthy root action, yet if my experience is any guide, aëration is not an absolute necessity, for our border is mostly covered over with other plants during the whole of the winter, which in our case is a necessity. As a matter of choice I would certainly not put a plant upon it. During summer every effort is made to keep it free from plants of any kind. J. C. C.

FRUIT FARMING.

In a recent number of the *Agricultural Society's Journal* Mr. Charles Whitehead, of Maidstone, deals very fully with the subject of fruit farming in this country. It appears that between the years 1872 and 1882 fruit-growing land increased no less than 26,696 acres, while an analysis shows that this increase is apparent in 26 counties, all the others showing a decrease. The most important increase is shown in the five fruit-growing counties of Hereford (with 5044 acres), Kent (5362 acres), Somerset (with 4324 acres), Worcester (4290 acres), and Gloucester (with 3251 acres increase); while Devonshire—in which county Apples were cultivated so long ago as 1520, shows only an increase of 358 acres. These figures are regarded as showing the *vis inertiæ* of the English farmer.

Jam Making.

Jam both for home and foreign consumption is becoming a common article of food throughout the country. It can now be bought in most village grocers' shops at from 7d. to 9d. per lb., owing mainly to the energy of French, Belgian, Dutch, German, and American fruit growers. Jam factories are being established in various parts of this country, and new processes have been introduced to help to improve the manufacture of jams and preserves of all kinds. There is yet a vast difference in jam. The real jam is made of good, freshly-picked fruits, which are not mashed up into a mass, but are preserved whole, so that specific fruits may be identified. For jam-making, fruit of all qualities and description is cleared off in a wonderfully rapid manner. When there is a short crop, the demand for jams and preserves sends up the prices of fruit to a figure far beyond the reach of ordinary customers, as in the last season, for example, when Damsons and Plums were making 1d. per pound wholesale, and Black Currants from 4½d. to 5d. per pound. In full fruit seasons jam-makers buy up fruit, and, having reduced it to pulp, put it into large jars or vessels of various kinds without sugar. If the air is carefully excluded, this pulp will keep for some time, until a scarcity of fruit happens again. It is, in fact, the adoption of the principle of ensilage to fruit. This is adopted in other countries. Large quantities of Apricot pulp are sent from France at an average price of about 5d. per pound.

Importations.

It may here be useful to point out that, notwithstanding the importation of fruit from divers parts of the world, the prices, taking the average of seasons, are very high, and the prices of fine fruit for dessert purposes place it beyond the means of all but those who have plenty of money. It may seem strange that fruit should be so dear, as it was in 1882, for example, when it is seen that the amount of raw fruit sent into this country during last year was 4,045,691 bushels, of the value of £1,718,909, independently of the large quantities of fruit in the form of pulp, or dried by the sun or by artificial processes. The annexed return will show the amount of raw fruit sent into England in 1871 and 1882 respectively, and the various countries from which it was sent:—

Name of country.	1871.		1882.	
	No. of bushels.	Value.	No. of bushels.	Value.
		£		£
Germany	69,519	22,104	515 604	151,096
Holland	160,302	59,542	444,886	182,876
Belgium	276,286	95,822	593,158	699 164
France	354,606	214,542	524,683	335,543
Portugal, Azores, Madeira	73,079	57,081	133,128	81,245
Spain and Canary Islands	59,712	48,795	462,082	277,757
United States	56,441	40,604	1,065,076	387,190
British North America ..	55,150	37,004	222,128	90,077
British W. India Islands	10,063	10,750	20,168	15,810
Other countries	12,530	9,863	14,197	7,581
Channel Islands	—	—	50,584	20,574
Total ..	1,218,668	536,107	4,045,690	2218,913

Not only are the French, the Belgians, and the Germans increasing their area of fruit land, and improving their methods of cultivation, but the Americans are also planting fruit, and are adopting, with characteristic zeal, new and improved systems of packing and preserving it.

American Orchards.

In the report of the American Commissioner of Agriculture for 1878 it is stated that there were more than 2,000,000 acres under cultivation as Apple orchards, and that in twenty years the value of the products had increased from £1,320,000 to over £10,000,000. "The abundance of the fruit crop," the Commissioner writes, "is one of the most gratifying results of the progress of agriculture in this country. The demand for fruit in the markets at home and abroad has been equal to and is increasing with the supply. The prices have been generally remunerative both to the grower and to the dealer, and yet low enough to be within the reach of all. The daily use of fruit as food by our people is greatly to be desired." Besides Apples and many other small fruits, the Peach crop of the United States is estimated at the annual value of £11,500,000, so that it is not surprising that there is occasionally a superabundance of fruit, especially of Peaches and Apples, upon which pigs are fed. This waste has been in a great degree obviated by the ingenuity of the Americans in preserving the fruits and drying them.

Drying Fruits and Vegetables.

At Baltimore particularly, as well as in other cities which are centres for the accumulation of fruit, large establishments have been built and furnished with the most improved machinery and appliances for the rapid drying and evaporation of the watery parts of fruits. By an ingenious process the water is slowly separated from the solid parts, which at the same time undergo a chemical change, the acid and the starch being converted into Grape sugar. The Commissioner of Agriculture, in the report to which we have just alluded, says: "An Apple pie made from fruit evaporated by these processes cannot be distinguished from one made of fresh fruit, and yet only one-half of the quantity of sugar is required to sweeten it; and the same fact is true in regard to Tomatoes and all fruits and vegetables." Iron stoves and machines constructed on the principles for drying fruit, but portable, and costing only about £15, are used in many districts in the country far from towns. These will, it is said, thoroughly and perfectly dry as much fruit as a family can peel and slice in a day. All kinds of salad and delicate vegetables—such as Onions, Peas, Asparagus, Celery, Lima Beans—are preserved by these new processes, returning, when placed in water at any time when desired for use, to their original fullness, colour, flavour, and other properties. "In short," to use the words of the Commissioner of Agriculture, "the trade in dehydrated and preserved vegetables and fruits of all kinds has assumed enormous proportions, giving employment to thousands of persons, realising valuable profits, and supplying business through every artery of trade."

Canadian Fruit.

Much fruit is produced in Canada. The acreage of fruit land has been extended largely in the past fifteen years, and the greatest interest is taken by the Government and by the farmers themselves in the promotion of this industry. The main part of the fruit land is in Ontario, or Western Canada, in which it is said that any fruits can be grown that are produced in the temperate zone. Very fine Apples are grown in Ontario, better, it is alleged by the Canadians, than those that are grown in the United States. Canadian Apples have undoubtedly a great reputation in the English markets. A large fruit grower in Ontario says: "There is nothing to prevent our Apples from competing successfully with English Apples if properly sent. We have beaten them in their own market with the Ribston Pippin. It sells in England at £3 per barrel." Another Apple, called the Swayzie Pomme Grise, grown chiefly in the Niagara district, has made the highest price obtained for Canadian Apples in England, as much as £5 per barrel having been made with it in Covent Garden Market. This Apple, of fine aromatic flavour, was probably introduced into Canada, where it has been long known, from France. André Leroy mentions it as a dessert Apple of the highest quality in his "Dictionnaire de Pomologie." Forsyth believes that the trees were brought from Canada into this country. Not only do the Canadians exercise the greatest skill in the cultivation of Apples, but they understand the art of storing them.

Lord Sudeley's Fruit Farm.

In England Lord Sudeley is the only landowner who has taken up fruit farming in a thorough and businesslike manner. He has already planted 500 acres, and is intending to plant 200 acres more at once. The land is a fairly free working, moderately good soil on the Lias formation. It was deeply steam ploughed and well manured, and standard trees of Apples, Pears, Cherries, Plums, and Damsons were put in 16 feet apart. 3000 Apple trees were planted of the best sorts, including Lord Suffield, Keswick Codlin, Grenadier, Cox's Orange Pippin, Cellini, and Warner's King; 812 Pear trees have already been put in, consisting of Beurré de Capiaumont, Easter Beurré, Louise Bonne, Jargonelle, Beurré d'Amanlis, Doyenné d'Ete, and other choice varieties

There are 32,000 Plum trees of 44 different kinds, such as Diamond, Pond's Seedling, Early Orleans, Greengage, Victoria, and Autumn Compôte. Of Damson trees there are 9000, nearly half of which are the sort known as Crittenden's, so largely grown in Kent, and the remainder are the Shropshire Prune, Cheshire, Common Prune, and Black. Only 522 Cherry trees have been hitherto put in, as Lord Sudeley is not quite certain as to whether they will flourish at Toddington where his fruit farm is situated. These are of the best kinds, such as the late and early Bigarreau, Black Heart, Kentish, and Flemish, and at present are looking very well. Gooseberry or Currant bushes and Strawberry plants are set between the standards, and in some cases Raspberry canes are put between the Gooseberry and Currant bushes. There are over 50 acres of Black Currants, Raspberries, and Strawberries by themselves without standards. There are 100 acres of Strawberry plants in all, and 60 acres of Raspberry canes. Some of the Apple trees are pyramids, which do very well. Lord Sudeley has not yet planted bush trees in any large quantity, but he intends to plant 80 acres of Plums in this way, by which the expenses of staking are avoided and injury from wind, and these trees come into bearing more quickly than standards. The Strawberries are the kinds known as the Stirling Castle and the American Scarlet, brought from Isleworth, where they are highly esteemed for preserving. Gooseberry bushes number 130,000, and consist of no less than forty-five varieties. Those, however, which have been planted for the main crop are the Warrington, Lancashire Lad, Lancashire Prize, Crown Bob, and Whitesmith. No less than 228,000 Black Currant bushes have been put in of the leading kinds, such as Lee's Prolific, Baldwin's Black, Black Naples, and Prince of Wales. Black Currants appear to thrive well in the soil and climate of Toddington, and bid fair to be fertile sources of profit, for no fruit is in greater demand or gives a better return when the bushes are planted on suitable land and properly managed. The Raspberries are chiefly Carter's Falstaff, and the Red Currants the Raby Castle and Scotch Red. Those who know anything about fruit growing will say that nothing could be more judicious than the selection of the sorts of the various fruits, and those who have seen the manner in which the plantation has been formed, the cultivation, the jam factory, making the grower independent of markets, and the general arrangements, hold that nothing could have been better conceived and carried out. It is unique.

SHELTER, OSIERS AND NURSERY.

Belts of Poplar, Scotch Firs, and other quick-growing trees have been placed round the plantation to shelter it from the prevailing winds. Beds of Osiers have been formed on the banks of the little stream Isbourne, which have taken so well that all the baskets required for the fruit are now made on the estate. Ten acres more are to be planted at once with Osiers. A nursery for raising trees and bushes has been formed in a convenient and well-sheltered spot, where standards, pyramids, and bush trees of all sorts and sizes are seen, well grown, well trained, and worked upon the most approved stocks, as well as all descriptions of fruit bushes. This is most economical in the first course of the trees, and prevents possible loss and disappointment through getting trees that are not true to name, or that have been badly worked and trained and starved on poor land, or land exhausted by continuous cropping. It is a great mistake to think that it is better to have young fruit trees and bushes from poor soils than from rich. Like all young things under the sun, they require generous nurture, or they become stunted and prone to canker and premature decay. The owner of this plantation got his fruit trees from the very best sources and paid full prices, and he is rewarded by having a perfectly vigorous and healthy lot of trees and bushes, so much so that at this time among the 40,000 Plum and Damson trees there are not five in a thousand that have gone wrong. A barn and other buildings have been turned into a factory at a comparatively small cost. This has been let for ten years to Mr. Beach, the jam manufacturer, who has arranged to take all the fruit grown on the 500 acres at fixed rates, and will either steam it down, or pulp it, or sell it fresh, as he may deem expedient. This factory is now in working order, and was inaugurated this summer by a capital crop of Strawberries, estimated at ten tons. About 100 tons of fruit will be grown on the estate this year, which is a capital quantity considering that no fruit trees were planted until the autumn of 1880.

5108.—**Pot Vines.**—If your correspondent's Vines were well grown last season, they will now be furnished with strong fruiting canes. They ought to have been repotted about the end of the summer—a practice which admits of the pots being well filled with roots before the leaves drop. It is not usual to repot at this time of the year. It is not possible to say how many bunches each Vine ought to carry without seeing them. Three-year-old Vines might be large plants in 18-inch pots, or they might be very ordinary examples in 12-inch ones. The best way, perhaps, would be to remove all the bunches but one from each shoot as soon as they are formed. When the berries come to be thinned, it will be easy to determine how many bunches should be left to ripen. From six to nine might be a good crop.—J. DOUGLAS.

Gros Colmar Grape.—I called at a large Grape-growing establishment the other day in order to purchase some, and I found that at least five-sixths of the crop were of this variety; there were also some very fine Alicantes. On asking the price, I was told the wholesale price in the market was 4s. per pound for the Alicantes and 5s. for Gros Colmar. On tasting both, I agreed with the grower that the Gros Colmar was the better flavoured of the two, though the Alicantes were the best coloured. The value of an article is just as much as it will bring in the market, and if Gros Colmar was the worst flavoured of Grapes, is it feasible that it would year after year command higher prices than some of the others? The Alicantes were very little inferior in size to the Gros Colmars and better coloured, and yet year after year they are sold for less money. How is this? Is there any reason why Grapes highly esteemed in Covent Garden should not also be highly esteemed in a private establishment? They are both required for the same purpose. Lady Downes, grown under the same conditions as Gros Colmar, usually realises only about half the price which Gros Colmar fetches. The practical outcome of this seems to be, that what is most valued when hard cash is paid down for it will also be most valued if it has to be obtained in a more indirect way.—J. D. E.

SHORT NOTES.—FRUIT.

Yellow and white Raspberries.—As many amateur growers are anxious to have Raspberries with fruits of these colours, I may state that the Yellow Globe and White Antwerp are excellent sorts.—J. M.

Carter's Prolific Raspberry.—As now is the time to plant Raspberries, it may be interesting to know that this is one of the best kinds in cultivation. It is a free grower, and an abundant bearer of very large, deep red, finely flavoured fruit.—J. MUIR, *Margam.*

Vine leaves *(G. R. M.)*—I could find no trace of insects on your Vine leaves except three immature specimens of one of the snowy flies (Aleurodes). The leaves did not have the appearance of being injured by insects.—G. S. S.

Diseased Pear shoots *(R. O. T.).*—The Pear tree shoot which you sent was infested by an Acarus. Cut off all the shoots which are attacked and dress the tree with a mixture of soft soap and Tobacco water or a small wineglassful of paraffin oil and double that quantity of soft soap, well mixed together and dissolved in 1 gallon of water.—G. S. S.

Lord Derby Apple.—This is one of our best Christmas kitchen Apples. In shape it is not unlike the Hawthornden but larger, and quite free from black spots, which affect the Hawthornden in many gardens. Lord Derby never fails to bear a crop, and the fruits are very juicy, crisp, and finely flavoured. It is, in short, one of those varieties which no one can do wrong in planting.—J. MUIR.

TREES AND SHRUBS.

Benthamia fragifera.—We have received through Mr. Robert Veitch, New North Road Nursery, Exeter, a very fine fruiting branch of this tree from Mr. R. L. Lake's garden, Trevarrick, St. Austell, Cornwall. The branch was cut from a tree 36 feet high and as much in diameter; the trunk measures 6 feet in circumference. This fine tree is now covered with fruit from top to bottom. The fruits, about the size of large Walnuts, are of a dark red colour, and must produce a fine effect.

Golden Queen Holly.—This is unquestionably the most highly coloured of all the variegated Hollies. I saw lately in a forecourt garden a neat hedge of this variety, behind it being a background of evergreen shrubs of various tints of green, and I thought the contrast a most pleasing one. I always find this Holly in best condition where the soil is light and the drainage good. I do not think it is at all a tender subject, yet it seems to thrive best when well sheltered from rough winds. It must not, however, be shaded over much, strong sunshine being necessary to bring out its colours.—J. C.

Seeding of the Laurustinus.—When berries are so scarce as they are this winter, it is singular to find Laurustinuses seeding quite freely. On many occasions I have found a few seeds on plants of them growing in warm positions, but until quite lately I had no idea that they seeded so freely as to form perfect bunches, every flower having produced a seed. One of the men in the garden brought me some in this condition. They were quite ripe and of a jet-black colour. We have secured all the seed we could get in the hope of raising a good stock of plants from it.—J. C. C.

Cytisus Adami.—At a meeting of the Helvetic Society of Natural Sciences, held in August last, M. C. de Candolle described the results of his attempts to determine how far any light could be thrown on the disputed origin of this Cytisus by the anatomical structure of its leaves. This plant, which suddenly made its appearance in the nursery of M. Adam, at Vitry, near Paris, early in the present century, and which is remarkable for producing red and yellow blossoms mostly on separate branches, is usually regarded as a cross obtained by grafting the Cytisus purpureus on the C. Laburnum. But M. de Candolle concludes that it is not a hybrid, but simply a degenerate variety of the Laburnum.

5107.—**Raising Holly seeds.**—Seeds of common Hollies are best sown in the open ground, but in the case of having a few seeds only of any choice kind they may be sown in pans of sandy soil and placed in a cold frame, but bottom heat should on no account be used. Where Holly seeds are sown in quantity they are generally gathered when ripe, mixed with some dry sand, and laid in a heap in order to cause the decay of the pulp. They are turned over from time to time, and by some sown in the spring, but generally not till a year from the time of gathering, when some of them will come up during the spring and summer following, while others may lie for another twelve months, or more than two years from the time of gathering.—ALPHA.

Laurustinus hedges.—In this locality the Laurustinus is a great favourite as a hedge plant, especially for enclosing villa gardens; and very bright and cheerful it looks at this time of the year, covered with innumerable heads of rosy buds and pure white blossoms. The usual custom in forming these hedges is to plant healthy young bushes about 2 feet apart, and allow them to grow unchecked, with the exception of topping the strongest shoots, in order to induce them to grow thick at the base. They are, as a rule, kept cut down to about 5 feet high, so as to form shelter. The best time for pruning them is in spring, or as soon as the blossoms begin to fade. The shoots are thinned out with a knife, cutting out the strongest that have flowered, and leaving the weaker side shoots untouched; this is preferable

to clipping with shears, which mutilates the leaves. Pruning being done at the time just named, the growth gets matured by the autumn, and in mild winters these hedges are aglow with blossoms all through the dull, dark days. Not only do they give a cheerful aspect to the gardens which they surround, but the sprays of blossoms are very useful in a cut state for mixing with other flowers, a white groundwork being the best of all for showing up bright colours; and for forming floral wreaths they are invaluable at Christmastide. It is surprising how well this plant withstands rough buffetings from southerly and westerly gales, that are so frequent on this coast; and the more fully they are exposed to sunshine the more floriferous they become. The soil being light and sandy, the plants make abundance of fibrous roots and short, stubby growth, that is far more floriferous than when planted in rich, deep soils.—J. Groom, *Gosport*.

Holly berries.—With us the variegated varieties of Holly have fruited this season more freely than the green-leaved kinds, but we have some trees of the latter on which there is a fair crop. In our case a scarcity of berries on the oldest trees is a great gain, for it gives them time to recruit their strength. Some years they bear so freely, that a heavy crop means either the death of the tree or such a serious exhaustion of its energies, that it takes three or four years to regain strength. I am never sorry when I see birds attacking the berries on heavily laden trees, as I know that it will conserve their strength. When unmolested, the berries hang on with such persistency, that they remain until a fresh crop is formed, and then old trees suffer considerably, and young trees too, if all the berries which they bear are left to fall in their own way. In the case of young trees heavily laden with berries it is a safe plan to remove half of them at the beginning of the new year.—J. C. C.

CHRYSANTHEMUM REFORM.

To reply at length to "W. I. M." (p. 581, Vol. XXIV.) would be to repeat my remarks on this subject, of which he gives a correct summary, and to all of which I firmly adhere. But he greatly misunderstands me when he accuses me of disparaging the personal work of the Temple gardeners, or of any other exhibitors of Chrysanthemums. A display of flowers in the heart of London, such as that at the Temple, is an unanswerable testimony to the patience and skill of the men who can produce it. But I do maintain that such skill and patience might bear infinitely better fruit under a better system, and that if the Chrysanthemums at the Temple and elsewhere were grown naturally, they would in such competent hands be an infinitely greater "source of delight and instruction" than they are at present. In comparing my own plants with such as are usually exhibited, I can scarcely be said to be "overestimating my own handiwork," for the merit of my plants, if any, lies in there being so little of my handiwork in them, and so much of Nature's.

When "W. I. M." speaks of "blooms of the greatest excellence" and "grand examples of high culture," he simply begs the whole question. I agree with him that certain kinds of Chrysanthemums, such as he enumerates, will not produce good flowers unless severely disbudded. But for that very reason I reckon these as inferior sorts, though such an opinion will probably horrify "W. I. M." And I still maintain that other varieties, such as Elaine, for example, have the whole beauty and character of the flower ruined by being unnaturally enlarged to such dimensions. I think, too, that most ladies of taste would prefer—if their gardeners would let them have such—to wear a spray of two or three Chrysanthemums of Rose-like size to one flower the size of a breakfast plate.

And on the whole question I will say again that Chrysanthemums are the most floriferous of plants, and that to exhibit as a perfect specimen of its race a plant with only four or five blossoms on it which would produce a hundred is utterly monstrous. Would it be praiseworthy to strip a monthly Rose of all but three or four flowers if by so doing we could get them of fourfold size? Yet this is precisely what "W. I. M." does when he disbuds Elaine or James Salter to one flower on a stem. More than this; it is as much the nature of such a Chrysanthemum as Julie Lagravère to bloom in bunches as it is of a cluster Rose; yet I have seen it miserably shorn of every flower but one on a stem. It is Nature *versus* "W. I. M." In this, as in other matters, she has for a long season been thrust out with a pitchfork, but she is returning according to the proverb. The reason why the public are delighted—if they are so delighted—with the big, coarse blooms and the umbrella specimens is because they have hitherto had but little chance of seeing better things. When they have, I do not fear what their verdict will be.—G. H. Engleheart, *Appleshaw, Andover*.

—— I am of opinion that the advocates of non-dressed naturally grown and non-disbudded Chrysanthemums will have a hard task to bring the general public to their way of thinking. The present system seems to be the one most in favour, judging by the many new Chrysanthemum societies that are yearly springing up. If it were not popular, I do not think that societies would be so well supported as they now are. One writer a short time since said the judges wanted educating. Then why does not someone exhibit "properly" grown plants or cut blooms in order to show the general public the correct system of growing Chrysanthemums? I venture to say that both the plants and cut blooms advocated by Mr. Engleheart and Mr. Sheppard staged alongside others as at present grown would not meet with many admirers. In the case of a Chrysanthemum, as in that of everything else, we require thorough development, and that cannot be done without certain rules being followed, such as thinning the shoots, buds, &c. How would an exhibitor stand who staged bunches of Grapes which had been grown in their natural style without thinning or other attention? I hold that the present style of growing Chrysanthemums is that which finds most favour, and therefore the best. Mr. Sheppard states that the natural habit of a Chrysanthemum is branching and bushy, but, with the exception of Pompones, it is just the reverse; if not stopped or pinched it grows with a straight single stem 2 ft., 3 ft., and 4 ft. high, and then it branches naturally into three or four shoots, which again grow about the same height, according to the variety—some much more; then branching occurs to any extent, at a height of 5 feet on an average from the ground. Surely, therefore, a plant of this description cannot be called bushy. No; in order to induce Chrysanthemums to branch they must be pinched. Again, in reference to cut blooms, Mr. Sheppard says the most skilful manipulator gets the prizes; not the best grower. Now it is well known that the Japanese kinds require no dressing whatever. In that section it is the best grower who gets the prizes; dressing has nothing to do in the matter at all. Many incurved varieties require no dressing; it is good culture that builds the blooms, not the trick of adding petals to them, which Mr. Sheppard seems to think is sometimes done. Dressing does the reverse; it makes them smaller. How are the judges to distinguish undressed blooms from such as are dressed? Could they not be dressed when on the plants? Dressing has been practised for a long time, and will continue to be done, in spite of all that is said against it. It is a case of the fox and the Grapes; hence many want a change. How can such varieties as Novelty, Princess Teck, and Hero of Stoke Newington be shown amongst those with foliage in the stands without some sort of support? Kinds like these are too weak in the stem to be self-supporting. Again, there are some varieties that could not be included in the class requiring 12 inches of stem, foliage, and bloom, as some need that much stem alone to produce the best blooms. These are some of the difficulties that must arise in such cases. As for myself, I should like to see a class of this sort added to our shows. It would show that dressing alone does not win prizes, but good culture. Mr. Woodfield says, once we get classes for naturally grown plants, he entertains no fears about the rest. If he thinks old systems will be abolished, I fancy he will be mistaken. Let him set up a group in a given space of his naturally grown plants, as he calls them, each one carrying 200 blooms, at any Chrysanthemum show, and compete against those as at present shown, and see in what position he would be placed. One often thinks one has something very good at home, but at flower shows such matters find their proper level. But why not let people grow what suits them best? One person's taste cannot be that of everyone.—E. Molyneux, *Swanmore Park, Bishop's Waltham*.

—— I agree with Mr. Sheppard as to the desirability of doing away with the trimming and dressing of Chrysanthemums. I do not think it honest to "dress" flowers, and anyone guilty of such practises should be disqualified. While agreeing with Mr. Sheppard as to the desirability of showing the plants in their natural state, I yet consider that classes for trained plants should still be kept, as the trained plants are useful in many places where the naturally grown ones would be of but small value. On the other hand, we do not find much attention paid to small plants of Pompones and other dwarf sorts, and yet these would be generally useful for table decoration and for vases in dwelling houses, plants in 8-inch pots being too large for this purpose. Why, then, should not one or two extra classes be allowed for this kind of plant? Give a more extended classification, making it as inclusive as possible, and the Chrysanthemum would be much more largely grown than at present; when those who are now outsiders find that they have a chance, they will go in for the Chrysanthemum much more than they now do.—Walter J. May, *Walton-on-Thames*.

New Chrysanthemums.—Messrs. Jackson exhibited some very fine new Japanese Chrysanthemums at the Kingston Exhibition in November last, and from amongst them the judges selected three for first-class certificates: these were M. Astog, a good pure white, the flowers of which seem in form to be between those of Elaine and Fair Maid of Guernsey; Mdlle. La Croix, another good white, with large flowers; and Roseum perfectum, also thought to be a good addition. Jeanne d'Arc (exhibited by the same firm) is likewise quite distinct; it is an enlarged form of Aimée Ferrière. The latter is a sweetly pretty flower, but, being too small, has gone out of cultivation. Jeanne d'Arc also received a first-class certificate as an incurved variety. Colour, rosy red and white.—J. Douglas, *Great Gearies, Ilford*.

FLORAL COMMITTEES' AWARDS.

Notwithstanding what Mr. Wilson has said in last volume (p. 583) in reference to this subject, I am not yet convinced that my previous statements (p. 521) have been made in vain. Of course, the committee in certificating Dahlias have only Dahlias in view, compare Orchids with Orchids, and so on; but the point which I ventured to raise was this: that however common a certificated plant or flower might be, it had the same distinction conferred upon it as the most valuable, while from a commercial point of view no comparison between the two plants could be made. I still hold that some form of award should be adopted which would make the necessary distinction. Then as to awarding first-class certificates, greater discrimination seems to be imperatively necessary.

Although the committee doubtless do good work in this direction, yet were they differently constituted—"broken up" somewhat—perhaps more satisfactory results might be achieved. I am led to offer this suggestion from some remarks which Mr. Wilson makes when dealing with Orchids. He says: "Those acquainted with Orchids express their opinion first (and we are fortunate in having

five or six members thoroughly acquainted with Orchids), and the other members of committee, if they vote at all, are greatly influenced by the opinion of these experts." It is certainly not satisfactory to find that the present system of doing business leaves it open (it cannot as at present managed be otherwise) for members to vote upon subjects on which they absolutely know nothing. Thus a subject may be enabled to obtain an award which it would not otherwise have secured or even deserved, and the public in the end are the losers. Let us hope—as the result of the little discussion that has taken place on this subject—that something, however little, may be done to render this tribunal worthy of even greater respect than that which it undoubtedly commands. It has, as I have said, done good work in the past; and it is capable, with some little setting of its machinery in order to adapt itself to the times, of even securing greater triumphs in the future. Q.

EXHIBITIONS AT REGENT'S PARK.

NOT long since attention was drawn in THE GARDEN to the necessity of giving horticultural shows a wider scope, and one way of doing that, it was suggested, was to provide open classes for exhibits not contemplated by the schedule. The Royal Botanic Society has always endeavoured more than any other to "uphold the dignity" of horticulture, as it is expressed in the Society's rules, at their exhibitions, to which they early tried to impart some degree of novelty both in the arrangements and character of the exhibits. In the schedule for 1884, which has just been sent to me, I see they have added considerably to what was formerly regarded as a merely nominal section more than anything else, viz., the economic section, and the Society directs special attention to the new classes as of great interest at the present moment. The number of classes in this section are five, viz.—

A collection of fresh-cut or growing specimens of medicinal and economic plants, native and exotic. 40s., 30s., 20s.

Group of plants suitable for a small greenhouse, costing not more than £10, retail. 100s., 60s., 40s.

12 foliage plants suitable for growing in a dwelling room occasionally lighted by gas; six varieties. 60s., 40s., 20s.

12 flowering plants suitable for growing in a dwelling room occasionally lighted by gas; six varieties. 60s., 40s., 20s.

12 plants growing in hanging baskets suitable for growing in a dwelling room occasionally lighted by gas; six varieties. 60s., 40s., 20s.

Such exhibits as these will no doubt produce useful results, although they might have been a little more varied; but, in addition, the Society has, within the last two years, added the following clause to one of the rules: "The judges are invited to recommend to the committee for extra prizes exhibits of special merit, although they may not be included in the schedule"—a clause which is wide enough in its scope, and the interpretation of which will lie with the judges only; and this is the point. It is right enough that such matters should be left to the judges, but it might happen, and probably would occasionally happen, that the judges might not understand their duties in such a case, and either pass over such exhibits from want of appreciation of their purpose and utility, or estimate them wrongly. In fact, the purely practical gardening element is the only one represented as a rule, and it would be better if in some cases some of the judges were drawn from another section of the community, provided they were competent men. There are numbers of people outside gardening ranks, as our garden literature shows, well qualified in every way to discharge the duties of a judge, and who by their education, position, and freedom from all preconceived notions and prejudices, might perhaps impart rather broader views to certain aspects of gardening than sometimes prevail.

Curiously enough, since the above was written I see Mr. G. F. Wilson suggesting in THE GARDEN (p. 583) a similar thing, viz., the introduction of more amateurs into the South Kensington Committees, with a view to a more judicious bestowal of the certificates awarded by the Royal Horticultural Society. What professional gardeners have to realise is the fact that they alone do not now constitute the who'e, or even the majority, of the gardening community. The vast host of amateurs—great and small—many of them not only skilled and practical gardeners on their own account, but of superior scientific attainments and wide plant knowledge, have a large stake in horticultural pursuits, and I, for one, should like to see them have a fair share in the work in all its branches. J. S. W.

FLOWER GARDEN.

HARDY FLOWERS IN JANUARY.

As a fitting new year's gift to the great advocate for and expounder of the advantages of cultivating hardy flowers, I send a collection gathered from the open ground this morning (January 2, 1884). These flowers will serve as an illustration of what our climate occasionally permits us to enjoy in mid-winter. You will see that I have not merely sent single flowers, but bunches of each kind, amounting altogether in species to forty.

Tussilago fragrans is unusually fine and fragrant at this moment. Violets are in great profusion, especially Marie Louise, Victoria, and Russian. Wallflowers, too, are blooming, particularly the semi-double sweet-scented kind, which is in full bloom, and, associated with Violets, makes a charming button-hole. Iberis gibraltarica hybrida is and has been blooming all the season. Hellebores, too, are fine, especially niger maximus. Primroses and Polyanthuses are producing bloom too freely. The Cowslip is Primula macrocalyx, the earliest and most prolonged bloomer of its race, and as my speciality is early flowers, I am making it a seed parent. You will be surprised to see such fresh and brilliant Roses from our exposed borders. The fragrance, but not the beauty, of Chimonanthus fragrans will invite your attention, but this shrub, like Magnolia grandiflora, two buds of which I send, is from a wall. The following are the names of the shrubs and flowers sent:—

Anemones	Helleborus maximus
Primroses	Myosotis dissitiflora
Cowslips	Statice
Tussilago fragrans	Erica carnea alba
Violets, three sorts	Erica Massoni
Saxifraga ligulata	Achillea lutea
Pansies	Daisies, double
Limnanthes Douglasi	*Shrubs.*
Sweet Alyssum	Jasminum nudiflorum
Alyssum saxatile	Chimonanthus fragrans
Alyssum argenteum	Arbutus Unedo
Iberis gibraltarica hybrida	Rhododendrons
Scabious, German	Escallonias
Vinca minor	Berberis Darwini
Stocks, double	Laurustinus
Wallflowers, Belvoir Castle	Daphne Laureola
Wallflowers, double	Daphne Fioniana
Lamium maculatum	Magnolia grandiflora
Potentilla	Andromeda floribunda
Pyrethrums, double	China Roses.
Helleborus niger	

Belvoir. W. INGRAM.

*** The flowers sent fully bear out all that Mr. Ingram has said in reference to them.—ED.

NOTES ON HARDY PLANTS.

Andromeda (Cassiope) tetragona is now looking as fresh as Watercress, and that under very different conditions from those it is most commonly said to require. I find it to flourish best in the stiffest loam in my garden—a yellow loam, somewhat lightened with sand, and a very heavy dressing of stable manure (quite 6 in. thick) given four years ago. At that time I considered it too stiff for Carnations, Dablias, and Daffodils. It works pretty freely now, but bakes hard in summer. The position is the most moist I can give at the bottom of a garden well inclined to the south. In such soil this charming dwarf shrub grows freely, keeps beautifully green in colour, and flowers well—the last-named property being anything but constant when grown in peat, though otherwise in good form. The still rarer species A. fastigiata never grew so well with me as it has done this summer, in the early part of which I put it in a bed that had been cleared of Daisies, the soil being similar to that just described. Who that knows the distinct character of these little evergreen shrubs, and their exquisite Lily-of-the-Valley-like flowers, would not wish to have them in their gardens? And why not, when they can be grown so easily. A. tetragona never proved a stubborn grower with me in a boggy corner, where it had sandy peat or leaf mould and a little shade, but it did not flower so well under these conditions as in loam. Most amateurs to whom I have spoken about this shrub never seem to think of loam for it. It is as independent of heath soil as Erica carnea, and it spreads so freely that I intend making an edging of it, feeling sure that a three years' experience of the loam treatment has amply demonstrated its suitableness for such a purpose. It likes plenty of moisture, and as a rule edging plants get an extra share of that. Whilst on this point, I may mention another method of treatment which I have followed from the time when I gave 2s. 6d. for my first tuft. The little rooted divisions I plunge in water to keep them fresh whilst trenches are being prepared in blackish soil for them. They are about 6 inches deep, like miniature Celery trenches, replacing the bottom soil with some of the best therein. After dashing a little fine earth over the wet fibres, the small pieces are planted in the trenches a few inches apart, and the extra moisture which they get under such conditions seems to help them on wonderfully.

Erigeron roseum.—I am not sure that the plant which I grow under the name of E. caucasicum and this are not identical; at any rate all the particulars furnished by "Veronica" belong to my plant, which is remarkable for no quality more than that of persistent blooming. Though a very hardy and free-growing herbaceous plant, keeping green, however, through the winter with me, it is seldom met with in gardens, and from the fact that growers of good collections of hardy flowers have often noticed it as a stranger to them, I think it is not so common as it soon might and ought to be; here it spreads into pale green dense mats of foliage from 4 inches to 6 inches high, and for four or five months is almost hidden by numerous slender flower-stems, furnished with heads in loose bunches, and about 1 foot or 18 inches high. The flower-heads are so freely produced that they last from June to October, but some of the partially spent flower-stems are removed so as to admit light to the roots and foliage. A new and vigorous crop soon fills up the gap, and supplies cut bloom of a most pleasing character to the latest period of outdoor flowers. I well recollect flowering my first plant of this through the winter with the help of a bell-glass tilted, in order to see its bloom, which was near opening when frost set in. The heads in the bud state and when nearly developed have a bird's-nest-like shape. Later the florets spring from their positions, angled like spider's legs, and rest across the pale yellow disk; then in another day or so they assume a feathery appearance and a rosy purple colour, and, but for the softness and narrowness of the florets, would most closely correspond in form with the field Daisy. E. caucasicum seems to have been introduced in 1821. In cultivation it increases by self-sown seed, and otherwise proves thoroughly perennial. Whether or not this is the E. roseum mentioned by "Veronica," it is at all events one of the most useful and beautiful of alpine-looking flowers that can be grown.

Senecio pulcher.—Plants of this, without special treatment, can hardly, I fear, be said to be reliable for producing a fair complement of bloom. I mean such plants as are left in borders from year to year. These, according to my experience, are left in the lurch from having thrown up their bold flower-stems too late, so that but very few heads are fully developed, and in by far the majority of cases there has been no colour at all. On this account, in Yorkshire at any rate, this Groundsel is not likely to become so popular as it otherwise would be, and, in order to obtain its flowers earlier, will have to be classed with and treated like such plants as Stokesia cyanea, Schizostylis coccinea, and the Belladonna Lily, all of which are much helped by raised beds, a liberal mixture of sand, and sunny, sheltered positions.

Saxifrages.—Where a good number of these are grown, there is no lack of verdure in the form of neat cushions of various hues; the rock garden more especially scarcely looks like winter, and the flowers still with us, though in small numbers, such as those of Geums, Scabious, Daisies, Polyanthus, Wallflowers, Hepaticas, Cyclamens, Sternbergias, and Carnations, are pleasing auxiliaries towards the mid-winter interest of our gardens. Since the storm of the 11th and 12th ult. foliage of all kinds has been much brighter than usual, the rain of that terrible night having had much to do with such a result. JOHN WOOD.

Woodville, Kirkstall.

PLANTS IN FLOWER.

Double white Bramble.—This is really a beautiful shrub at all times when in bloom, and more particularly in winter. It is now flowering profusely at Moore Hall with Mr. Huntley, from whom we have received a long branch completely wreathed with white rosette-like blossoms and buds.

Tritelela uniflora.—The pretty lilac-tinted variety (lilacina) of this little Chilian bulbous plant braves our cold, damp winters well, and even flowers during the shortest days. Messrs. Paul send us from their hardy plant nursery at Broxbourne some flowers of it scarcely, if at all, inferior to those produced in spring.

Marie Louise Violet.—From Major Barton's garden, at Straffan, Mr. Bedford has sent us a charming bunch of this lovely Violet, unquestionably one of the best for winter blooming. There is a great difference between well-grown Violets, such as these are, and the miserable specimens with which one often meets even of this variety. Violet culture is evidently becoming better understood and more generally practised than it hitherto has been.

Chrysanthemums at Christmas.—I must apologise for having forgotten till nearly too late to send you a bloom of that most excellent white Japanese Chrysanthemum, Mdlle. Moulise, which was remarkable by its absence at the London shows. The blooms I send are side blooms from plants not disbudded, as we find it such a free and continuous bloomer of dwarf habit, that we prefer in this instance the natural to the disbudded growth. You will see it always fills up in the centre, and never shows an eye.—EDWARD H. WOODALL.

*** The blooms sent were of medium size, of the purest white, and very full of petals. Evidently a fine kind when seen at its best earlier in the season.—ED.

Rose Queen of Bedders.—Outdoor Roses at this season are such a rarity that it was with special interest we looked upon a beautiful gathering of buds which Mr. Charles Noble sent us of his Queen of Bedders. The flowers were of course not so fine as those of summer and autumn, but the fact of their existence at this season proved the remarkable persistent flowering character of this variety. The colour is a deep maroon velvety crimson. It is named Queen of Bedders on account of its dwarf spreading growth and extreme floriferousness.

Late Chrysanthemums.—Even at this late date for Chrysanthemums the nurseries of Messrs. Cannell and Sons, Swanley, appear to be gay with them, judging by a beautiful gathering of them which they have sent us during the past week. The varieties in question consisted of very fine and varied sorts, and we singled out from among the following as the most noteworthy: Virginale, a lovely white Anemone-flowered variety; Splendens, a large and fine Japanese sort, with long broad florets of a rich yellow; Star of Wyke, small flowered white recurved; Grandiflorum, a bright yellow Japanese sort; Cometé Biela, a small recurved flower of a peculiar bronzy tint; The Mikado, a Japanese kind, like golden tassels; Mrs. C. Carey, a white Japanese, with yellow centre.

Begonia socotrana.—It is to be hoped that in the efforts being made to cross this plant with other species its own intrinsic beauty will not be forgotten. At this time of year I know of no Begonia, and indeed few other plants, that will vie with this Socotra Begonia for beauty of colour and grace of form. The softest rose sparkling in the sunlight with little crystals which cover the surface of the petals, a graceful drooping panicle, just peeping beyond the Mushroom-shaped foliage, and the size of the flowers are charms of no mean kind. Appearing in the winter, too, and continuing in bloom for several months, finally going to rest for the summer when its gay brethren of the west—the tuberous species—are in full flower and in favour everywhere, this pretty little gem coming to us from the parched deserts of that solitary island in the Indian Ocean, where it was the sole representative of its family, has that in its singular habit and beautiful flowers which appeals to one for favour, and deserves it. I have had a few flowers in water for a fortnight, and they are good yet. B. socotrana is a really first-rate winter flowering plant.—B.

Bomarsa conferta.—This newly introduced greenhouse climber bids fair to bear out all that was said of its beauty when first put into commerce. A fine specimen of it in Sir Trevor Lawrence's garden, at Burford Lodge, Dorking, one of the first plants distributed, is now beautifully in flower, carrying several large drooping clusters of its orange-red blossoms, each bunch consisting of some dozens of blooms. The plant trained under the roof of a cool, airy greenhouse has a pretty effect, particularly at this season; its foliage is very bright green and the long slender stems ramble and hang in a graceful manner. The habit of this, flowering in midwinter, will considerably heighten its value as an ornamental plant, for it is just at this season when greenhouses are most in want of good climbing flowering plants.

St. Brigid's Christmas Rose.—Now that the storm raised in reference to the name of this plant has subsided, let us turn to the plant itself, about whose beauty as a variety of the old type there can be no question—"Let him name it who can; its beauty remains the same." There is a plant of it in the Cape house at Kew growing in a pot, and bearing nine flowers of the purest paper-white; hardly a tinge of green is to be seen, even at the base of the petals, and the form of the flowers is perfect. To me this plant, which bears a label upon which Mr. Burbidge's name and "St. Brigid's Rose" are conspicuously displayed, is a long way superior to what I have always seen as the Christmas Rose. I suppose Helleborus niger varies a great deal, and that I have hitherto been acquainted with the worst varieties. The thought suggested by that 6-inch-pot plant bearing nine flowers of the purest white and most delicate substance was, that a thousand such plants at this time of year would be almost a fortune to a market grower. I never thought that of the old form.—B.

From Capri.—"I send you by post a few plants of Lithospermum rosmarinifolium, common on the rocky coast of this beautiful island, the most brilliant blue flower I know, not excepting Gentiana verna." A tiny bit of "true blue" is always welcome among garden blossoms, especially so since Grant-Allen tells us that blue is the latest and highest development of all floral colour, and that its presence has been brought about by the most æsthetic members—the Oscar Wildes, in fact, of the insect world! Interesting as all this colour-mystery is to us, I should like to know what Professor J. O. Westwood, Sir John Lubbock, or others have to say on this knotty question. Sufficient for me and our gardens is this beautiful and thoughtful gift of the "Rosemary-leaved Stone seed,' with its vivid blue flowers, so like Rosemary, in point of fact, that I instinctively sniffed at the foliage "only to be deceived," since its leaves have no fragrance.—F. W. B.

Midwinter flowers.—As a proof of the mildness of the season at the foot of the Cheviot Hills, I send you a few flowers taken from an open border on the last day of December. You will see that both Clematis and Honeysuckle, which are growing in sheltered nooks, are also making growth. I may add that Gorse is in bloom here and there on the hills, and that Snowdrops are just about to appear; these and Daffodils have pushed above the ground.—R. STEVENS, *Paston.*

*** With this note came a fine gathering of the following flowers, in good sized bunches and in excellent condition, viz: Roses, General Jacqueminot, as fine almost as in July, Gloire de Dijon, and another Noisette; Wallflowers, single, orange and red, and growths stout, and foliage healthy; Pansies, charming bunches of fancy sorts; Stocks, double, of various colours; Polyanthuses, gold-laced and self, both fine; pot Marigolds and Mignonette as fine almost as in summer; Jasminum nudiflorum, double Daisies, and Christmas Roses. Such a rich gathering as this shows that the climate of Northumberland is not nearly so bad as we southerners generally suppose it to be. We much doubt if a similar picking of flowers could be gathered now even in Sussex. –ED.]

GARDEN FLORA.

PLATE 421.
THE TIGRIDIAS.

(WITH A COLOURED PLATE OF TIGRIDIA PAVONIA ALBA.*)

THE white Tiger Flower—"this season's beauty"—an accidental seedling, originated with M. Hennequin, of Angers, some ten years ago. By him it was carefully fostered, and, after several narrow escapes of being lost, was distributed to the public. It bloomed in this country for the first time in 1883, and great was the astonishment of all who saw it. We had been expecting to see a poor, washed-out, dirty yellow flower, when a lovely large creamy white flower burst upon our view. Like good wine, it needed no "bush." Its beauties were patent to all, and all who saw it vied with one another in praising it. The flower is larger than that of either Pavonia or conchiflora, and it lasts a little longer in perfection. It is also slower in opening; while comparing the bud with that of Pavonia, one would expect it to open a day earlier than it does. As far as we can judge, it is as robust as Pavonia.

It is unfortunate that the Tiger Flowers are so evanescent. Could some method be invented by which these dazzling beauties could be made to last but one short four-and-twenty hours, how startling would be the effects produced; but, alas! their beauty is but short-lived; rising with the sun, they are faded and gone before he sets. Phœnix-like, however, they rise again. In a day or two another gay blossom takes the place of that which has departed, and this again in its turn is succeeded by three or four others.

T. Pavonia is a native of Mexico, where it is called Ocoloxochitl. It is considered to be medicinal, and it was on this account that it was sent to Europe by Hernandez, physician to Philip II. of Spain, when he was employed by the Spanish government to enquire into "the virtues" of the plants of the New World. It was not introduced into England till 1796. It has also been found in Peru, and my brother, Mr. W. H. Wallace, when travelling in S. America in 1878, collected a form of Pavonia in the vicinity of Bogota. There the flowers attained a larger size than with us and were much deeper in colour than we are accustomed to see here, but the bulbs he brought home produced flowers which showed no appreciable difference from those of the ordinary form. P.

* Drawn in the New Plant and Bulb Company's nursery, Lion Walk, Colchester, July 6, 1883.

conchiflora is a native of Mexico, whence it was introduced in 1825.

The other members of this genus are—Pavonia, bright scarlet, with orange markings in the centre. This has somehow acquired the title of grandiflora, and is usually called Pavonia grandiflora. T. conchiflora, sometimes called T. speciosa conchiflora, is a smaller and more tender species than Pavonia; it has yellow petals and chocolate markings. There are also several varieties of these, notably a variety of Pavonia with a slightly smaller flower, but darker colouring, and about 1836 a Mr. J. Horsfield, near Manchester, raised a seedling between Pavonia and conchiflora (see Paxton, vol. xiv., p. 51), and named it Watkinsoni. This was nearly intermediate between them, both in vigour and colouring. T. conchiflora is found in several shades, from citron almost to orange. Those who grow Tigridias for market usually grow both Pavonia and conchiflora; it is, therefore, difficult to keep pollen from the former from fertilising some of the flowers of the latter, and thus the deeper colour in some of the varieties of conchiflora is accounted for.

Tigridias succeed best on warm light soils, and when planted should have a liberal supply of sand, to prevent any water from lodging about them, of which they are very impatient. Though hardy in some favoured places, it is best to lift the bulbs in November, and after carefully drying them, to store them in some cool dry place for the winter, protected from frost, and to plant them again in March. Great care should be used in drying them, for if this operation be carelessly performed, the bulbs rot off at the base, and the stock becomes woefully small.

Colchester. E. A. Wallace.

SEASONABLE WORK.

FLORAL DECORATIONS.

About this season a somewhat heavy strain will be put upon the cut flower supply, especially in gardens where the conveniences for bringing plants into flower are not nearly equal to the demand. It is, therefore, essential to economise to the utmost in such cases, and those who have the arrangement of the decorations can greatly aid in this direction in more ways than one. In the first place a judicious use must be made of the material at command (both flowers and foliage), bearing in mind that an artistic effect is not produced by excessive crowding, nor by indiscriminate mixing of various varieties of flowers or colours. We have seen arrangements which would have looked much better when finished if half, and in some cases two-thirds, of the flowers had been removed and a trifle more foliage used instead. In the second place it frequently happens that large parties are held in quick succession, and where only a day or two intervenes, some at least of the flowers used can be kept over from one to the other by removing them to a cooler place, and where possible immersing the stems deeper in water. This should be seen to as quickly as possible after the festivities are brought to a close, for if left for a few hours longer than is necessary in a heated room some will be past recovery, especially if they have been arranged without either water, wet Moss, or sand. The fashion prevailing in some places of laying or grouping them on the table cloths for dinner parties is, to say the least, most wasteful and unnatural. Foliage of fair persistency may be kept in good condition for future use, and where a large quantity is in request we would recommend the dwarf and compact growing Davallias to be cultivated in quantity as one would the Maiden-hair Fern. In the third place, if any considerable space intervenes between the time when the flowers are cut and when arranged, caused either by having to be packed for transit or other unforeseen occurrences, they should all have the ends of the stems cut afresh. This is frequently overlooked, but is of more importance than many imagine. Lastly, but certainly not least, is the fact that those who have charge of decorations should also have a knowledge of the natural growth of the flowers which they are called upon to arrange. Work of this kind is often performed by persons who have no knowledge of or taste for arrangement. Gardeners have to produce the material, but we know that when this has been done in many cases to the utmost possible extent, an utter disregard has been paid to the quantity used and the decorations have been carried out without taste or skill. The producer, in short, often gets blamed when he least deserves to be. Where gardeners are allowed to perform such work themselves, they are able to do it with much less waste of material than when it is entrusted to others.

FLOWER GARDEN.

This being a slack time of year in the flower garden, a good opportunity is afforded for looking thoroughly through shrubberies to see what requires thinning, for although evergreens should not be moved now, it generally happens that the commoner kinds encroach on others, and if not looked to and cut away, soon damage them in such a manner as to permanently injure them and quite spoil their beauty. To show off as they ought, each plant should stand clear of the other, and if there is any bare ground between, the space may easily be furnished and beautified by planting any of the hardy kinds of bulbs, such as Snowdrops, Daffodils, &c., and the more open parts near walks with Crocuses, Hyacinths, Primroses, Aubrietias, Wallflowers, or anything of that kind that will stand and take care of themselves. The mistake that is generally made in the formation of shrubberies is in following the higgledy-piggledy system of planting instead of making a proper selection of suitable subjects, and arranging them according to their habit and character, giving them plenty of room to grow to their natural size without encroaching on each other, a plan that should always be adopted, as then the filling in between may be done with any common material such as Laurels, which can be gradually cut away as the others extend. By pursuing this course, much after trouble in regulating and re-arranging is saved, as the plants being put in suitable positions at first there is no occasion to interfere with or molest them again. The pruning requisite for deciduous trees and shrubs consists mainly in thinning out of the branches where they are crowded by crossing and intersecting each other, and beyond this and the removal of dead and decaying wood, the less of the knife the better. Whatever cuts are made should always be close to a bud or shoot, as then there is no dying back, and the wound quickly heals over. Although it is not desirable to prune established plants, a shortening in and reduction of the head is often a great help to large trees, fresh transplanted, especially if they are not well rooted, as it strikes a more equal balance as it were between the two, and gives the tops a chance of receiving what sap they require to keep the bark fresh and plump. What interferes with newly-moved trees and shrubs more than anything else and prevents their taking fresh hold is the want of proper support, without which they are ever on the move and the sport of every wind that blows, which sways them to and fro, and chafes off the tender fibres as they form by the straining and friction of the roots as they are pulled and pushed backwards and forwards in the ground. This being so, it will be seen how important it is that they be securely staked and tied to hold them fast in their places, which, if the plants are large, can easiest be done by using three poles tripod fashion and bringing the upper ends so as to catch the stem of the tree at about two-thirds its height. To prevent any chafing of the bark the stem should be well protected by a good packing of hay under the supports, or by the use of old pieces of carpet, which are perhaps the better of the two. For trees on lawns where neatness is a consideration, stout galvanised wire may be used instead of stakes, and if the lower ends are made fast to stubbs driven into the earth, such supports answer the purpose well, and, besides being neat, they have another advantage, inasmuch as they last a long time and never require renewal.

INDOOR PLANTS.

Ipomœas.—The distinct-flowered I. Horsfalliæ is a plant that deserves a place in every warm stove. The limited amount of growth which it makes in many cases renders it preferable to many stronger growing climbers. It is seen to the best advantage where allowed to twine round strings or wires placed longitudinally over a path. Its season of blooming varies considerably with the amount of heat kept up. Where a high temperature is maintained and the flowering is now over a portion of the strongest shoots should be well cut back towards the collar of the plant. If the strongest are not treated in this way annually the plant is liable to get naked at the bottom and it is much better to effect this shortening in as soon as the flowering is over than to defer it until some growth is made. I. Leari is suitable for a large house where there is much roof to furnish. Under a high temperature this kind begins to grow early, and to keep it in bounds it should be well cut in or headed back completely each winter. Where there is enough heat to start it early into growth and it is thus headed in at once, it will bloom considerably sooner in the season than if the shortening back was deferred until later.

Passifloras and Tacsonias.—The strong growing kinds of these, such as P. quadrangularis and others of the like warm section, should have their heads well reduced each season, otherwise there is no proportion between the amount of shoot growth they make and the quantity of flowers produced. With a view to keep the old plants from their base upwards continually furnished with healthy leaves, it is well to sever the shoots at different points; the strongest may be reduced to as near the base of the plant as it will permit, cutting in the others at various lengths, which is far better than shortening all back to one point, as it keeps the entire plant annually renewed. As a matter of course the shoot reduction now necessary with almost all the family depends upon their season of blooming, still further regulated by the heat they are subjected to, as on this their late or early flowering much depends. All the late summer or autumn blooming kinds should at once receive all the cutting in they require, as if allowed to make growths before their heads are so reduced it is manifestly a double loss both in wasting time and the energies of the plants. In houses where there is plenty of room T. manicata, T. mollissima, T. pubescens, and T. sanguinea are all worthy of a place.

Hexacentris.—Although H. mysorensis and H. lutea (the former the handsomer) are sometimes grown in a hot stove, still, like a good many other climbers that come under the head of warm stove plants, they do better in an intermediate temperature, as when so treated the flowers they produce are greater in proportion to the shoot growth. The time of these plants blooming is in a great measure regulated by the treatment they receive; when not kept very warm they flower much later and freer. At this season they should be kept much drier at the roots than many things; no more water should be given than will just keep the foliage from drooping.

Thunbergias.—Autumn bloomers, such as T. Harrisi and T. laurifolia, which are strong, vigorous growers, should have a great portion of their tops removed as soon as the flowering is over. If these are not cut in closer than plants that make less annual growth, they get into a wild, straggling, bare-stemmed condition, unsightly in appearance, with a disposition to encroach upon and overgrow other things, and do not in themselves give a corresponding return of flowers for the head-room they occupy.

Cissus and Dioscoreas.—Plants of this class, which are especially useful for clothing walls where anything of a flowering character would not have a chance of blooming much, should be cut close in, especially the best of the Cissus, C. discolor, which ought to have its head in a great measure renewed each season, the old leaves having a faded, dull appearance. All the climbers above named, if in the least affected with insects, should be taken off the wires and dipped in a strong solution of insecticide, repeating the operation two or three times in the course of ten days. They will bear it much stronger now than when soft young growth is present, and the advantage of having the plants clean to commence the season with will be apparent later on, not only in the diminution of labour, but in their better condition.

ORCHIDS.

Cattleya house.—Besides the winter-flowering Cattleyas, a few other distinct and good Orchids help to make the houses gay at this season, not the least important of these being the Zygopetalums. The old-established and well-known Z. Mackayi, with its substantial spikes of large sweet-scented flowers, is always much esteemed. Most of the species are of large growth, and to do them well they require considerable space to develop their broad leaves. These plants succeed well arranged amongst ordinary stove plants in a temperature of 55°. Z. crinitum cœruleum is a very beautiful variety, too, now in flower; the most beautiful part of the flower is the creamy white lip, which is streaked with bright blue. They do not require much attention, merely to wash the leaves occasionally with soft-soapy water. Pilumna nobilis and P. fragrans with their pure white flowers, relieved with an orange blotch at the base of the lips, should be grown in every collection. These plants like plenty of light and air, when they will produce their flower-spikes very freely. The well-known Coelogyne cristata and its varieties alba and citrina will soon be producing their much valued flowers; as the spikes develop themselves, the plants should be placed near the light to add substance to the flowers. C. barbata is much admired by some, although we do not belong to the number. Our plants had formed their spikes in the Cattleya house, but they have now been removed to the warm house to develop the flowers. This species likes plenty of water during the growing season, and even now, although the pseudo-bulbs are formed, we water freely. One of the most striking objects at present is Vanda tricolor and its varieties. If the temperature for this section of Vandas ranges from 50° to 55°, they seem to do remarkably well in span-roofed houses running north and south; at present they should not have very much water, just enough to keep the Sphagnum from drying up. It is now time to make preparations for potting them, an operation which ought to be performed this month. They ought to be repotted into clean, well-drained pots in dried Sphagnum, mixed with plenty of broken potsherds and charcoal, finishing off the surface with live Sphagnum and finer drainage material. After the potting the house must be kept closer and rather more moist.

Cool house.—The amount of attention required by the occupants of this house at present is of the simplest kind, especially in those houses where they have a north aspect. It requires but little artificial heat to keep up a temperature of 45° or 50°, and the atmosphere in such a house is kept sufficiently moist with a sprinkling of water about once in a day, the morning being the best time. The flowers of most species of Odontoglossum last a long time in full beauty if they have the right atmosphere and temperature. Some varieties of O. crispum will last for two months and even more. On the other hand, it is not wise to allow the spikes to remain too long; as soon as it is seen the bulbs are beginning to shrivel the spikes should be cut off. Many a fine variety has been sadly crippled by the plants producing flowers too freely, and their being allowed to remain on the plants too long. The cultivator will be interested in watching the development of the many species and varieties just throwing up their flower-spikes. Ada aurantiaca, with its spikes of bright orange-red coloured flowers just showing with the young growths, is a distinct and desirable Orchid to grow with others for its colour. Its bulbs do not seem to be quite so hardy as those of the New Granadian Odontoglossums. The very fine Oncidium macranthum, now showing its spikes as the growths are finishing up, requires to be watched every night. We find that even if we get our houses quite free from slugs and snails as soon as we commence potting again, minute specimens of various species are to be seen feeding voraciously on the unusual diet of succulent Orchid spikes just pushing out of their sheaths. These troublesome pests seem to lurk in the Sphagnum, and are introduced in the potting. For this reason it is best to do all the potting and surface dressing at one time, and to be extra vigilant for a month or so afterwards, and if it is necessary to repot isolated specimens during the season, the plants should be well watched at night afterwards. We will most likely be having cold drying winds between now and April, and in that case some care is necessary to prevent their withering effects on the tender growths of the Orchids. We have heard of cool Orchids doing well placed close to ventilators constantly open; but if the whole truth was known, it would, we doubt not, be found that they were shut in all cases to exclude frosty winds, or cold winds without frost. There ought always to be some means of airing the houses without exposing the plants to the direct effects of wind.

FRUIT.

Strawberries in pots.—When the earliest batch of plants begin to throw up their flower-stems place them in the lightest and most airy part of the house where they can have a free circulation of air to prevent the leaf-stalks from becoming drawn, and to favour fertilisation of the flowers when they begin to open. Give them sufficient water to keep the soil in a healthy growing state. Let forcing be carried on by day, followed by complete rest at night, when the temperature may be allowed to fall to 40° in severe weather, and 45° or more when these figures can be maintained without having recourse to fire-heat. Syringe with warm water when the day temperature begins to rise and again when gleams of sunshine favour, shutting up with a rise, but re-open the ventilators in time to prevent condensation of moisture on the glass, and damp the walls and other surfaces in lieu of overhead syringing when the flowers begin to open. From the present time and onwards two kinds may be drawn into the forcing pit fortnightly for keeping up the supply of ripe fruit, the number of plants being regulated by the stock in reserve, and, if at command, a light, shallow pit in which there is some latent heat may also be filled with such mid-season kinds as Sir Charles Napier, President, and Paxton for drawing from as plants are wanted. In a pit of this kind, although artificial warmth is hardly perceptible, an excitable plant like the Strawberry will make good progress through the early stage, as it will have time to emit fresh surface roots into the top-dressing and to perfect every organ before it is taken into the forcing house. Late kinds from which fruit is to be gathered in April and May must have full exposure to the elements, unless the weather is very wet, when the lights can be tilted, or very severe, when a few Fern fronds may be spread over the crowns in preference to covering the glass with mats. If well plunged in leaves or old tan, water will hardly be needed, but drought must be regarded as the worst enemy that can overtake the Strawberry from the day it is potted till it ripens off its fruit.

Pines.—By this time the pit in which the first Queens are to be fruited will have been cleansed and filled with new tan or leaves for giving the requisite bottom heat, and as some time will elapse before it will be safe to plunge the pots, now full of healthy roots, let it be turned occasionally and defer moving the plants until the thermometer denotes a declining heat of 90°. Then place each pot in a shallow basin and defer filling it with the tan until the heat caused by the disturbance has subsided. Meantime give the plants a little water at short intervals to bring the soil into a growing state, but carefully guard against a too free use of this element until the roots are fairly on the move. With a strong bottom heat in the house the day temperature may range from 80° to 85°, with atmospheric moisture in accordance with the state of the weather, and it may descend to 70° at night, when some slight external covering will economise and reduce the necessity for fire heat. When the early starters have been drawn, rearrange the pits, but avoid adding fresh fermenting material to the general stock of fruiters, as they will require another month's rest, and disturbance of the oldest material generally causes a slight revival, which will do no harm. Examine the different stocks of successions particularly when the pots are small, full of roots, and in near proximity to the bottom heat pipes. Give water if necessary to prevent the soil from parting from the sides, and moisten the surface of the bed to prevent a check, which might lead to premature starting when more heat is applied in the spring.

Cucumbers.—Where provision has not been made for economising fire heat by the use of good fermenting material and covering at night it is more than probable that spider, and possibly mildew, will have attacked the plants. For the destruction of the first the best remedy is light cropping, good feeding, and regular syringing with a weak solution of soft soap and Gishurst compound or clear sulphur water. The second, unless the ventilation is imperfect, may be kept in check by the use of dry sulphur applied to the foliage with a fine dredger, and syringed off again with warm water after an interval of twenty-four hours. If these troublesome pests do not quickly give way to the above treatment, the skilful cultivator will seek deeper for the cause, as a low root temperature, insufficient water, or an impure, stagnant atmosphere may be leading to the certain destruction of the plants by fostering the enemies. In some places canker is very troublesome, and it frequently happens that the sudden collapse of the plant is the first intimation that anything is going wrong; the usual remedy is quicklime and sulphur, which may be well rubbed into the parts affected, but prevention being better than cure, a liberal admixture of old lime rubble, charcoal, and rough fibrous turf should be used in the formation of the compost; the stems of the plants should not be buried in the hills or pots; and last, but not least, the admission of fresh air near the level of the bed will have a beneficial effect in purifying the atmosphere. The temperature of the fruiting house must be regulated by external conditions, as it is of no use trying to force the plants beyond their strength; a minimum of 68° with a rise of 10° to 15° from sun and eternal heat by day, will therefore be sufficient for the present, and a slight increase upon these figures may be made as days increase in length and brightness. Let the bottom heat range from 80° to 85°; add fresh, well worked Oak leaves and short stable manure to the beds as the heat shows signs of declining, and supply atmospheric moisture by filling the evaporating pans with diluted liquid, and damping all available spaces at short intervals in preference to direct syringing. Keep succession plants steadily progressing by the maintenance of heat and moisture. Avoid close stopping until the trellis is well covered with foliage, and keep them regularly divested of male and female blossoms until the time arrives for allowing them to carry fruit.

Plums and Cherries.—Where a full dessert has to be provided early in the season, these easily forced fruits form a valuable acquisition. They cannot, however, be hurried through any of the stages of their growth, as anything approaching a high temperature would soon prove fatal to the crop. To obviate this danger the earliest permanently planted house may now be closed and

kept at a minimum temperature of 40°, and 10° higher by day, with plenty of root and atmospheric moisture to favour the swelling of the buds. Always force with air, particularly when fire heat is applied, and let the temperature by night fall lower than the figures just indicated in preference to overheating the pipes when the weather is very severe. If not more than one house is devoted to Plums and Cherries, it is a good plan to obtain the first crop from pot trees, which should be thoroughly established before forcing is attempted, and as these are benefited by exposure to the elements from the day the fruit is gathered until the time comes round for forcing, the house, which should be light and airy, may be turned to other purposes for several months in the autumn. For this kind of work early kinds only should be potted, and duplicates of those most in favour will be found more satisfactory than an endless variety, which neither ripen together nor look well when dished up in mixture.

KITCHEN GARDEN.

WE have been employed during the week in digging a large quarter for Artichokes of both kinds. We have been, moreover, top-dressing Asparagus and filling up vacancies in the case of Cabbages and Lettuces. During this mild weather slugs have been tiresome and plentiful. Beds for Potatoes, Carrots, and Radishes should now be made up. We simply dig out a square space, making it to fit the frame, and fill up nearly to the glass, which settles down sufficiently low to admit of the inmates having plenty of room in which to grow and flourish. Forcing this season is a matter of little importance, the weather being so mild that little heat and less trouble are needed. We force Asparagus in old Pine stoves, and cut it when 4 inches high, all being green and wholly eatable. The very small is useful for "Asparagus Peas." Rhubarb we force in the dark, with leaves alone, and thus treated the flavour is much better than if manure were employed. Seakale we never lift, but cover with pots in the old,but useful way, and we always have a good supply. Our Cucumbers are kept at 65° at night, but we allow the thermometer to run up to 75° or 80° in the daytime before giving air. Our Cucumber house is a span-roofed structure with brick sides, and needs no more fire-heat than a lean-to.

INDOOR GARDEN.

PLUMBAGO ROSEA.

THIS Plumbago is one of the handsomest winter blooming stove plants which we possess. Individually, the flowers are not unlike those of a miniature Phlox Drummondi, and are produced freely on long, erect terminal spikes from the points of the previous summer's shoots. It is of a somewhat spare branching, erect habit of growth, and furnished with handsome medium-sized leaves. It is not suitable for being formed into permanent bush-like specimens, such as many of the ordinary stove plants, but is better adapted for medium-sized pots to be grown in quantity for autumn and winter blooming, at which season its bright rose-coloured flowers are amongst the most attractive ornaments of the stove. It is also fitted for training so as to cover an end wall in a light position, or for a pillar. The flowers are thin in texture, and unless they have been brought on and matured under the most favourable conditions in close proximity to the glass, they are liable to flag soon after being cut from the plant. It has been long known in this country, having been introduced from Eastern India over a hundred years ago, yet it still holds its place as one of a select few winter blooming subjects that have not many equals amongst recent introductions. Coming as it does from the warm parts of India, it requires a considerable heat to grow and flower it well, and unless where an ordinary stove temperature can be maintained in the winter it is not advisable to attempt its cultivation, as without enough warmth the flowering will be deficient; at the same time it is well to bear in mind that this and all other plants which open their flowers during the winter season are better not grown with more heat than is found necessary, for if they are subjected to any higher than requisite, the flowers will be of shorter duration on the plant and of less use when cut.

PROPAGATION.—It strikes readily from cuttings, which the old plants produce freely if after blooming they are kept in a temperature of 60° in the night, and a little warmer during the day; so managed, young shoots will be present in abundance about the beginning of March. Insert them three or four together in 4-inch pots drained and half filled with a mixture of sandy soil, the remainder all sand; keep moist, cover with propagating glasses, and let the temperature be a little above that in which the plants have stood to produce the cuttings. When well rooted move them singly into 3-inch pots, using good ordinary loam with some rotten manure and enough sand to keep the whole porous; pot firmly and do not give much air for a few days until they have begun to root in the new soil, after which inure them to the full air admitted to the house, and place them where they will have plenty of light. Increase the temperature as the sun gets more powerful, and give correspondingly more air in the middle of the day; shade slightly when the sun is very bright, damp overhead with the syringe at the time of shutting the air off, and when some growth has been made cut out the tops of the shoots, removing three or four joints, for, if in stopping this and other similar erect-habited plants that are little disposed to break back only just the points are pinched off, they often merely break a single shoot; whereas by removing more of the soft top of the shoots two or three breaks will frequently result. By the beginning of June move them into 8-inch or 9-inch pots, which will be large enough to grow and flower them in the first year. Use soil similar to that advised for the first potting, but a little more lumpy in texture; pot firmly, as with everything of the habit possessed by this plant a loose, insufficiently solidified condition of the soil tends to encourage weak, straggling growth.

SUMMER TREATMENT.—During the summer the plants will do with an ordinary stove temperature; although able to bear as much heat as most species from the warmest regions of the eastern hemisphere, 65° to 70° in the night will answer with an increase by day proportionate to the state of the weather. As soon as fairly established in the larger pots, stop the shoots again in the manner before advised. All through the summer they will do better in a low pit if it is of a character that will give plenty of light, as here they can be placed nearer the roof than in an ordinary house. This is important with quick-growing plants like this Plumbago, as under such conditions they make shorter jointed wood, and have always more root, both of which materially influence their ability to produce flowers. As the days get shorter, cease shading, give more air, and do not syringe overhead; this is necessary to induce a slower formation of growth and to solidify that which has been made through the season. The plants may be divided so as to have them bloom in succession; those intended to come in first should, about the middle of October, be moved into the stove, where a night temperature of 65° can be kept up and a little more in the daytime. Stand them so that the tops of the shoots will be within a few inches of the roof-glass—the nearer to it the better, if not absolutely touching; if the pots are very full of roots, a little weak manure water once a week will be an advantage. Give as much air in the middle of fine days as the other occupants of the house will bear, and do not use more atmospheric moisture than needful, as the drier it is within reasonable limits the stouter the flowers will be. The plants intended to succeed the first must not be kept too cool; they should not remain where they will be below 55° by night, or the roots are liable to suffer, in which case the blooms will be weak and small in quantity. After the first crop of flowers produced from the points of the shoots is over, if the plants are strong they will break back and push a second lot from the base of the leaves on the upper portions of the shoots. When the flowering is over give less water to the roots, and keep the plants for a time in a dormant state, after which they may be started into growth in the way already described to produce cuttings, or if desired to grow them on another season, they may as soon as broken into growth have the soil partially shaken from the old balls, be re-potted in fresh material, and grown on as in the preceding summer. When required for planting out so as to cover a pillar or wall in the way alluded to at the commencement, these one-year-old plants will best answer the purpose, as if planted, as they necessarily need to be in such situations, at some distance from the glass, newly struck examples have a tendency to become drawn up and weak. When this Plumbago is to be grown in this way, it should be in a position where its head will be able to reach close up to the glass, so as to give strength to the flowers in the way indicated.

INSECTS.—This plant is not much subject to insects, unless where the atmosphere is allowed to become over-dry; then red spider will sometimes make its appearance. Thrips and aphides will also live upon it, but the whole of these pests are usually kept away by the daily use of the syringe through the growing season. T. B.

THEOPHRASTA IMPERIALIS.

THERE are one or two other species of Theophrasta known in cultivation, but they are so far inferior to this that I have deemed it not necessary to further allude to them. T. imperialis is an evergreen, and comes from Brazil. To grow it in a way that will enable it to fully develope its leaves, it should have a strong heat through the growing season; it grows freely when once rooted, but is one of the most difficult plants in cultivation to strike. I have seen cuttings made from young shoots taken off with a heel stand in a strong heat fresh and green in appearance for two years without emitting a root, although they have callused over at the base completely, and some will ultimately form roots. On this account the plant is best propagated from seeds, but as it rarely, if ever, produces these under cultivation, it is better for the generality of those who purpose growing it to procure young plants from those who grow such for sale; they can be bought in 6-inch or 8-inch pots. If got in the spring, they should, about the beginning of April, have a shift into pots 4 inches larger; turfy loam is the best soil for them; afterwards place in a temperature of 65° or 70° in the night, with proportionately more warmth in the day. The leaves are very hard in texture, and not likely to suffer from a moderate amount of sun reaching them unless they are so exposed as to get scorched, yet it is best to shade when the weather is bright, for if the leaves are once injured, there is no way of rectifying the mischief except heading down and bringing up another growth, which takes a considerable time to accomplish. Keep the atmosphere fairly moist with air when favourable and syringe daily. The plant is a free rooter, and by the beginning of August pots 3 inches larger will most likely be required, after which continue to treat as before until the days get cool; then reduce the heat to 60° or 65° in the winter during the night.

SPRING TREATMENT.—By the spring, if all has gone well, the plants will have attained a handsome size, and will want pots 16 inches or 18 inches in diameter, which are as large as will ever be required; increase the warmth as in the year before, and treat as advised for the preceding summer. As increased strength is acquired, the large spiny-edged leaves will be produced in considerable numbers at a time. The height the plants are allowed to grow will be regulated by the height of the house in which they are to stand and the condition the lower leaves keep in, as, in common with all single-stemmed

things, which is the form this Theophrasta requires to be confined to, it should never be allowed to go on after the bottom leaves begin to go shabby; when this occurs the plants should be headed down, choosing the spring or early enough in the summer, so that the young shoots to be grown up from the old stool will have time to make some progress before the season of lower temperature has arrived. When cut down keep the stools in a brisk heat, where they will soon break out several shoots: choose the best placed of these, removing the remainder, and after 10 inches or 12 inches of growth has been made shake away three-fourths of the old material, placing the plants in pots about half the size of those they have occupied before with fresh soil. Manage as previously in every way, giving additional pot room as required; they will make handsome specimens after being thus treated, with big leaves drooping down, so as completely to cover the pots. This Theophrasta grows well with the help of manure water, by which means somewhat smaller pots will suffice, but still it can never be grown to a handsome size without more root room than many things.

Insects.—Its leaves are so hard in texture that, combined with the use of the syringe, few insects can effect a lodgment except scale, which can be removed with a soft brush or sponge. T. B.

Zonal Pelargonium Rev. W. Atkinson.—A good many zonals flower well in winter, but this one is a long way ahead of all that I have seen. It is a good grower, and produces large bold trusses of flowers that are very striking in midwinter. In colour it is a light shade of crimson, and the trusses are produced so freely as to be very effective. Cuttings of it should be struck in spring, and grown on in pots all the summer, but all flowers must be picked off until winter approaches. —J. C. C.

Ficuses.—Referring to the note on these (p. 548), allow me to state that on the Continent F. elastica is grown to a large extent on the planting out system. Cuttings are struck early in spring, and, after being well rooted, they are planted on well-prepared hotbeds in soil consisting of leaf-mould and spent hotbed manure. At first they are kept rather close, but afterwards more air is given them, and in June or July the lights are taken off altogether, thus exposing the plants to the sun and all weathers except very heavy rains. About September they will be from 2 feet to 3 feet high, and are potted and kept close for a few weeks. This method answers well; it is practised in France, Belgium, and Germany.—Louis Kropatsch, *Lavenburg*.

5117.—**Curculigo recurvata variegata.**—If, as "A Beginner" (p. 582) states, his plant of Curculigo grows freely, then the cause of the leaves decaying prematurely cannot be insufficient heat, unless the temperature is sometimes allowed to get too low. The Curculigo is an Indian plant, and requires a high temperature to grow it well. In all plants that have white variegation in the leaves, the white portion is more tender than the green, especially in the case of such kinds as this where the foliage is not of a leathery, tough, enduring character. Nothing tends so much to put the requisite substance into the leaves of this and similar plants as keeping them well up to the roof, say with their tops within 1 foot or 18 inches of it whilst growing, never allowing the shading to remain over them when the sun is not shining, and that with sufficient force to injure them. With the same object in view no more atmosphere moisture should be used than is needful. This is best effected by giving a moderate amount of air daily during the growing season. I make these suggestions under the impression that the leaves may be deficient in substance, and consequently do not last unless the plant has been affected with red spider that has escaped detection. A free use of the syringe daily all through the growing season is necessary for nearly all stove plants in order to keep down this little pest, which young hands at plant growing often do not see until mischief is done. If the heat kept up has been sufficient for the Curculigo, it will have been more than either needful or good for the Cycas revoluta, which is a Chinese plant that requires nothing more than an ordinary greenhouse temperature, with a little extra warmth in spring and summer, in order to start growth and help to bring the leaves up to their full size.—T. B.

Kitchen Garden.

EARLY POTATOES.

The season has now arrived when these should be started into growth, and in doing so they must not only have heat, but light. The former without the latter would be ruinous, as when Potatoes are run up weakly at first they never seem to succeed. In starting them in pots they should not be put into a much higher temperature than that in which they are intended to be when finally planted out. In the long run there is nothing gained by it. The best results can only be obtained by regular, steady growth, without unduly pushing or checking.

A good sized bed of leaves in a pit or a bed upon which a frame and lights can be placed is an old and an excellent way of forcing Potatoes. A nice, steady, genial warmth proceeds from such a bed which is specially suitable for them. Nine inches or 10 inches in depth of light, mellow soil should be placed on the leaves, and the Potatoes may be planted in the course of a few days as there is no fear of overheating. At night thick, warm coverings must be used, but during the daytime as much light must be admitted, even in frosty weather, as is consistent with safety.

Wherever there is space on shelves or stages near the glass, Potatoes may be successfully grown in pots. Light is the very life and soul of the Potato plant, and without abundance of it Potatoes of good quality cannot be grown. In the preparation of the sets only one stem should be permitted to grow. Three of these single-stemmed tubers may be planted in a 10-inch pot. In planting leave space to earth up later on. A good deal may be done with liquid manure by-and-by if the stems have strength enough to turn it to account. The old Ashleaf is the best kind for early work, though the Walnut-leaf is grown and appreciated by some. E. H.

Celery maggot.—At our last gardeners meeting the subject of the disease affecting Celery was under discussion, and no member present was able to specify a remedy, lime and paraffin having been tried with no good result. It was therefore felt desirable that more extended experience should be sought. Having every reason to believe that the maggot that has destroyed the Celery crop in this district is no stranger in other parts, we hope to hear that some have been successful in finding an effectual remedy for it, and that they will generously communicate the same to their compeers at Sutton through the columns of The Garden.—W. Haslam, *Sutton Valance*.

Chou de Burghley.—In last year's volume (p. 577) "S. D." points out what he appears to think a seeming contradiction in my note as to this vegetable (p. 472). It is now more than a month since that note appeared, and as yet I see no reason to alter my estimate of this Cabbage formed at that time, but rather have had confirmation of it. It is certainly a distinct and finely flavoured vegetable, but I would point out it by no means follows that "it must be superior to an autumn Cabbage or Savoy." In Chou de Burghley there are two quite distinct kinds—one with light and the other with dark coloured leaves, and out of about 200 plants sown and planted as directed, I have only yet found four or five firm heads, and those dark leaved. If there be no improvement on another trial, I must, though reluctantly, consider it to be not worth growing. It may not have struck "S. D." that I write from my experience of it in the extreme north of the kingdom, while all the evidence I have in its favour appears to come from about the midland and southern counties.—R. Stevens, *Paston, Northumberland*.

English *v.* French Mushroom spawn.—We have tried both English and French Mushroom spawn, and we decidedly prefer the English. Beds with one end spawned with English and the other with French spawn have led us to this conclusion, as the English end produced Mushrooms long before any were visible at the other, and the home-made spawn produced a fine heavy crop, while the other was next to a failure. From the first I disliked the look of the French spawn; it was in small particles in a box, and not made up like our own firm bricks, which I should say, would retain the fungus germs much longer than the loose material from France.—J. Muir.

QUESTIONS.

5120.—**Malleable coil or tube boiler.**—Can anyone kindly say how this is to be set in brickwork so as to obtain most heat from the fuel used, and what is the best fuel?—T. J. H. S.

5121.—**Charring turf.**—Will some of your correspondents kindly say which is the best plan to char a piece of turf? I understand that turfy soil, when reduced by burning and then well soaked in liquid manure, makes an excellent compost in which to pot many greenhouse plants.—M. L. W.

5122.—**Apple trees and Strawberries.**—Which are the best for Apples in the borders of gardens—espaliers or bushes? and will some of your correspondents at the same time mention six kinds of Strawberries of the most approved sorts for a garden in Tyrone?—G. H.

5123.—**Non-resinous Conifers.**—Can anyone inform me which of the Conifers contains the least resin? Some Conifer wood is required for an experiment, and the least resinous is wanted for that purpose.—R. B.

5124.—**Fruiting Vine canes.**—Could what are advertised as fruiting canes be planted out in a vinery as the permanent Vines, so as to take a moderate crop next autumn and then be allowed to bear regularly afterwards? as if so, it would appear that a great deal of time would be saved, with, of course, an increased first cost.—S. C.

5125.—**Laurustinuses not flowering.**—Five or six years ago the Laurustinuses here always bloomed most profusely from November until March or April, but of late years they have failed to do so, and now even the largest bushes do not produce more than a handful of blooms at any time. Has the same thing happened elsewhere? and if so, what can be the cause? They produce plenty of young wood every summer, but in my opinion there does not appear to be sufficient sunshine to develop and mature the flower-buds.—J. Muir, *Margam, Taibach, Glamorganshire*.

5126.—**Hocking's Conical Boiler.**—Can any reader of The Garden give us their experience of the heating power of this boiler? We have one 2 feet in depth which is required to heat two houses, one containing 170 feet of 4-inch and the other 180 feet of 3-inch piping, and we cannot obtain nearly sufficient heat to keep one as a stove and the other so that cold will not injure the plants, particularly on cold nights. With constantly stirring the fire we can manage in the daytime to maintain the proper heat. It is at nights when the fire has necessarily to be left for a length of time that our plants suffer. Would a chimney a few feet higher have any better effect? At present the smoke is carried only 4 feet or so above the hopper. We shall be glad of any suggestion likely to remedy the present state of things.—F. M.

5127.—**Mushroom failure.**—Will some reader kindly give me his opinion as to the cause of failure in the following case? The bed was made up in the middle of September, and by the middle of October thousands of little Mushrooms appeared upon its surface. But on finding they made no progress I covered them with hay; under this treatment a few came on, while all the rest died off. In a few days, however, another lot sprang up, but only to show themselves and then die off, as the rest had done, leaving the bed one mass of small dead Mushrooms. I may just add that the bed was made up in the usual way, and consisted of a mixture of droppings and soil made very firm. I removed the hay every three or four days, and kept the house and bed tolerably damp; temperature 55° to 70°.—W. B.

5128.—**Carolina Strawberry.**—Last summer I saw in an old garden near Brighton an old-fashioned, but very delicious and free-bearing Strawberry, which I was told was the Carolina. It was of moderate size, its colour being pure white, very delicately flecked with pink, so that it appeared to be less than half ripe even when fully ripe. Now, upon turning up an old authority on Strawberries, I find the true Carolina, otherwise called the old scarlet Pine, described as follows: "Fruit medium-sized, ovate, even, and regular, and with a glossy neck, skin deep red, flesh pale red, very fine and solid, with a fine, sprightly, and very rich Pine flavour." The above does not tally with the Strawberry which I tasted in Sussex. Therefore, either the Sussex kind was wrongly named by its owner, or else there are two sorts of Carolina. Can any of your fruit-growing correspondents tell me what is probably the name of the Sussex Strawberry described above, and whether it is still to be procured from nurserymen?—A. C. Blackstone, *Glasgow*.

ORCHIDS.

POTTING CATTLEYAS.

I AM sure that Mr. Douglas has unintentionally substituted the word Orchids for Cattleyas. If he has read me aright, he will see that Cattleyas are the only plants mentioned by me. I certainly should not say that winter was a bad time for potting many other kinds of Orchids; I am myself potting some at the present time. Mr. Douglas will see that I have not said in any way that it was hurtful to pot imported plants in crocks only. I do not think there is the least harm in doing so; but I do say that in most cases it is unnecessary, and consequently but waste of time. Any plants which I may get in very bad health are just placed with sufficient of the old roots left on to keep them about 2 inches or 3 inches off the shingle, a practice which answers every purpose. Mr. Douglas says that Mr. Ward always potted in winter. In the case of Cattleyas I am inclined to think he left them until February at the earliest; but I would point out that though everyone knows Mr. Ward was a very successful grower, Orchid growing has made great leaps, even in the half-a-dozen years since Mr. Ward exhibited. I should like to ask Mr. Douglas what are his resting months for Cattleyas. He says: "I find that our Cattleyas are now making new roots from the base of the pseudo-bulbs, and we are potting the whole of them that require it. Our Cattleyas, with the exception of C. Trianæ and Percivaliana, are at perfect rest." As most of the species do not finish up their growths until November, I cannot understand their starting off to root again in December. Perhaps Mr. Douglas' plants make two growths a year. When I wrote "plenty of air," I meant beginners to understand that Cattleyas like air. When most people start Cattleya growing they fancy they require baking. I had not Mr. Douglas' remarks by me at the time when I quoted from them, and I find that I left out the last three or four words, though they do not very much alter the meaning which I placed upon the sentence.

Let me, in conclusion, advise such amateurs as are undecided what to do with their Cattleyas that require potting to shift some now and leave some others until summer, and at this time next year tell us which did best.

Silverdale Lodge, Sydenham. A. G. CATT.

RARE ORCHIDS IN FLOWER

THE following are among the most noteworthy of the choicer kinds of Orchids now in flower in Mr. Bull's nursery at Chelsea. Among the Cymbidiums is the extremely rare C. elegans, which comparatively few orchidists have seen in bloom. It has the habit of C. Mastersi, but the flowers are quite different. The spikes, which are pendulous, contain a dozen or more blooms, partially closed, and their colour is a soft citron-yellow. It is a most distinct-looking Orchid, and graceful and showy withal. The most striking of the Phalænopsids is P. amabilis Dayana, which is remarkable for the deep vinous red colouring of the labellum, which renders it most distinct. Among the numerous Oncidiums is a diminutive species aptly named O. pumilum. It is, however, something more than a botanical curiosity, inasmuch as it is showy in its way. The tiny yellow blossoms are crowded on spikes some half-dozen inches long, and hang elegantly from the suspended pan. Another rather uncommon Oncid is O. pubes, also a small species, having chocolate flowers on congested spikes. O. cheirophorum is also an engaging little plant, and quite attractive seen *en masse*. Vanda concolor, though not showy, is remarkable as a scarce species. It simulates V. lamellata, and, like it, has flowers of a brownish yellow, about the size of those of V. insignis. Among the crowds of Odontoglossums the most conspicuous is O. crispum and its endless forms. Here they exist in abundance, and the houses devoted to them present a fine sight. Besides O. crispum and O Pescatorei, which constitute the bulk of the flowering plants, one may see the pretty, and yet scarce, O. Edwardi, a pretty plum-coloured violet-scented species, which we always class among the *élite* of Orchidaceous plants. The yellow variety of O. crispum (flaveolum) has been a great attraction; also some superb hybrid forms, notably one in the way of O. luteo-purpureum. Among the Cattleyas and Lælias were a lovely white flowered variety of C. Trianæ, with only the faintest flush of pink in the labellum to mar the spotless whiteness of the flowers, which were large and finely shaped. Among the Cattleyas, too, there is a splendid form of the much criticised C. Percivaliana, one of the best we have seen, the labellum being of an intense maroon-crimson blotched with gold, while the petals and sepals were a deep lilac. Besides the choicer forms of L. anceps, such as Hilli, there was the new and very rare L. Crawshayana, a species in the way of L. anceps, but different in form and of richer colour.

Zygopetalum Mackayi.—A spike of this useful old-fashioned Orchid has been sent to us by Mr. Percival's gardener (Mr. Beddoes) at Birkdale, who says that the specimen from which the spike was cut bore 16 similar spikes, and in September last the same plant bore no fewer than 30 spikes.

Cattleya Eldorado var.—Mr. H. W. Elliott also sends us from the neighbourhood of Birmingham a superb flower of the variable C. Eldorado, and one quite distinct from the ordinary run of varieties. The most noteworthy point about it is the heavy carmine blotches on the petals, much the same as in Backhouse's variety of C. Trianæ. The ground colour of the petals and sepals is a delicate mauve, while the labellum is an intense amethyst. Mr. Elliott also sends a fine bloom of Lælia anceps, large and highly coloured.

Odontoglossum nebulosum album.—The spotted forms of this beautiful cool house Orchid are common enough, but it is not often that a spotless white variety is seen; indeed we do not remember having seen one before the other day, when it occurred in Mr. Peacock's garden, at Sudbury House, Hammersmith. The flowers of this form were as large as those of the original, and the spotless whiteness of the petals and sepals renders the blossoms chastely beautiful, and in striking contrast to another variety of the same species in this collection named pardinum, which is remarkable for the profusion of heavy spots on the sepals and petals.

Cypripedium Spicerianum. — Among some blooms of this beautiful Lady's Slipper sent to us by Mr. H. W. Elliott is one which has the upper exterior of the dorsal sepal of quite a pinkish purple, while another has a peculiar formation of the column. Shortly we shall hear of numerous distinct varieties of this Orchid as the large importations we are now getting come into flower. It is to be hoped, however, that every slight variation from the original will not be donned with a varietal name, as too often Orchids are.

The Odontoglossum houses in Mr. Peacock's garden at Hammersmith seem more charming than usual at this season, when everything in the outside garden wears a gloomy aspect. These houses, containing thousands of plants, teem with perfect thickets of spikes, which, from their slender gracefulness, lend additional beauty to the crowds of chaste flowers they support. There is assuredly no prettier sight in a garden, especially in the depth of winter, than a houseful of Alexandræ Odontoglossums in full bloom, but we hardly know in this case which an Orchid lover would be charmed by most, the glorious display of Alexandræ and Pescatorei in endless form and variety, or by the dainty rarities with which this collection is enriched. At the present time may be seen one of the finest varieties of O. Andersonianum that has flowered in the country; it is remarkable for the profusion of chestnut-brown spots on the white ground, but unfortunately the flowers do not seem to fully expand, at least not all at one time. The luxuriant growth, the healthy green foliage of all the cool Orchids in this garden, is no less remarkable than the profusion of bloom—a proof that the requirements of South American Orchids is well understood by Mr. Vicary, the gardener.

Varieties of Lælia anceps—A beautiful series of the different forms of Lælia anceps has been sent to us from Mr. R. P. Percival's rich Orchid collection at Clevelands, Birkdale, Southport, by his gardener, Mr. S. Beddoes. There are six varieties in all, the most remarkable being one named Percivaliana, as it is so distinct from all other forms with which we are acquainted. Its sepals and petals are almost pure white. The labellum is the most distinct part; in the throat it is heavily pencilled with lines of claret-purple, then lower down is a broad band of white surmounted by a yellow crest, while the lowermost lobe is wholly of an intensely deep amethyst, a colour which also edges the side wings of the lip. This is the first we have seen of this beautiful variety, which we believe originated in Mr. Percival's collection. Professor Reichenbach adds pulcherrima to the name. The other forms include the delicately tinted L. Hilli, which is almost white, save a lilac tinge on the lip; L. Barkeri, remarkable for the intensely deep crimson-purple of the lip. Besides these there are two unnamed varieties, both of which have unusually large flowers and are richly coloured. This series alone shows what diversity of colour exists in this lovely winter flowering Lælia, and then it does not include the queen of all, the superb L. Dawsoni, or the rare pure white variety.

NOTES OF THE WEEK.

Royal Horticultural Society of Ireland.—This Society's show fixtures for the coming year are as follows: Spring exhibition, Thursday, April 17; May do., Thursday, May 15; summer do., Thursday, July 3; autumn do., Thursday, August 28; winter do., Thursday, November 20.

New Zealand Hops.—The 11th annual report of the Botanic Garden Board of New Zealand speaks hopefully of the ultimate success of attempts to cultivate Hops in the province of Wellington; in Nelson success has been already secured. The great drawback is the expense of providing the necessary poles, and much stress is laid upon the necessity for cultivating Oak, Ash, Birch, and species of Eucalyptus for that purpose. Of the indigenous poles, those of Myrsine Urvillei are said to be the most durable.

Conophallus Titanum.—The development of leaves belonging to that section of Arads characterised by a tuber from which the flower is produced, followed annually by the leaf, is almost as interesting as the unfolding of a large blossom. Some of the leaf-stalks are marked with blotches and stripes in such a manner as to give them the appearance of some reptile, the cluster of leaf segments folded together at the top adding to the resemblance. The giant of the section is the plant just mentioned. At Kew it is making a new leaf which promises to be a very fine one. The growth is extremely rapid, almost 6 inches in height being made each day. Why should this plant suggest one of the most repulsive of animals by its curiously marked and singularly shaped leaf and its flowers have a most repulsive odour? Mr. Grant Allen could perhaps answer this question.

The Veitch memorial trustees have decided to allot the following medals and prizes during the present year, 1884, viz.: I. A Veitch memorial medal and prize of £5 for each of the following subjects: (1) The best specimen Orchid in bloom; (2) the best stove or greenhouse plant in bloom; (3) the best dish of two bunches of Grapes, one variety—these to be offered at the Dundee international show which takes place on September 11–13. II. A Veitch memorial medal and prize of £5 for (1) the best specimen Orchid in bloom; (2) the best stove or greenhouse plant in bloom—these to be offered at the Royal Botanic

Society's show on May 21; and for (3) the best dish of three bunches of Grapes, to be offered at the Royal Botanic Society show on June 18. III. A Veitch memorial medal and prize of £5 were also placed at the disposal of the respective committees of the National Auricula Society (southern section), of the National Carnation and Picotee Society (southern section), and of the committee having charge of the National Dahlia show. These prizes are only eligible to be competed for by amateurs and *bonâ-fide* gentlemen's gardeners.

Ferns and their cultivation.—At the fortnightly meeting of the Manchester Horticultural Mutual Improvement Society, Mr. W. Birkenhead read a paper the other evening on the cultivation of Ferns. He dwelt upon the natural conditions under which Ferns are met, noticing what modest and retiring spots many of them choose for themselves; so in our attempts to grow them a quiet and shady position will suit many which, if placed on high and airy stages, would shrivel and pine away. The Todea superba, T. pellucida, and many of the Hymenophyllums would come under this head, and among this class less heat was needed than hitherto many had been disposed to give. He had received letters from people in many parts of the country assuring him that though their plants had been frozen for days together no harm whatever had resulted from such a severe ordeal. The Notholæna, Calanthes, and Gymnogrammas must have treatment in many respects the opposite of the preceding. For them, light, an airy situation, and much less moisture would be required, and when successfully managed they are amongst the most beautiful of the family. Mr. Birkenhead showed the folly of potting Ferns too firmly, preferring a rough open soil in which cinders and sand formed a not inferior part to that which is more compact.

The last flowers of the year.—This has been one of the most trying seasons for alpine and herbaceous plants I ever remember to have experienced in the midland counties. Having had little or no frost, the plants have never been at rest, and the miserable dark foggy weather which we are now having keeps everything in a sodden state. In looking round this morning, December 31, I noticed the following in flower, some of them rather out of character in both size and colour, viz.: Jasminum nudiflorum, Daphne Mezereum, Chimonanthus fragrans, finely in flower and abundant; Primula acaulis, P. acaulis sulphurea and lilacina fl.-pl., P. elatior alba and Gilbert's Harbinger, the best white in cultivation; Helleborus fœtidus, H. lividus, H. niger and maximus altifolius, very fine; Crocus longiflorus, C. ochroleucus, C. chrysanthus, and C. vitellinus, Arabis albida, Anemone blanda and A. hortensis, Geum miniatum and G. coccineum fl.-pl., Armeria cephalotes rubra, Scabiosa caucasica, Doronicum hybridum (Harpur Crewe's var.), one of the best herbaceous plants known, having been in flower 10 months; Colchicum roseum fl.-pl. and C. arenaria, a most desirable species; Aubrietia Eyresi, Trollius europæus, Gentiana acaulis, Tritoma Burchelli, Aster ericoides, Cyclamen coum, Erica vagans rubra, Menziesia polifolia purpurea, and Galanthus nivalis var. corcyrensis. This is one of the most useful of the Snowdrops, coming into flower in the end of November after G. octobrensis is over, and prolonging the season till the old G. nivalis gladdens the sprig.—FLOORE.

RHODODENDRON POISONING.

MR. A. NESBITT, in the *Gardeners' Chronicle*, queries the oft-repeated assertion that honey made from the flowers of Rhododendron ponticum is poisonous, and even that the plant itself is so. He says that he has observed lambs eating a small quantity of the leaves either of R. ponticum or hybrids of that plant, and no bad result followed. He suggests that as the flower of the Oleander is more like a Rose than the Rhododendron, it is probable that the former was the plant from which the honey was obtained which poisoned Xenophon's soldiers, the Oleander being well known to be poisonous. In reference to this point an Italian correspondent writes in the same journal as follows:—

"Having resided at Trebizond, the scene of the poisoning by honey of Xenophon's soldiers, I can say that the chief undergrowth and copse of that part of the southern shore of the Euxine, or Black Sea, consists now of Rhododendron ponticum and Azalea pontica, whereas no Oleander grows on any part of that coast. The Rhododendron has little or no scent, whereas the Azalea has a very powerful and sweet odour. The flowers precede the leaves, and in spring whole hillsides present sheets of golden yellow, and the country is perfumed for miles around. The opinion of the natives is that the poisonous honey called in Turkish *Delli Bal*, or mad honey, is derived from these highly scented flowers of the Azalea. The honey has a very peculiar, and to most people disagreeable, taste in its crude state, and when eaten produces vertigo, sickness, purging, and great prostration; after many hours the effects pass off, and the sufferers gradually recover. The honey, nevertheless, is much used in cookery, confectionery, and for preserving fruits, being much cheaper than sugar; but previous to use it is cooked on the fire, and the heat volatilises the poisonous principle, when it can be eaten in safety. Whether the Rhododendron is also poisonous I do not know; many think it is, and such was evidently the opinion of Xenophon."

The Rev. C. Wolley Dod, Edge Hall, Malpas, contributes to the same paper an interesting note which throws some light upon this point. He remarks that there were apparently two kinds of poisonous honey met with in Pontus, one found near Heraclea and the other near Trebizond, the former being attributed by Pliny to a plant called "Ægolethon" or Goat's Bane, the other to a plant which both he and Dioscorides called "Rhododendron;" but they also used the name "Nerium" for it. The latter Sibthorp has identified as Nerium Oleander. Mr. Dodd can find no direct evidence that Rhododendron ponticum is poisonous; but Azalea pontica, which occurs in profusion near Trebizond, about ten miles from the coast, he believes to possess poisonous properties similar to those attributed to Kalmia latifolia. It is a noteworthy fact, if correct, that no species of Rhododendron is known to be poisonous, while members of the other Ericaceous genera, Azalea, Kalmia, and Andromeda, possess poisonous properties. M. Peysonnell, in a treatise published in Paris, in 1787, mentions among the annual exports from Taman, on the east side of the Sea of Azov, 500 quintals (about 25 tons) of honey collected in Abaza, a region on the north-east coast of the Black Sea, extending up to the west slope of the Caucasus. This honey was called mad honey (meil-fol), and its use was for mixing with intoxicating drinks to increase their effects. It is remarkable that Pliny uses the same word "mad honey" for the poisonous honey of Pontus.

NEGLECTED VEGETABLES.

"RUSTICUS," writing in the *St. James's Gazette* the other day, says: "Receive the best thanks for 'Neglected Vegetables' of one who has, in maintaining strict orthodoxy as to flesh-meats, thought it no bad use of a few acres to devote them to the development of the vegetable reserves which are essential for keeping the human machine in working order. No doubt the Tomato is the brilliant conquest of the century. But your writer should not forget the Brussels Sprout, brought over (as its name denotes) from the Low Countries early in the century, and first grown at The Deepdene, Dorking. Then there is likewise, though far too little known, the Celeriac—that Celery of which the root is eaten. I wonder also that the Aubergine did not remind him of another kitchen fruit, botanically far apart but with culinary affinities—the Vegetable Marrow—as to which I claim a protest loud and unsparing against those two nauseating sauces, the melted butter and the cornflour, the misuse of which by cooks and cookesses of the baser sort has, I believe, done more to injure the cause of reasonable vegetarianism than anything else. Then that vegetable should remind us of those noble Pumpkins whose rotund beauties, displayed at this season at the French greengrocers' doors, may make an Englishman blush for his country. Nor should we let it be forgotten that the Beetroot is a workaday vegetable, and not merely a form of salad. The neglect of Sorrel is also incomprehensible. To come to more homely themes, the Carrot has a wider sphere of usefulness than merely to make the soup which is, I suppose, called Crecy from some connection between its colour and that of the traditionary British soldier, or to garnish rounds of beef. The pronounced flavour of the nutritious Parsnip divides the world (to borrow Mr. Gladstone's dictum on dogs) into "lovers of Parsnips" and "haters of Parsnips;" but those to whom the delicate Salsify is unpalatable must be few and eccentric. Red Cabbage is usually left to the pickle-pot; but as a cooked vegetable it is delicious, particularly with a little lemon-juice, not vinegar. Then there are two salad plants of indigenous origin and old literary fame now, generally speaking, as much forgotten as they are easy of growth. The succulent Purslane, commended by Sir T. Elyot for its medicinal virtue, is, with its slightly alkaline flavour, cool and refreshing in the summer heats; while, as a thick vegetable soup, it is recommended by its piquant flavour. The Rampion, conspicuous for the graceful blue bell which marks it as of the Campanula family, might cheer many a table, as it does mine, at this season with its roots shining as ivory and its flavour recalling the Filbert. Such are merely samples of the wealth of vegetable food so stupidly neglected by the average English householder.

OBITUARY.

Thomas Speed—We have to record with much regret the death of Mr. Thomas Speed, who shot himself on Wednesday, the 26th ult., the only reason assigned for the act being mental depression through great bodily pain arising from gout. Few persons were better known than Mr. Speed, who had been some fifteen or sixteen years at Chatsworth. He was of a kindly disposition and very popular. At flower shows his services were always in requisition, and few exhibitions of any importance were held in Derbyshire at which he did not officiate either as steward or judge. He was fifty-two years of age, a widower, and had six children. Previous to taking charge of the gardens at Chatsworth, Mr. Speed was gardener to Sir Edward Walker, Berry Hill, Mansfield, where he gained considerable fame as a Grape-grower. He had also served some time at Belvoir Castle and Wrotham Park, where he laid the foundation of that practical knowledge he subsequently displayed in the management of the noble gardens of which he had charge and which he conducted so satisfactorily.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*W. H. M.*—Bryophyllum calycinum.——*A. H.*—Appears to be one of the Pittosporums, but cannot name without seeing flowers.——*J. C*—1, Cupressus macrocarpa; 2, Wellingtonia (Sequoia) gigantea; 3, Cryptomeria japonica; 4, Thuja occidentalis.——*W. Bulmer.*—A species of Mormodes, but cannot name with certainty from the withered flowers——*J. D.*—Salvia leucantha.——*Subscriber.*—1, Sedum album; 2, Thuja occidentalis; 3, Stachys lanata; 4, send when in flower.——*G. Paul & Son.*—Helleborus graveolens.——*R. Elliott.*—Next week.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received. In all cases where the numbers of the specimens sent are not mentioned, it must be inferred that the fruits to which they were attached are either local sorts, and therefore unknown at Chiswick, or that they are not in a fit condition for naming.*

Names of fruits.—*Mrs. H. B.*—Undoubtedly King of the Pippins, though small samples of that variety.

No. 634. SATURDAY, Jan. 12, 1884. Vol XXV.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CALANTHES AT SINGLETON,

In the county of Glamorgan, and indeed throughout South Wales, the Singleton Calanthes have had for years a high reputation for their excellence, a distinction which they well deserve. I have seen the bulbs in a dry state, the plants in full leaf, and also when bearing their numerous finely developed spikes of bloom, and at all times they have struck me as being first-rate. In fact, they seem to be made a speciality of at Singleton, and Mr. Harris is an adept as regards their culture. Visitors to Singleton are sure to be attracted by the Calanthes in whatever stage of growth they may be, so unusually vigorous is their growth. When they have finished flowering, they are turned out of the material in which they have been growing and every root is cut clean away from the bulb. This is done about the end of February; the bulbs are then put closely together in a single layer in shallow boxes with a little Sphagnum Moss under and aronnd them. They are then placed in a shed or other structure where they are kept quite quiet, and not excited by a high temperature. In April and May they begin to show signs of growing; then the box with its contents is saturated with water, and more heat and moisture are given until the growths are about 3 inches long, when all the bulbs are shaken from the Sphagnum and placed in their growing and blooming pots and baskets. Only one shift is given them, and this is in June. Some are put into wire baskets for hanging up and many are put into 6-inch and 8-inch pots. Some of the bulbs are grown singly, but the main portion of them consists of groups of three and four together. The potting material is a mixture of Sphagnum, peat, loam, and broken pots, with the addition of a little cow manure and used in a somewhat rough state; the pots are well drained and firmly packed; the bulbs are slightly let into the soil, but not in any way covered over with it. After potting they are thoroughly watered and kept shaded for a short time, but throughout August, September, and October they are fully exposed both to sunshine and light, treatment which benefits them greatly. When grown in the shade the leaves get flimsy, bulbs weak, and the flowers never bright or vigorous. Manure water is only given late in autumn, and then that made from cow droppings is preferred to all others. Throughout the growing season they are treated as stove plants, and as soon as the leaves show signs of becoming yellow in October water is gradually withheld until, by the middle of November, all the foliage is off, the flower-spikes up and opening, and then they are kept quite dry at the root. From the time when they come into bloom until it is over, which is from the early part of November until February, they receive no water at the root, and under this treatment it is astonishing how fresh and bright the flowers look. Each of the bulbs throws up two, three, and four spikes, many of which are 4 feet in length, and bear from forty to forty-five blooms; they surpass everything at this season for stove, conservatory, or room decoration, and when grouped together amongst Ferns the effect which they produce is grand in the extreme, the Ferns forming a charming underground to the gracefully drooping spikes of the Calanthes. The varieties grown here consist chiefly of C. vestita and C. Veitchi. In the latter some of the flower-spikes in certain pots are paler than others, but this Mr. Harris attributes more to shade and sunshine than to difference in the way of variety. CAMBRIAN.

PERCIVAL'S CATTLEYA.

At length the merits of the new Cattleya Percivaliana have been recognised by the South Kensington floral committee, who were unanimous last Tuesday in awarding a first-class certificate to a superb variety of it which Mr. Percival submitted to them for adjudication. In all important Orchid collections throughout the country, from Mr. Gair's in Falkirk, to Sir William Marriott's at Blandford, and those about London, we hear of the simultaneous flowering of this lovely Cattleya, and all unprejudiced orchidists agree in pronouncing it to be a veritable gem among Orchids and a real acquisition. Even detractors of the plant a year or so ago, before the imported plants had time to establish themselves, are beginning to see that their adverse criticisms of it were premature. Putting aside all bias, those who know what a good Orchid is, and the real value of a Cattleya that flowers at Christmastide as this one does, will, without hesitation, rank Percival's Cattleya among the choicest of its race. There has been a good deal too much quibbling about the mere name of this particular Orchid, while the real merits of the plant itself have been generally overlooked. Whether *savants* consider it but a form of C. Mossiæ or Trianæ, or even of the genuine labiata, for that matter, is of little moment to cultivators who love Orchids for their own sakes. Be its name what it may, Percival's Cattleya has been distinct enough and beautiful enough to stand on its own merits from the first without being ranked as a variety of the old labiata, which it evidently is not according to the generally accepted views of orchidists, and it is to be hoped that henceforward it may be known simply as Cattleya Percivaliana, being undoubtedly quite as much entitled to specific rank as either C. Mossiæ or Trianæ, which in a broad sense are unquestionably only varieties of the original C. labiata. The three plants of C. Percivaliana shown at South Kensington on Tuesday last not only afforded sufficient proof of the beauty of this Cattleya, but also showed the wide variation existing among individuals. The plant shown by Mr. Percival possessed a broad, shallow labellum exquisitely coloured and with broader sepals and petals than usual, while the two plants of it from Mr. Southgate's collection were quite distinct from each other, one having a lip much suffused with orange on a rich maroon ground, the other being altogether a paler form and much inferior in beauty. Some take exception to the small size of the flowers, as none have as yet appeared as large as those of a Trianæ. If size alone were a characteristic of beauty, Percivaliana would certainly not possess much, for the flowers that have expanded up to the present time have not been more than two-thirds the size of those of a Trianæ or a Mossiæ. But we may yet see large flowers of Percivaliana when the imported plants have become thoroughly established and have produced vigorous home-grown bulbs. Singularly enough, Mr. Percival, in compliment to whom Reichenbach named this Cattleya, was the first to be awarded a first-class certificate for it, although it had been shown several times previously.

W. G.

Glazed pots for Orchids.—I have always been led to believe that glazed pots were not good for Orchids, or indeed for any other plant, but I must say that from what I have seen lately I am rather inclined to try them. One has only to go to Drumlanrig and see the grand Crotons, Dracænas, Cypripediums, and other plants all in glazed pots to be convinced of their utility. What a saving when cleaning time comes round to have pots always clean and tidy looking. Mr. Buchanan, Oswald Road, Edinburgh, has all his Orchids in glazed pots, and where could any be found doing better? The health exhibited by all the plants growing in them proves that Orchids like clean pots. The pots to which I refer are different from the ordinary glazed pot and are quite rough inside. The cost is only some 2d. a cast more than that of the old unglazed pot. Some water turns pots very quickly green; here, if all were cleaned now, in two weeks time they would be as bad as ever, not to mention the damage liable to be sustained by the plants in washing.—H. THOMSON, Jr., *Clovenfords.*

ORCHIDS AT DUNLOP HOUSE, AYRSHIRE

There is being formed at this place a very fine collection of Orchids, which will in some measure help to compensate for the various collections that have been dispersed of late on this side of the border, such as those at Uddingston, Mayfield, and Bawcliffe Lodge, &c. With such an enthusiastic lover of Orchids and, indeed, of all plants as Mr. Graham, the owner, and a gardener like Mr. Kemp, the Dunlop House Orchids will soon be as well known as were some of those famous collections just named. Vandas are the strong point, and those who seem to take a delight in writing this genus down should visit such places as Dunlop House, where I am sure they would see reasons to alter their opinion. They occupy nearly the whole of the centre bed of a large house and are all feathered with leaves down to the baskets in which they grow; some of them will be 7 feet or 8 feet high, and have five or six side breaks. The variety of Vanda suavis most grown is a very good one and what I have sometimes seen labelled "Rollisson's." There is also a very fine young plant of V. suavis Gottschalki, a variety which is well grown and flowered at Clovenfords. The variety of V. tricolor that I saw in bloom was rather pale coloured, but Mr. Kemp told me that other plants of it were of a very fine and distinctly marked description.

In the same house is one of the finest plants of Angræcum sesquipedale I have ever seen. It stands quite 4 feet high, two good young plants being at bottom, and when in full flower must be well worth seeing. Miltonia Clowesi major, quite 2½ feet over and with leaves as green as grass, was covered with flower-spikes. The side stages of the Vanda house are filled with plants for table decoration, &c., and on the roof hang some very fine Nepenthes, such as Northiana, sanguinea, Mastersiana, and distillatoria. Other Orchids are grown in another part of the garden in a span-roofed range of houses divided into four compartments. The first contains some very good Dendrobes, all the best varieties being grown. In this house I also noticed a magnificent plant of Cattleya intermedia, quite 3 feet through and furnished with about 80 bulbs, all with leaves. This time last year it was a sheet of bloom. The next house contains some very fine examples of Cattleya Trianæ, Mossiæ, and Mendelli, some very fine varieties of which have flowered here this year. Associated with these were one or two plants of Cœlogyne cristata about 3 feet in diameter, on which there was not a spike of flower, and the sooner they are got rid of the better. The bulb of this flowerless variety is long and triangular, and quite distinct from its freer blooming neighbours, clearly showing that there are good and bad varieties of this Orchid. Next to Vandas, Cypripediums are best represented, all the finest sorts, such as C. euryandrum, C. selligerum majus, C. Druiii, C. punctatum violaceum, C. albo-purpureum, C. Lawrenceanum, and C. Spicerianum being well grown here, and some of them already large specimens. Mr. Graham has not gone in largely for cool Orchids yet, but what are grown look well, notably the Masdevallias, such as M. trochilus and Harryana in large masses—not made-up specimens, but the result of genuine

culture. I may add that the late gale appeared to have done great damage to the woods at Dunlop House. All round the garden many grand old trees had either been blown down or smashed by the violence of the storm. A. D. C.

Sophronitis grandiflora.—The finest form of this brilliant gem among Orchids that we have seen has reached us from Mr. Percival's collection at Birkdale, Southport. The flower measures 2¾ inches across, and has broad overlapping sepals of a vivid orange-scarlet. Mr. Beddoes, the gardener, states that the bloom was one of fifty on one plant fixed to a suspended raft, and all were expanded at one time—a glorious sight.

Lælia anceps rosea.—This is the name given to a superb variety of L. anceps now in bloom in the Royal Exotic Nursery, Chelsea. It is distinct from all the other forms, but most nearly resembles the Hilli variety. The flower is of a large size, and in shape like Hilli. The sepals and petals are pure white; the lip is white, pencilled with yellow in the throat, and has the lowermost lobe of a beautiful rose-pink, a tint which margins the side wings of the labellum. It is a charming variety, and will be as much sought after as the other rare varieties of this Lælia.

Potting Cattleyas.—Allow me a last word in answer to Mr. Catt (p. 11). I have for many years potted Cattleyas in winter, and found it answer. The plants have grown so well after it, that many of them have made two flowering sheaths out of one bulb; strong ones, too. I adopted the system at least ten years ago, because we could not find time to do it in spring and summer; and as it answered so well, we continued it. I therefore thought it well to recommend it to readers of The Garden. Surely the evidence of one who has pursued a certain system of culture and found it to be successful ought to stand before that of one who has had no experience at all in regard to it.—J. Douglas.

PLANTS IN FLOWER.

New Year's Roses.—We have received from Mr. B. R. Cant, of Colchester, two blooms of Tea Rose Madame Lambard. They were cut on the 4th inst. from a plant growing in the open, and are very good for the time of year.

Cypripedium venustum.—A twin flowered spike of this Lady's Slipper has been sent to us by Mr. Clark from the Blenheim Palace gardens. We do not remember to have noticed a similar occurrence in this Cypripedium before, though twin flowers of C. insigne and barbatum are common.

Begonia undulata.—Under this name a very pretty winter-flowering Begonia is grown by Messrs. Cannell, at Swanley, though it appears to be identical with that named at Kew B. glaucophylla splendens. The stems are long and slender and the flowers, which are borne in loose clusters, are of a deep crimson-red. Its habit of growth specially adapts it for suspended baskets, and a well developed specimen grown in this way has a striking effect.

Iris stylosa.—This beautiful Algerian Iris is enlivening a few gardens about London with its cheerful flowers. Mr. Kingsmill, of Eastcott, sent us a fine bloom the other day in a half expanded state. It opened beautifully in water in a few hours. The soft lavender tint and elegant form of the flower render it very charming. This is a plant not half known enough. It should be grown by all who wish for showy flowers in the depth of winter.

Billbergia nutans.—The singular beauty of the flowers of this Bromeliaceous plant, combined with its elegance of growth, renders it attractive. The habit of growth is vasiform, the long slender leaves gracefully recurving on all sides. The flower-spikes, which slightly overtop the foliage, bear a loose cluster of nodding flowers accompanied by conspicuous rosy bracts, which harmonise charmingly with the quiet hues of the flowers themselves, which are pea green margined with cobalt-blue—a strange combination of tints. The golden-tipped stamens and rosy calyx lobes add to the attractiveness of the flowers. The latter last in beauty for a month or six weeks at this season if the plant is not in too hot and moist an atmosphere. Some fine plants of it may now be seen in perfection at the Royal Exotic Nursery, Chelsea.

Narcissus monophyllus.—Some flowers of this charming little white-flowered Daffodil—the gem of the Corbularia section—have been sent to us by Messrs. Collins & Gabriel, Waterloo Road. The blooms were gathered from bulbs recently imported, grown out-of-doors under the protection of handlights. Though this plant has the reputation of being a difficult one to grow successfully, everyone who likes hardy flowers should at least attempt its culture.

Double Marguerite Aurora.—The value of this pretty new variety, which appears to be a double-flowered form of Chrysanthemum coronarium, is its winter-flowering character. Throughout the autumn and winter, and indeed spring also, it produces a profusion of its pretty button-like rosettes of bright golden yellow. The long time during which the flowers last when cut makes it particularly useful for indoor decoration. Messrs. Cannell grow it extensively in their nursery at Swanley, and at each committee meeting at South Kensington they invariably show flowers of it—a proof of the persistency with which it flowers.

Strobilanthes isophylla.—This pretty free-flowering plant may now be seen in more than one of the houses at Kew. In habit of growth it is upright and bushy, with narrow dark green leaves, from the axils of which flowers are freely produced; they are tubular, about 1 inch long, and three quarters of an inch in diameter at the mouth. Their colour is a pleasing shade of delicate mauve. This plant is of a half shrubby character, and succeeds best in the temperature of an intermediate house; it does well in a stove in winter, and supplies a colour almost wanting among flowering plants at that season.

Hibbertia dentata.—Greenhouse climbers that flower in winter are but few, the best at present being this pretty yellow-flowered native of Australia; it is free in growth, and produces foliage in profusion, the adult leaves being 4 inches or 5 inches long and about 2 inches broad; they are a deep green colour, but the leaf-stalks, twining stems, and young shoots are reddish. Even without flowers this Hibbertia is pretty, owing to its ample leafage and distinct colour, but when thickly studded with flowers it is highly ornamental; they are of a bright golden colour and about 1¼ inches in diameter. The merits of this plant do not seem to be sufficiently recognised, for it is seldom seen. It is of easy culture, and is comparatively free from insect pests. Both in the temperate house and in No. 4 greenhouse at Kew this graceful climber is now blooming freely.

Strelitzia Reginæ.—The large specimens of Strelitzia in the Palm house at Kew have frequently been noted as bearing a number of their curiously formed and richly coloured flowers during the winter. The species just named is in flower at the present time, and as the flowers last for some weeks, this Kew specimen will be an attraction for some little time to come. Strelitzias love an abundance of water always, and a strong clayey loam in which their thick succulent roots can find plenty of nourishment. In this particular they resemble the Musas and Ravenalas, which are first cousins to the Strelitzias. The trio are gross feeders and revellers in a moist tropical atmosphere, the only exception perhaps being Musa Ensete, which prefers rather less heat than the rest of the Musas.

Eucharis candida.—We have received from Messrs. Shuttleworth & Carder a flower of this beautiful bulbous plant showing a singular duplication of the petals and crown, though it is not a double flower in the ordinary sense of the term. Instead of six there are twelve divisions of the flower, and there are also twelve stamens; the crown, moreover, is double the ordinary size. The flower is, therefore, larger and more attractive. This peculiarity seems to be permanent in the plant from which the flower sent was cut, as we understand that it produced similar flowers last season. As regards the typical form of this Eucharis, it may be seen in perfection in Messrs. Shuttleworth & Carder's nursery at Clapham, where it is grown largely from imported bulbs. Some plants in 12-inch pots are as much as a yard through and carry a profusion of spikes, each bearing half a dozen or more expanded blooms. There can be no question that this is a most valuable plant for winter blooming, on account of the loveliness of the flowers and the profusion with which they are produced in constant succession.

TREES AND SHRUBS.

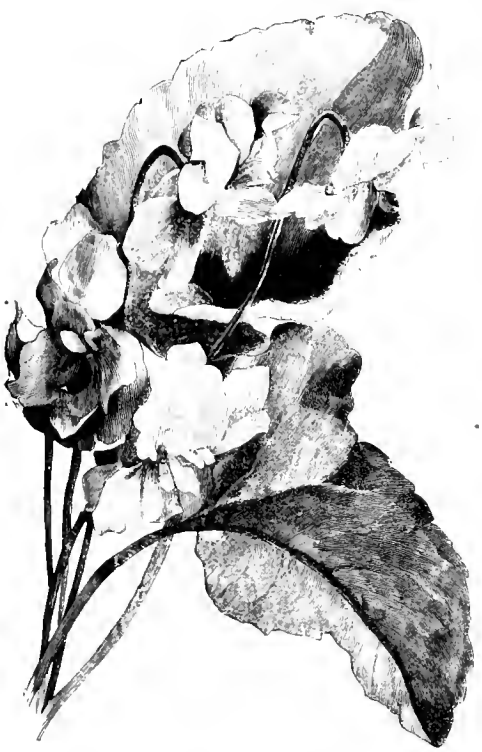
Cytisus Adami.—In a paragraph relating to this plant in your last issue it is stated that "it is remarkable for producing red and yellow blossoms, mostly on separate branches." It is much more remarkable than this, as it produces, in addition to the blossoms of the two colours, large tufts of Cytisus purpureus, perfect in foliage and flowers, both of which are quite distinct from the yellow Laburnum and its red form. On my specimen both the yellow Laburnum and the purple Cytisus produce seeds; the red form never. The three varieties are about evenly distributed over the tree, and I have on several occasions cut off shoots about 2 feet long on which the three varieties were perfectly developed. This seems to militate against the conclusion of M. de Candolle, that Cytisus Adami is not a hybrid (graft or otherwise) between Cytisus Laburnum and C. purpureus.—Edmund Tonks, *Packwood Grange, Knowle, Warwickshire.*

Rhododendron poisoning.—In your note under this head on p. 12 it is said that it was evidently the opinion of Xenophon that the Rhododendron is poisonous. This is a mistake, as Xenophon nowhere mentions the Rhododendron or any other plant as the source of poisonous honey. In the passage referred to he speaks of the abundance of bees' nests, the effects on those who eat the honey, the marching column of 10,000 men totally demoralised, and soldiers lying about dying and helpless as if they had suffered a disastrous rout. It is true that Pliny mentions Rhododendrons as the reputed source of poisonous honey in that district, but it is very probable that Pliny had never seen Rhododendrons, and did not know what plant he meant by the name. Again, the name Azalea, though a Greek word, meaning dry, is not known to have been used by the ancients for any plant, but is of modern application. But the inhabitants of Trapezus and Heraclea, in Pontus, who were Greeks, would certainly give some name to a plant so conspicuous in their neighbourhood as Azalea pontica is known to have been. If, as is said, the leaves of the Azalea are poisonous to goats, the name Ægolethron (compounded of two Greek words), Goat-bane, was probably given to it. Ælian, however, attributed the poisonous honey of Pontus to the flowers of the Box (Buxus or Pyxus). It is remarkable that Virgil, in his long poem on bees, makes no mention of poisonous honey. Pliny moralises on the frequency with which honey was used in his time as a medium for administering poison; and Horace speaks of a spendthrift removing (literally, transplanting) his grandmother by honey poisoned with Hemlock. The honey imported to Rome from Corsica and Sardinia was notoriously bad, but is nowhere said to have been poisonous. With regard to the leaves of Rhododendron ponticum being poisonous, the subject requires further investigation. It has been recently stated that starving sheep have been poisoned by them; but it may be questioned whether a surfeit of any tough leaves, such as those of Box, Mahonia, or Arbutus, might not have produced the same result. —C. Wolley Dod, *Llandudno.*

FLOWER GARDEN.

COMTE BRAZZI'S WHITE VIOLET.

THE annexed representation of Comte Brazzi's White Neapolitan Violet gives a good idea of the size of the flower, which is pure white on a foot-stalk of unusual length and vigour, thus making the blooms very useful for bouquets. In fragrance it is equal to Marie Louise and the old Neapolitan—a sufficient recommendation to make it a welcome addition to these well-known favourites. It begins to flower on the open border in the beginning of September, and continues most profusely in bloom all through the winter. In frames it is in bloom after the 1st of October, differing in that respect from other white Violets that I have tried, notably Belle de Chatenay and Queen of Whites, which I never could induce to open a flower before the spring. At present, after the damp and sunless fortnight through which we have just passed, the plants are covered with



Comte Brazzi's White Violet.

flowers, open and expanding. After considerable experience in the preparation and propagation of Violets, and after having tried many plans in order to ensure an early start in spring, I have come to the conclusion that the following is the best: Select good strong runners early in February and dibble them into handlights in sandy soil in an orchard house or other cool structure where they will strike root readily and make strong plants ready for planting out early in May. The best place for them then is a half-shaded, cool moist border where they can have every attention as to watering in dry weather in order that they may grow into healthy plants, with well developed crowns, fit for transplanting into frames in autumn. Different growers adopt different ways in regard to runners, some removing them vigorously during summer, others saving the first six or twelve runners to be pegged down. I have noticed that the flowers on plants thus treated are more numerous, but they are not so fine as those produced from single crowns where the runners have all been cut off. WM. ALLAN.

Gunton.

IRIS SUSIANA.

I HAVE only one or two additions to make to the remarks of Mr. Ewbank and Mr. Max Leichtlin. I do not think that the former's experimental comparison of the two modes of culture will prove much in one year, but in the long run I am sure the taking up plan will prove the inferior. It must be remembered that even when kept entirely from rain these plants are frequently not wholly at rest, at all events in the first period of the drying-off process. Young plants especially and pieces of rhizome too small to flower make very rapid growth under the stimulation of the lights. For instance, last summer a seedling I. iberica which I had planted in the preceding autumn, a tiny bit about the size of the end of my little finger, hardly made any growth till I put the lights on, and then in a few weeks grew to a patch of rhizomes about 5 inches in diameter. Hence, if you desire to increase your stock, you will find it best to leave the plants in the ground under lights and not to take them up.

Mr. Max Leichtlin takes off the lights late in July or early in August, and leaves the plants fully exposed all the winter. Now, "whatever Mr. Max Leichtlin does is right" has become by experience one of my cardinal doctrines in gardening, but qualified by the addition "at Baden-Baden." His winters are colder and dryer than ours; he has more snow and less rainy, muggy weather. And I am coming to the conclusion that it is well to manage the lights so that they can be put on during heavy winter rains. But the plants must not be "cossetted" and made tender by too much covering up. Let the lights be off all the autumn in any case, and do not put them on for frost or snow, but use them only to ward off the heavy rains which we too often get in our mild winters. I have some plants which have been fully exposed ever since August last, and I can see by their condition now that I must not expect such good bloom from them as would have come if this winter had been like that of '80-81. If "Veronica" should happen to live in a humid climate like that of Ireland, I would strongly advise him to plant his I. Susiana in thoroughly well drained ground in a sandy, gritty loam under a low south wall, and make arrangements for putting on lights whenever necessary. This may seem a good deal of trouble, but plants of this group, including the new ones promised by Mr. Max Leichtlin, are worth a little trouble.

M. FOSTER.

NOTES FROM THE ISLE OF WIGHT.

I FORWARD to you with this a blossom of Narcissus monophyllus taken from the open border: I have many more of the same. A little time ago some doubts were expressed in THE GARDEN about the possibility of growing this charming little bulb in the open ground. I feel sure it is only a question of sufficient sunshine to bake it well. My lamented friend, Harpur Crewe, used to tell me that he never succeeded with it once, either in the greenhouse or anywhere else at Drayton-Beauchamp. I might almost say I have never failed with it once, and the above is the only explanation I can think of regarding it. Mr. Rawson, some few years ago, gave me some excellent rules, which I followed out to the letter, but I have since then come to see that they are quite superfluous here, and Narcissus monophyllus speaks for itself about that matter. I also enclose a specimen of Xiphion Histrio which has been out for some days. I know of nothing which more surprises a person who has not seen it before than this captivating little Iris does when it is in blossom in January in the open air. Some of my friends are almost tempted to think that there must be something wrong somewhere to account for its pleasant appearance, and that the laws of Nature have been contradicted to produce the phenomenon. It is the most summer-like looking thing that could be imagined, but though it is so pretty there is a still prettier little flower to tread on its heels, Xiphion Histrio is quite eclipsed in point of brightness of colour by a sky blue variety of Iris reticulata, which I am glad to say I possess. This last in point of colour and of form can hold its own, I think, against any spring flower that could be named. The blue is the blue of the sky, and Xiphion Histrio seems dull by its side. It is already easy enough in the Isle of Wight to make a nosegay which puts the winter to flight. Anemone stellata alba is a recent acquisition from Baden-Baden, and I was very anxious when I got it in the autumn to know what it was like. The plant met me half way, for it has been in blossom more or less from that time to this. In addition to these, Iris stylosa in abundance, Hepatica angulosa, Rhododendron præcox, Polygala Chamæbuxus purpurea, Hellebores of at least six different sorts, Crocus Imperati and C. Sieberi, Galanthus Elwesi, Daphne indica rubra against the outer wall of the greenhouse, Daphne Fioniana, Lonicera fragrantissima and L. Standishi, Gentiana verna, and many more things that could be named have begun the dance of the year, which will rapidly go on. The worst of it is, that some of the flowers of the old year are muddled up with their much more interesting successors. Senecio pulcher, Schizostylis coccinea, Tritoma Burchelli, &c., cannot at all realise the fact that Christmas has come and gone, and they give the garden a sort of confused look of neither autumn nor spring. I never knew autumn flowers and spring flowers so completely to shake hands as they are doing just now. There has been no winter at all here, and we are jumping from one season to another without the slightest reference to what should properly come between them. The consequence of it all is, that we shall pay dearly for our present amusement in the spring. These delightful little appearances, which are hailed by us every day, will soon come to a dead stop, and the flowers that are now opening so confidingly to the sun will be sent back helter-skelter to their beds. Leaves will be browned and blossoms will be torn to pieces, and there is certain to be a kind of wilderness season here before long. If Keble had lived in the Isle of Wight, I think he would have very considerably altered the line in one of his well-known verses which begins with, "Soon o'er their heads." I should say that to suit us in such a year as this seems likely to be "fierce" should be read in that line instead of "blithe," and "rave" instead of "sing." It is a forecast of this sort in March and April, and perhaps May, which makes it almost a melancholy sight to see such precocious efforts abounding. I am glad to say that Tecophylæa cyanocrocus is doing very well in the open ground. It seems to be as strong and as happy as if there were no prefix to words of eight syllables. Disa grandiflora has also prospered in the open since July of last year. I am longing for some 16° or 17° of frost to put its powers of endurance to the test. The strange softness of the season is no blessing to me in my garden, but I console myself with the thought that when this gentle and mealy-mouthed winter has passed by and the grim savagery of spring has had its fling, there will be a long time left in the year for the quiet enjoyment of flowers. H. EWBANK.

St. John's, Ryde.

ST. BRIGID'S CHRISTMAS ROSE.

WE have no hesitation in pronouncing an opinion as to what we regard the peculiar aspect and peerless beauty of this grand variety of Christmas Rose named as above by Mr. Burbidge in compliment to the enthusiastic florist in whose garden at Howth he first saw it. Leaving the matter of nomenclature for others to settle, what we have now to do is to recommend any who cares to have at Christmastide, from the open border, a supply of flowers of purest white, rivalling in size and stainless purity those of the exotic and tender Eucharis, to try and get up a stock of this hardy gem. It is not everyone who has a stove in which to grow the Eucharis; but the humblest can afford a spot for this Hellebore. Walking with a friend in his garden last week, a lowly mass of deep green foliage of a rather peculiar aspect arrested our attention, and for the moment

puzzled us; we asked what it was. "That's 'St. Brigid's Christmas Rose,'" said our friend; and then stepping on the border and dividing with with his hands the curtain of greenery which completely concealed the blossoms, and at the same time effectually prevented their defilement from rain or otherwise, a revelation of floral beauty took place which made one stare and stop long to admire. This revelation took the shape of a nest of flowers of spotless white, numbering some dozens, and individually measuring more than 2 inches across. The way in which this variety so effectually conceals its nestlings from sight and preserves them from defilement is not among the least of its recommendations.—*Irish Farmers' Gazette.*

A NATURAL BOG GARDEN.

Allow me to say a few words about a genuine bog which we have in this parish. Let it be remembered that we are in the midst of the chalk formation, joining on to the Wealden clay, and I think it will be generally admitted that a more unlikely spot to find a bog it would be difficult to think of; yet we have one as pure and unsophisticated as if it were in the Highlands of Scotland or the midland counties of Ireland; but I am bound to say that it exists in a very large and deep sand formation, which is all around it for some distance. It is not large in extent—a few acres perhaps—but it has contrived to gather into it a large number of pure bog plants, such as the Sundew (Drosera rotundifolia), the Cotton Grass (Eriophorum), the Bog Bean (Menyanthes trifoliata), the Bog Asphodel (Narthecium ossifragum), the Bog Pimpernel (Anagallis tenella), the St. John's Wort (Hypericum elodes) The bog itself is composed of peat earth, while these plants grow mostly in Sphagnum, but underneath is a constant supply of water produced by springs, which flow very gently, but at any rate keep it free from stagnation. So abundant are some of these plants, that at one season the place is quite red with the curious foliage of the Drosera, while other parts are full of the feathery Cotton Grass. Two things suggest themselves: 1st, how did this bog get there? is it the remains of some large formation which has receded before the increase of draining, &c.? 2nd, how very difficult it is to arrive at these conditions in the formation of a bog garden; and that there is this difficulty I am justified in saying, from the failure that I have so often seen where the attempt has been made. Apparently what is required is a loose, mossy, shaking kind of (soil one can hardly call it) bed, where the plants can get sufficient soil and yet be continually in gently moving water; where there are natural springs or gently flowing rivulets it may not be difficult, but in other places it must be extremely so. I was therefore not disappointed when visiting Kew lately to see that the bog in the new herbaceous garden was not in a very flourishing condition, nor when visiting some of my friends who are ardent lovers of herbaceous plants, to find that the bog garden is either conspicuous by its absence or else in anything but a flourishing condition.

I could not possibly attempt bog gardening in my own little place. I have one moist spot in my rockery and here I manage to crowd into it some plants such as the American Lady's Slipper (Cypripedium spectabile), which does very well, and a few other things, but to attempt a bog garden would involve a loss of time, money, and temper, which I cannot afford; but none the less can I see the difficulties and, it may be, the mistakes connected with the attempts (one I have already alluded to); then there is a mistake which I have generally seen, and from which Kew is not exempt—bogs are too often placed in low, sheltered and shady parts of the garden: but let anyone call to mind the spots where he has seen a bog most flourishing, where it has been all aglow with the Drosera or waving acres of the silky Cotton Grass, and he will not need to be reminded that it was in the full blaze of sunlight; no trees near, no rocks or stones under which the plants might nestle, but all fully exposed both to wind and rain. Why this is not imitated I do not think it difficult to explain. Were there not a perennial supply of water underneath, these bogs would soon become (as one sees sometimes) dried up, and it is this perennial underground moisture that it is so difficult to imitate; therefore let us put the bog, is the reasoning adopted, where it will not be so much exposed to the sun and will not so soon dry up. And this is done with, as I have said, sad loss to the well-being of the plants. I may be referred, perhaps, to some better instances of bog gardens than I know of, but it must be recollected that such are only secured where a long purse can supply losses to any extent, and so make the bog garden appear what it is not, for where plants are constantly supplied from other sources the merit is not to the owner, but to his means. Very rarely have I seen, for instance, plants of Pinguicula which have stood for three or four years. I have very often seen them where they have been just planted looking well, and more often where they have been vanishing away after a second year's trial.

It may be that I am only writing from a partial knowledge, and that many may be able to say they have succeeded with their bogs and bog plants. I shall be glad to know that I am wrong, and to find that success has attended the efforts of others in cultivating a most interesting class of plants. Delta.

Arenaria balearica.—This dwarf trailing plant has evidently found a congenial home in our hardy fernery at Bickley, as is manifest from the luxuriant way in which it is clothing the surface of the soil and rock with its lively green foliage. The fernery extends over a piece of ground on the shady side of a large conservatory, but it is not shaded by trees of any kind. The soil is a mixture of loam and peat, and has rough stones rising out of it in a natural manner. The Ferns, which consist of the smaller growing varieties, are not very numerous at present, so that if it were not for such plants as this Arenaria a large portion of the soil would be bare and uninteresting. It makes a dense carpet of healthy, cheerful green, and grows not more than 1½ inches from the ground. The old Fern fronds are allowed to remain as protection for the Ferns, and the pretty effect of the green carpet just alluded to, the brown of the fronds, and the tips of the projecting rock and stones is such as is rarely met with. I have seen this Arenaria in some places with a starved appearance, owing probably to its being under the drip of trees and scarcely anything but bare stones to grow upon. It seeds freely, and is certainly very pretty, situated as it is at Bickley.—T. Jennings.

Lobellas from seed.—Many who make a practice of raising Lobelias from seed sow in warmth in early spring. This is neither the best nor the easiest way, as if sown now and kept in an ordinary greenhouse temperature, the seed will come up quite as well, if not so quickly as later on in heat. By sowing now the plants will get a long season of growth and will be in every way better for planting out; having been grown quite cool, they will be more robust and enduring than when subjected to a hurrying temperature. Sow rather thinly in pans and boxes and place them near the light, covering the pan with a piece of glass until the young plants appear. If the seed is good it will not be long in germinating; and as the young plants will get plenty of air from their infancy, they will develop into compact little specimens by the time they are needed for out-door decoration. It is a mistake to put bedding Lobelias singly into small pots; the better plan is to prick them out when large enough to handle into pans or boxes, eventually planting them out in rather light, well-prepared soil in a cold frame. If put into pots, they must have frame room during April and part of May, and if they can be set out as recommended by the middle of March they will make a great amount of roots, and will be in fine condition by the latter end of May. It would be better if all bedding plants could be grown without pots, as oftentimes the roots get matted, forming hard balls, which are apt, when put into the loose earth, to become and remain over-dry. In any case, if pots are used, it is better to put two plants in a pot, as the pulling apart loosens the ball and obviates this danger.—J. C. B.

Rose Garden.

TRANSPLANTING ROSES.

Seldom have we had so fine a season as this has been for transplanting. There have been few days in which this operation could not have been profitably performed from the end of October until now. Doubtless this long spell of suitable weather for such purposes has been turned to good account by rosarians, not only in making new plantations, but in lifting and replanting old beds and borders of Roses. Where the latter are grown to perfection, the treatment of the plants as a permanent crop must be almost abandoned. No crop exhausts the soil or renders it unfit for perfect growth sooner than the Rose. Though faith in the theory of the excrementation of roots must be abandoned, yet root sickness assuredly cannot always be traced to any exhaustion of the soil. The earth seems to get tired of the Roses, and in such cases, where a change of site is impossible, the next best thing is to force the roots into new channels by transplantation. If at the same time liberal additions of maiden soil or fresh compost can be added to the land, so much the better; but, as I have shown elsewhere, the mere root disturbance incidental to lifting and replanting often proves a powerful and much-needed stimulus to new and more vigorous growth.

Root lifting places the feeding extremities in a new place, which is almost equivalent in not a few instances to fresh soil. The exhaustion of the latter when and where it really takes place is mostly accomplished piecemeal. The roots of Roses seldom permeate or exhaust the entire mass of earth, hence the vital importance of the redistribution of roots that results from transplantation. The change of place brings them a change of food, or more abundant supplies. But transplantation does more and better than this; it multiplies the numbers and improves the quality of the roots; it thus augments the power of root force by a compound process; the one root becomes many by the simple means of transplanting, and by the same process the absorptive energy of the roots is quickened, and their powers indefinitely enlarged.

Manuring.—When maiden soils and fresh composts are added to the soil, or when the Roses are placed in new beds and borders, the roots are in that case furnished with full supplies of fresh food which is speedily utilised for the benefit of the plants. No transplanting can be done without an interregnum as to growth. But this where the operation is skilfully performed is of much shorter duration than is generally supposed, and is followed by such abnormal activity of root growth as to quickly and more than compensate the plants for their forcible arrestment of progress. The best season for the planting and transplanting of Roses is that included from October 15 to the end of November. Roots detached from the soil or disturbed at that season hasten to grip it anew and possess it again as quickly as possible. Still, with open weather such as we have now such operations as the planting and transplanting of Roses may still be proceeded with; the benefit will be less marked than if it had been done sooner, but it will still prove beneficial. A surface mulch sufficiently thick to preserve the roots frost-proof is, however, more essential to success in winter and spring than in autumn planting. The roots have now less time to re-establish themselves than if moved in the early autumn, and hence the need of greater care against their being forcibly arrested by frost. Nor is a stoppage the only or worst evil to newly moved roots. Their abnormal activity brings with it unnatural tender-

ness; hence an equal degree of cold is far more injurious to recently disturbed than to old-established roots, and hence also the need of more thorough and secure mulching. Finally, the

EASY AND SAFE TRANSPLANTATION of Roses places a new and valuable power in the hands of the landscape gardener and decorator. It places valuable formative and colouring material within his reach, to be placed where and in what proportions he pleases. The larger trees and other subjects in our landscapes are of necessity fixtures. Roses have also been too generally associated with the permanent furniture of gardens. By treating them as easily mobile, dashes of colour, changes of form, and the most delightful odour could be thrown in where wanted, or removed from points where not needed. D. T. FISH.

ROSA POLYANTHA.

UNDER this heading there appears in Rose catalogues a group of Roses that do not seem to receive the attention which they deserve. There are only four or five varieties comprehended in this group, but they are all very charming because of their pretty, compact, rosette-like blossoms and the freedom with which they are produced. It is recommended that they be used as edgings to large beds of Roses, which is an excellent suggestion, as they are good growers and very hardy. We are indebted to the late Mr. Robert Fortune for this group of Roses, for he introduced R. polyantha from Japan about twenty years ago. It has a marked individuality of its own, being distinguished from any other type by its panicled blooms. Several very pleasing new varieties of it have been obtained from seed, the following being the most valuable: Anna Maria de Montravel, white flowers, produced in clusters, very double and sweet—an exceedingly pretty dwarf cluster Rose; Madame C. Brunner, a light pink or blush form of the above, differing only in colour; Paquerette, pure white, flowering in large bunches and very continuous in bloom; and Mignonette rosy pink, charming in colour, very fine, and really beautiful as a miniature Rose. So far we have seen these varieties produced only in pots, and so cultivated, they appear to take on a lanky character, but this does not illustrate all that can be done with this charming race of Roses. It, however, should be remarked that the later varieties of these Roses do not show so much of the panicled form as is found in the species; and this is attributed in a great extent to the type having single flowers, which seed abundantly, having been cross-fertilised through insect agency, and thus the character of certain garden varieties has been imparted to the offspring. One authority on the Rose recommends rosarians to try artificial fertilisation on the other types, as if we could get Tea-scented Bourbons and Hybrid Perpetuals with flowers in panicles, we should change the whole aspect of the Rose garden, and in a most interesting way modify the Rose genus. Because these miniature Roses are so well deserving of a wider recognition, it is desirable that public attention should be called to their merits. Some people are found complaining that Roses, like Dahlias, are becoming too ponderous; here, therefore, is something for them of an opposite description.

R. D.

SHORT NOTES.—ROSES.

Madame Oswald de Kerchove.—It seems certain that Mr. Frettingham and I have not grown the same Rose. My plant was so inferior compared with other Hybrid Perpetuals, that I destroyed it at the end of the second year. I hope, however, to get this Rose again from a different source, as a white Rose possessing the qualities which Mr. Frettingham says his does must be invaluable.—J. C. C.

Rose Souvenir de la Malmaison.—This is one of the best of the Bourbon Roses, and as an autumn bloomer it has no equal in any class. As a spring, summer, or winter flowerer it has nothing to recommend it, but in September and October it is quite a charming Rose. The blooms are very delicate in colour and produced in huge clusters. The majority of the blooms measure from 6 inches to 8 inches across. It does moderately well as a bush, and first-rate as a climber on sunny or shaded walls.—J. MUIR.

GARDEN IN THE HOUSE.

THOUSANDS OF ROSE BUDS.

UNDER this heading the *New York Times* of the 16th ult. has a long article on flowers and the prices which they fetch in that city, from which we make the following extracts: The sales-room is that of one of the largest commission dealers in flowers in New York. "I want 50 Jacs," said an elderly gentleman with a capacious basket who had come for his daily supply, "a dozen Mermets, 100 sprays of Mignonette, 200 Carnations, 200 Camellias, 50 strings of Smilax, 25 Lilies of the Valley, and 50 Bouvardias." The articles were counted off as he named them and put into the basket, where they hardly covered the bottom, and yet the wholesale price of the order was £16. The basket would easily hold £100 worth of Roses or £200 worth even of Lilac sprays, which at this season of the year are among the most valuable of flowers. Orders followed rapidly, and by noon the counters were as bare as Mother Hubbard's cupboard. "Until 10 years ago," explained the commission dealer after the florists had gone, "the flower-growers sold their stock to the florists direct, but with the growth of the business there became a necessity for middlemen, and now nearly the entire merchantable stock of flowers used in New York passes through the brokers' hands. The business of growing fine flowers for the market has become a great industry; hundreds of thousands of dollars are invested in hothouses, and the product amounts to over £400,000 a-year at the wholesale prices. There are over 500 men engaged in the business, many of whom are millionaires who have made the profit on their gardens pay the expenses of their places and a handsome interest on the money besides. Flowers now are as staple articles as wheat or corn. A good Rose-bud is always saleable for cash. This morning you saw our stock; we had 20,000 Rose-buds on our counters, and every one is sold, and half as many more could have been disposed of if we had had them here."

"FLOWERS THIS YEAR," he continued, "are cheaper than in former years, and much more of them are used in consequence. The season begins in October and continues until the 1st of July. During the holiday season and about Easter time there is a rush, but as a rule the demand is steady the season through. During the early part of the fall, the weddings, receptions, dinner parties, and afternoon teas keep the florists busy, and when the holidays come, of course the demand increases. Church decorations require vast quantities of cut flowers, and the demand for Christmas gifts makes it pretty lively for the trade. It is then that the highest prices are usually paid. This, however, depends largely upon the season and the weather. Standard Roses, however usually bring a certain price. This year Jacqueminots bring from 2s. to 3s. a bud. The buds to be saleable must be half blown and hard and solid. They will keep a week when they are cut at this stage of their growth, provided they are put in a cool room, away from the light, and look as fresh at the end of that time as when they are first plucked. The demand for Jacs is always regular. They are a fashionable variety and always have a ready sale. There is

"A STYLE, though, in Roses, as there is in hats. Maréchal Niel, which has been the most fashionable of all Roses for bouquets, has lost its popularity to a large extent, and its place has been usurped by the Perle des Jardins, which resembles it closely in appearance and is cheaper and more easily grown. M. Niel is worth from 1s. to 4s. a bud, while the other variety can be bought for much less. M. Niel is a climber and not as ready a bloomer as the Perle. The Cornelia Cook and Niphetos Roses sell from 1s. to 2s. apiece, and are very popular. Among the fancy kinds are Madame Hafner, Paul Neron, Baroness Rothschild, and Gloire de Paris—all blush Roses, so called from their delicate pink colour; they bring from 3s. to 4s. apiece. They are beautiful and well worth their price. Some of them are nearly 5 inches in diameter. Often they are worth much more, and it is not uncommon to sell them for 12s. and 16s. a bud. Tea Roses are only worth £1 to £2 per 100.

"LILAC is a popular flower now and brings a very high price. Formerly it could only be bought in the spring, but now we have it all the year. It is worth 6s. a spray at present, and is used principally in bridal bouquets. Later in the year, when it can be grown out of doors, it is only worth 1s. a bunch. The perfection of horticulture, however, has been nearly reached when it has become possible to raise Lilies of the Valley throughout the entire year. It is a May flower in its native state. These delicate buds are worth nearly 4s. a spray. During the summer time, in order to keep the plants from blooming too rapidly, sometimes they have to be placed in ice-houses. There is danger in this method, though, for they often "come blind" when they do bud. Carnations, Camellias, Violets, Heliotropes, Mignonette, and Bouvardias are worth about 1½d. per bud. Smilax brings 1s. 3d. a string. These commoner kinds of flowers are used in filling in the groundwork of baskets, bouquets, and large decorations for weddings or funerals. Some time ago there was a little demand for Daisies and Sunflowers, but it only lasted a short time; they were used by a very limited circle of people, and the supply always exceeded the demand. From these prices you can form an idea of the value of some large floral decorations. A wedding, with the bell, bouquets, and the table decorations, often amounts to over £200, and a bridal bouquet frequently costs £5. Funeral wreaths, broken pillars, and Greek crosses generally reach £20 each, and often much more.

"The business of selling flowers has grown as rapidly as the business of growing flowers, and the brokers seriously contemplate establishing a Flower Exchange, where the business of barter and sale shall be conducted in the same manner as it is on the merchandise exchanges. The brokers, as it is, do a regular commission business, receiving consignments from all parts of the country, selling the material and remitting the proceeds, minus the commission. Flower sales are cash, and good flowers are good as gold."

DRACÆNA GRACILIS.

FOR room decoration this is one of the very best Dracænas that can be grown. It stands well indoors, and has a very graceful appearance. Its leaves when strong are fully 14 inches in length, and bright green margined with a band of purplish bronze. If plants are required for table decoration, raise them by means of cuttings obtained from the stem after the head has been removed. Plants raised in this way are not so robust as some others at first; their foliage is narrower and even more arched than when it attains greater strength. Where plants of a light graceful character are required in 4-inch pots, no plant is better or more suitable than this Dracæna. The heads, if strong, should be set in 5-inch or 6-inch pots, placing a little sand at their base; then plunge the pot containing the head in bottom heat if practicable and let it have a night temperature of 60°. Water should be given after insertion, and if the pot is plunged and entirely covered with Cocoa-nut fibre no more water will be needed until rooted. These heads should not be placed in a close frame; on the contrary, they root best if treated like Pine suckers. The foliage should be tied up to prevent injury until rooted. By this system not one leaf will be lost. Five-inch or 6 inch pots are large enough in which to grow plants from 2 feet to 2 feet 6 inches high and nearly the same in diameter, with large bold foliage close to the soil. Plants of this description are easily produced, and when the soil is covered with Lycopods and the plant placed in a vase as a single specimen it presents a striking appearance. Plants raised from cuttings of the stem never look so well for this purpose as those raised by rooting well developed heads, because the former possess much smaller foliage. It is easy to have plants for both purposes, and when they become too large for the dinner table grow

them on until well-formed heads are produced. The latter when taken off before insertion are often 18 inches high. Good fibry loam and sand with a little bone dust and soot is the compost most suitable for this Dracæna. We never use larger pots than 6 inch ones for this plant, and when full of roots we feed with artificial manure.

MANIFESTO.

Aralia Sieboldi.—This Aralia has been most approvingly spoken of in THE GARDEN, and no better fine-foliaged plant exists for the embellishment of dwelling-rooms, and none with which I am acquainted will bear more rough treatment. A stock of plants can readily be raised from seed sown in spring as soon as it can be obtained, and by the end of the season capital little plants will be produced. Propagation by means of cuttings is also readily effected, but the plants produced by both of these means have a number of small leaves at the base, which detract much from their beauty when placed in vases as single specimens. If the top is taken off with its fine bold foliage and rooted, small leaves become conspicuous on the stump until it is again in active growth. Only a short time ago I saw this difficulty overcome admirably in one of the Chester nurseries. When the plants become leggy and lose their lower foliage, the top is taken off and grafted on its own stem again close to the soil in which the plants are growing. Saddle grafting is that adopted, and the scion and stock, if kept for a short time in a close frame, soon become united. I was informed that the result of this practice was the production of no small leaves at the top, a statement evidently correct, judging by the appearance of a number of plants worked in this manner.—W. B. N. G.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 581, Vol. XXIV.)

LOMARIA DURA (L. rigida).—This fine evergreen species from the Chatham Islands is of a very peculiar habit, inasmuch as its very thick fronds, of a leathery texture, which seldom attain more than 8 inches to 10 inches in height by 2 inches in breadth, are lanceolate in shape and quite erect in habit. These are pinnatifid, with pinnæ closely set, and are produced from a thick, but fleshy crown, which keeps on the surface of the ground. It is altogether a fine, sturdy-growing plant of a striking deep green colour, and very distinct. Greenhouse.

L. ELONGATA.—A very ornamental and useful New Zealand species, of medium size and very good growth. Its fronds, which are produced abundantly from a slightly decumbent rhizome, are pinnatifid, divided nearly down to the rachis, with massive pinnæ, about 4 inches long by nearly 2 inches in breadth, disposed all along the upper half of the frond, but the lower ones give the plant a very peculiar appearance, for they seem to be only imperfectly developed; they are small, rounded, and form a sort of wing down the stalk, which is not observable in any other kind belonging to the genus. Being thoroughly evergreen and of a gracefully arching habit, the fronds, which often reach 20 inches in length, make it a most attractive kind, the more so that they are of a dark heavy green colour, which they retain for a very long time on the plant. Greenhouse.

L. FLUVIATILIS.—This is a most distinct New Zealand evergreen species, in general aspect widely different from any other known Lomaria. It is of very dwarf habit, although its curious pinnate sterile fronds often measure from 18 inches to 20 inches in length. These are produced from a fleshy crown, and possess a drooping character, which renders the plant well suited for growing in hanging baskets of small dimensions. Cultivated in that way, it not only shows itself to greater perfection, but it is also more beneficial to the plant, for if the fronds are allowed to lie on the ground, which, being of a decumbent habit, they are bound to do, they will soon be damaged by constant contact with a body naturally moist, in which case they rapidly get discoloured and deteriorated. The pinnæ, which are alternate and disposed all along the rachis, from the very base are of a particularly rounded form, ciliated on their edges, and covered on both sides with a profusion of reddish chaffy hairs; the rachis and the crown itself are both densely clothed with black or very dark brown, narrow, chaffy scales. The fertile fronds, also pinnate, are of a thoroughly erect habit, and produced from the centre of the plants, from four to six being the number generally found upon them; they are very much contracted, and seldom exceed 8 inches in height. Greenhouse.

L. FRASERI.—This New Zealand species is, perhaps, the most charming and undoubtedly the most finely divided kind of the whole genus. Although a few years ago it could be found in most of the good collections, where it was always considered a general favourite on account of its beautiful feathery fronds, which have somewhat the appearance of those of a Struthiopteris germanica, it is now very seldom met with; yet when grown successfully, as it was by Mr. Pilcher, in the collection of the late Mr. Sigismund Rucker, at Wandsworth, hardly any Fern can compete with it for elegance. Its very handsome bipinnate fronds, of a graceful habit, are produced in quantities from a tough, wiry crown, which in time forms a slender stem of small dimensions. Both fertile and barren fronds in this interesting species are similar in shape and size, growing from about 10 inches to 12 inches high; the only noticeable difference between the two kinds of fronds is that the barren ones are of a bright glossy dark green on both surfaces, whereas the fertile ones, although also of a bright dark green colour and more erect, are densely covered with bright red sori. It is a plant which requires constant moisture at the roots. Greenhouse.

L. GIBBA.—A very fine species from New Caledonia and certainly the most useful Lomaria in cultivation for decorative purposes, as may be inferred by the enormous quantities which every season find their way to the flower markets and florists' shops, where, in the young state especially, they are found invaluable for dinner-table decoration, and where they rival even the most graceful Palms and other plants of elegant habit. This well-known species is remarkable principally on account of the very symmetrical form of its growth, which is also very rapid. Indeed, it is probably owing to this last-named quality, and also from the fact that it can be easily raised from spores and quickly grown in heat where it does not mind moisture overhead, that it has become such a popular and widely cultivated plant. The fronds, which are deeply pinnatifid, are produced in great abundance from a fleshy crown, which in course of time makes a stem attaining some 4 feet and even 5 feet in height. These fronds, which have somewhat of an erect habit when the plant is still in a young state, become more pendulous as the specimen gets older, and are of a very elegant, arching habit when the stem is formed. Besides being used as a decorative plant, it is also remarkably well adapted for exhibition purposes, as it makes splendid specimens, some 4 feet to 5 feet across, and being so regular in growth is perfectly distinct from any other Fern. Considering the extent to which it is grown, it is surprising to see so few variations worth noticing among the numberless seedlings raised every season. It is true that some are much coarser growers and more relaxed in habit than the typical plant; but even that is not a permanent character, as it does not perpetuate itself. The only two varieties which are properly fixed, and at the same time well worth cultivating, are the L. gibba Belli and L. gibba crispa. The former, found among some seedlings in a London nursery (I believe Osborn's), is most effective and beautiful, for its long forked fronds, in all respects as handsome as those of the species itself, are rendered very attractive and ornamental by the dense tassels which are produced at their extremities, and the points of all the pinnæ are equally provided with crests of a smaller size. Although a very good grower, this interesting variety remains very rare on account of the slow process of propagation to which it is subjected; being a naturally barren plant, it is only increased by offsets, which are now and then, but never plentifully, produced along the stem, and which when detached and carefully tended soon make little plants, always partaking of all the characters of the mother plant. The variety crispa, which is much more plentiful, as it is as easily produced by spores as the species proper, is very remarkable and extremely ornamental. It is of dwarf and close habit. Its very pretty fronds, produced in a very elegant and pleasing way, seldom reach more than 8 inches in height and form a very compact little specimen. They are pinnate, extremely dense, and beautifully curled at the margins; the whole plant is of a deep sea-green colour. This last variety thrives best in the greenhouse.

L. GILLIESI.—An evergreen species from Chili, and one which is often mistaken for L. chilensis, which it resembles only so far as the texture, of a very tough, leathery substance is peculiar to both plants alike. It is, however, totally distinct from it, as all other characters are essentially different. Unlike L. chilensis, it forms an upright stem, from which the barren, pinnate fronds are produced. These, instead of being of arching habit, are of a somewhat rigid appearance, and ever so much shorter, seldom exceeding 2 feet in height, and with pinnæ set much closer. The stems on which they are borne also differ in colour, for they are of a light green in this case, whereas those of L. chilensis are of a pinkish hue, and also much longer. The fertile fronds, also pinnate, are very much contracted, but it very often happens that only half of the fertile pinnæ are contracted, which deformity is, however, sometimes met with in L. chilensis. Greenhouse.

L. LANCEOLATA.—This is an exceedingly pretty evergreen species from Tasmania and New Zealand, particularly attractive on account of its dwarf and compact habit, as well as through the lively colour of its young fronds, which are beautifully ornamented with a bright purple band running through their centre. These fronds, which are produced in great abundance from a close, fleshy crown, are lanceolate in shape and pinnatifid, smooth on both sides, and seldom exceed 8 inches in height. Although in their young state they are of a pale or yellowish green and marked with a purple median band and numerous veins of the same colour, when mature they are of an intense dark green as well as the fertile fronds, which are also pinnate, erect, but which never show the lively tints peculiar to the barren fronds only. Greenhouse.

L. L'HERMINIERI.—This very handsome species from Tropical America is as distinct as it is beautiful. Although not a really arborescent kind, it nevertheless forms a slender, wiry stem on which its prettily-coloured pinnatifid fronds are very closely set, forming plants of very compact habit and somewhat pyramidal in shape; the fronds are very numerous and produced in a half erect position, which, on account of their stiff, leathery texture, they maintain as long as they remain on the plant. These fronds, which rarely exceed 8 inches in height, are furnished on their whole length with ovate pinnæ, the basal pair being much attenuated. It is a most attractive kind, as its foliage when young is of a beautiful crimson, changing with age to a glossy light green. It is, unfortunately, not very common in collections, although now and then fine specimens may be seen where several shoots have started at different intervals from the side of the main stem, and developed so as to form a four or six-branched plant, which is then highly decorative. Besides being one of the Lomarias most sensitive to moisture on the fronds, it is also one requiring peat and sand only to thrive well, as loam, unless very light and fibrous, is injurious to its progress. Stove.

L. MAGELLANICA.—A splendid and robust-growing species from Chili, Juan Fernandez, and Falkland Islands, and one easily distinguishable on account of its fine, bold habit, which is shared by very few other members of the genus. Its beautiful pinnate fronds, which grow from 18 inches to 24 inches in length, are of a tough, leathery texture, and produced from a short, stout arborescent caudex, which is the result of many years' growth. They are of a very dark green colour and reach from 20 inches to 30 inches in length; they are borne on firm, stout stalks, very scaly near their base, a character which is also peculiar to the crown of the plant itself, where the broad brown scales are very dense. The pinnæ, somewhat closely set, are large, lanceolate in form, and very coriaceous. It makes a splendid specimen when planted in the greenhouse.

PELLÆA.

DOUBLE SPATHED CALLAS.

HAVING read the very instructive article on the Arum family in THE GARDEN (Dec. 1, 1883), I venture to direct attention to a double form of the common Calla (Richardia æthiopica) that is occasionally produced, but which no one seems capable of perpetuating as a distinct form or variety. A few years ago I was fortunate enough to obtain a fine specimen of a double form of the Calla with three more or less perfect spathes, one enclosed within the other, and had a very faithful and correct engraving made from a photograph of it to use in the *Botanical Index*. The engraving (which is here reproduced) shows two perfect white spathes of the ordinary form, one enclosed within the other and nearly encircling a third, but imperfect, spathe, which scarcely rises above the funnel-shaped throat of the first and second spathes. This inner spathe was of the purest, almost transparent, snowy whiteness. The so-called bloom remained in perfection three weeks before it commenced to wither, in December and January. Immediately after the number of the *Botanical Index* containing the above notice was issued we received information from several of our American correspondents that one of their plants had also produced similar abnormal forms. But no plant that we could hear of ever produced the double form of spathes more than once, and I never knew of anyone succeeding in ripening the seed from these forms which would be most likely to perpetuate the form. I might say that my plant from some unknown cause rotted during the next few months, but we succeeded in growing a quantity of plants from the bulblets taken from the sides of the old tuber; they, however, all produced, when grown, single spathes similar to those of the ordinary cultivated form.

L. B. CASE.

Richmond, Indiana, U.S.A.

Double spathed Calla.

HORTICULTURE IN NEW ZEALAND.

THE following extracts from a letter just received from a correspondent at Wellington, New Zealand, may perhaps interest some of your readers: "Horticulture receives a good deal of attention here, there being no fewer than five good sized nurseries (5 acres to 10 acres in extent) and no end of market gardens around the town. I doubt if our Roses, Cinerarias, Ericas, Calceolarias, Mimuli, and Auriculas could be surpassed even at home. Nothing like them can be produced in Australia, and even in private gardens it is not unusual to find from 100 to 150 different Roses. Everything that will grow in the south of England, and thence southward to Gibraltar, will thrive here, but we are very unlucky in getting blights introduced with our importations. Apples, Pears, Cherries, Plums, Grapes, and Mulberries have been attacked by these pests, mostly insect ones, and now all our Peach trees are dying from some infectious disorder, of which we cannot discover the cause. It was introduced about five years ago with some choice new sorts imported from Melbourne, and has travelled from orchard to orchard for a distance of fully ten miles from where it first appeared. The first indication of it consists in the trees not coming properly into leaf in the spring, only a small tuft of leaves being produced at the very end of the shoots. The fruit shrivels and drops before it is half grown, and in the autumn the tree dies entirely. I have had about fifty trees in my orchard for the last thirty years, and have grown several tons of Peaches every season, but I doubt if this year I shall have a hundredweight, and I do not think a single tree will survive next winter. Many people have tried cutting down their trees as soon as the disease appeared and letting them produce new shoots. This at first seemed as though it would answer, as the young wood looked healthy, but we found that as it got old enough to bear the disease appeared again and killed the trees. It is playing havoc all over the colony, and we can find neither insect, mould, nor any other apparent cause; all we know is that the trees are dying, and that ere long there will be no Peaches in the colony except imported ones." This is a serious state of matters. Some of your readers may be able to throw some light on the subject, and give advice as to what should be done.

Murrayfield, Edinburgh. P. NEILL FRASER.

CHRYSANTHEMUM REFORM.

I AM glad to see that Mr. Engleheart disavows any attempt to disparage the "work of the Temple gardeners, or of any other exhibitors of Chrysanthemums." What I object to is the perpetual reference to Nature's handiwork. Nature is much too tricky for us to follow, and consequently of late years we have been aiming to make Nature subservient to Art, and who shall say we have not succeeded. It is skill and perseverance that have brought the Chrysanthemum to its present excellence, and are we to give up these achievements to the tender mercies of wild Nature? Mr. Engleheart asks if it "would be praiseworthy to strip a monthly Rose of all but three or four flowers, if by so doing we could get them of fourfold size?" I say no, certainly not; it would be about as unwise as to disbud a Pompone Chrysanthemum. Mr. Engleheart would discard any Chrysanthemum that requires disbudding in order to secure fine blooms in favour of those requiring little or no skill to bring to perfection and this practice he considers the right one. I, too, grow, and advise others to grow, his favourite free-blooming varieties in large quantities, more especially for conservatory decoration and for furnishing cut blooms, and in addition we also grow as many disbudded plants for the production of grand blooms, which prove an object of envy or admiration, as the case may be, to the majority who see them. If I prefer the latter, as I have before admitted, that is no reason why I should grow them exclusively, and abuse my neighbour's taste if he happens to prefer the more profusely flowered plants. Mr. Engleheart writes as if he and a few more only are in the right track; but to be consistent he and others who side with him ought also to condemn the method now in vogue of growing and showing Roses, Dahlias, Carnations, and the dressing of these and other flowers, as well as the method of training and showing of Pelargoniums and innumerable other plants. Either it is all wrong from beginning to end, or Mr. Engleheart is behind the times. It is at shows where we expect to see, and do see, "better things," and not often in the gardens of enthusiastic would-be reformers.

W. I. M.

KITCHEN GARDEN.

NOTES ON FORCING VEGETABLES.

ASPARAGUS.—This can be had from December till it is ready to cut from ordinary garden beds, and the latter will yield a supply till crops of Green Peas take the place of Asparagus, which may be had continuously from six to seven months by growing a sufficient number of plants to lift for forcing. After beds have been planted for a number of years, some of the plants will die; then the beds become unprofitable, and it seldom pays to renew them. When only a few plants are required for forcing it is a good plan to lift plants for that purpose, when new beds should be made to take their place. Where Asparagus is much wanted during the season, a regular system of culture is carried out. As many new beds should be made each spring as are required to be lifted each season for forcing, and when once the number of beds is established, a regular supply can be had. Plants which have been growing four years in well prepared beds will produce fine strong heads. Plants three years old are sometimes lifted for forcing, but except they are well-grown plants, they will be found to be unprofitable; the heads come weak

and are only fit for soups. The roots may be forced in several different structures, such as in pits heated by means of hot-water pipes or smoke flues, by keeping the soil in which the roots are planted moist, as such pits have very dry atmospheres if not well attended to with water. Asparagus may also be forced with equal success upon a bed of fermenting material, placing an ordinary garden frame upon the bed in question. If forced in a pit having bottom heat, place a quantity of rough lumpy soil in the bottom; on this set the roots moderately close together and shake some fine soil among them, covering them to the depth of 2 inches or 3 inches. Water the whole well to settle the soil; then the lights may be put on, and a steady moist temperature of about 60° maintained. Ordinary hotbeds composed of stable manure and leaves also answer well for Asparagus. They should be 4 feet high at the back and 3 feet in front. Place the plants as in the pit just described. After the heat declines to 60° or 65°, a little ventilation should be left at the back for the steam to escape. By using fresh linings of hot manure round the bed to keep up the temperature, two, and sometimes three, successive sets of roots may be forced before the bed loses its heat. Where Asparagus is forced extensively the permanent beds in the garden are covered with frames heated sometimes with hot-water pipes underneath the beds and sometimes with fermenting material. A few roots may likewise be forced in large pots or boxes placed in a vinery or Peach house at work. In such a case, after the tops are cut, the roots are of no further use.

Rhubarb.—This is one of the easiest of vegetables to force, which may be done in any structure having a temperature ranging from 55° to 60°, or the stools may be covered in the open air with lidded boxes 2 feet in height and sufficiently wide to accommodate the crowns. Rhubarb pots, too, are often used. They may be bought at any pottery, and with care will last for years. The easiest method of forcing Rhubarb is to lift some strong stools and plant them in large pots or boxes, and place them under glass, or the stools may be set moderately close together upon the ground, covering them with soil 2 inches above the crowns. Then give them a thorough soaking with water to settle the soil amongst the roots. Afterwards, too, when in active growth, they must be well attended with water, or the stems will be tough and stringy. Any structure will suit Rhubarb, provided it has a warm, moist temperature. A Mushroom house at work will be found a suitable place for it, or underneath the stage of a forcing house, or vinery, or Peach house. A forcing pit heated with hot water is, however, the best place for it where required in large quantities and of the very best quality. When forced in the open garden underneath pots or boxes, a heap of warm manure must be placed round each box. Where not forced some long litter placed over the crowns early in spring will encourage early growth, when a few dishes may be had before the general crop comes into use.

Seakale.—By means of a little forcing, this may be had when other vegetables are scarce. Where Seakale has been well cultivated during summer, fine strong crowns, which will yield an abundant supply of fine heads when forced, may be obtained. They may either be forced on the ground where they grow, or be lifted and forced in some structure, having a temperature ranging from 50° to 60°. When lifted in autumn any roots not wanted when the first lot is forced should be re-planted and covered with long litter or Bracken in order to be in readiness for lifting and potting should frosty weather set in. Put as many roots in each pot as it will conveniently hold, running some fine soil in amongst them up to the level of the crowns. The whole should then receive a good soaking of water. Place the pots thus filled if possible under cover until required for forcing. Under such conditions young rootlets will be formed, and the plants when placed in the forcing house will be found to start more freely into growth than those exposed to the open air. The plants in pots will require to be covered with other pots of the same size inverted firmly upon Moss put between the rims so as to exclude all light; the hole in the bottom of the empty pot must also be closed with a piece of slate or tile or wet clay. If not in perfect darkness the Kale will have a greenish, or sometimes a bronzy, colour, and therefore worthless. Any structure in which a sufficiently high temperature is maintained will do for Seakale provided perfect darkness is secured. The soil must be kept moderately moist; if allowed to get dry the Kale will be tough and stringy. Seakale succeeds well in a Mushroom house, or underneath the stage of a forcing house. We are forcing some in pots very successful underneath the stage of the Cattleya house, close to the pipes; the roots have been in the pots since November, and have needed but little heat. A vinery at work or a Peach house also suits Seakale, and later on it may be brought forward underneath a greenhouse stage. It may also be forced upon an ordinary hotbed, planting the roots in soil 4 inches apart and covering them up to the level of the crowns with soil. Make the frame perfectly dark inside by shading it with some thick material. When forced in the open ground pots must be placed over the crowns prepared for forcing, and they should be covered with warm manure and leaves about 3 feet in depth. See that too much heat is not generated, for if that happens the Kale will get scalded and be rendered useless. The roots that have been forced in pots must be laid in some light soil and covered over with dry litter until spring, when they should be planted to come in for another season's forcing. A supply of forced Kale may be had from December till it is fit to cut from plants covered out of doors.

Wm. Christison.

Woodham Hall, Woking.

VEGETABLES WORTH GROWING.

Almost every post now brings us a seed catalogue, some containing only a brief list of vegetables, others the names of nearly every vegetable known. The merits of some are set forth by illustrations, both coloured and otherwise, and the novelties are furnished with recommendations from well-known growers, but besides these there are multitudes of vegetables merely mentioned by name, and therefore the uninitiated have great difficulty in deciding what to order and what to avoid. Much loss may soon occur through growing inferior sorts, and also sorts that become fit for use at the wrong season. Testing the merits of new vegetables is one of the most interesting occupations which anyone can take in hand in connection with a kitchen garden, and all who have time and space to devote to it should do all they can in this way, as they will be benefited by it themselves in the shape of choice and good productions, and the information gained if imparted to others may be useful. With this, therefore, in view I will briefly point out a few of the good qualities belonging to the following, well knowing that one and all of them are capable of giving satisfaction to all classes of cultivators.

Asparagus.—Forcing this is an easy matter; abundance of it may be had from November until July. Good cultivation will always produce large roots, but fine heads only come from the best sorts, and the more carefully the stock is saved the better will be the produce. The Early Purple Argenteuil is a fine sort when procured quite true, and Conover's Colossal, a deep green-coloured kind, is first-rate for general culture. I am inclined to think Reading Giant, Carter's Mammoth, Emperor, and several others prefaced with seedsmen's names are only selections from this, and not very distinct, but so long as they are not inferior to the original perhaps little harm is done. Where much Asparagus is forced, young roots must be raised annually, and there is no better way of doing this than by means of seed.

Artichokes.—Of these there are two kinds in the Globe section, and they are very distinct, the one producing purple heads and the other green ones. The purple one is said to be the favourite in France, but in English gardens the green one is always the finest, being larger than the other and more tender. None come very true from seed, however, and in order to have them pure suckers or young plants must be obtained. Globe Artichokes are not much of a cottager's vegetable, but when nicely cooked they are much valued. The Jerusalem Artichoke may be cooked like a Potato or used in soups, but it can only be propagated and increased profitably by planting the small tubers or roots. About this time we lift our crop, pick out the big tubers, and replant the small ones for the next year's crop. When scarce a large one may be cut up into a number of sets.

Beans.—These form an important crop in most gardens, and everybody knows the three kinds—dwarf, Runner, and Broad. The dwarfs have the advantage of growing and podding without any support, but this the Runners will not do with the greatest degree of profit. Of dwarf-growing sorts, Canadian Wonder and Osborn's Forcing are still the two best. The Canadian is most productive and good in the open air in summer, and Osborn's is an excellent kind for forcing. Amongst Runners there is a great variety of names, but when many of the plants to which they are attached are grown side by side even their introducers could not tell which was which. In fact, they differ more in the seed than in the pod or leaf. Giant White is pure white in the colour of the seed, large in pod, and very prolific; Girtford Giant if also large in the pod. Champion is a very heavy cropper; and of the true old Scarlet Runner, Webb's Selected is a thoroughly good kind. Mont d'Or or Golden Butter Bean produces pods not unlike those of Canadian Wonder; it has, however, the habit of the Runners, and the pods are pale lemon, tender, and good. Broad Beans, although no great favourites with professional cooks, are much valued by many, and there are plenty of sorts from which to select. The Windsor varieties are not now considered worth much. Early Mazagan is the earliest of all, and Aquadulce is one of the largest podded. Seville Long-pod is a good sort, prolific and tender, and, as an all-round sort of the highest merit, I would make special mention of Kinver Mammoth.

Beet.—Medium-sized clean roots and richly-coloured flesh are the points to secure in Beet, and the true Dell's Crimson possesses all those qualities in a high degree.

Broccoli.—Of this not a great many sorts are needed to give a supply from November till June. None of the autumn sorts equal Veitch's Self-protecting, and from November until the new year at least it may be fully relied on. Snow's is not so good as Backhouse's for January, and Webb's Perfection, Wheeler's Winter, and Reading Giant are excellent in February and March. Webb's Champion is a fine sort for cutting in April, and Sutton's Late Queen has no equal in May.

Brussels Sprouts.—Many are now beginning to discover that the improved Sprouts now produced in the form of small Cabbages are flavourless compared with the little marble-like balls of the old kind. Although I have grown the big ones, I find that the small compact sorts are the hardiest and best flavoured. As a large one, Sutton's Exhibition will meet all demands where size is concerned, and the small ones are best represented by the Dalkeith and Rosebery varieties. Of the former I have now one of the most even quarters of Sprouts ever possessed.

Borecole or Kale is only acceptable after a severe winter, and the best varieties of it are the Cottagers' Kale and Wheeler's Imperial Hearting. The Asparagus variety is nicely flavoured, but not very hardy, a defect in this class of vegetable.

Cauliflowers.—These should come in in May and end in November. The earliest is Veitch's Extra Early Forcing, to which all the other "extra earlies" show a close relationship. To follow this Early London is out of date, and I would substitute Webb's Mammoth, following with Sutton's King and finishing with Autumn Giant.

CARROTS.—Of these choice varieties only should be grown; therefore selected Altringhams and Long Surreys should be excluded. French Horn, Nantes Horn, and Intermediate are the only kinds worth growing for quality. Biddle's Stump-rooted is an economical Carrot, alike thick all through and a great favourite with some.

CABBAGES.—Out of the many we have selected for future culture Cocoa-nut, a little beauty; Emperor; Allheart, a new one of the highest excellence; and Redbraes; Drumhead Cabbages are only useful for cattle, and the Red for pickling.

CUCUMBERS.—Of these the introductions of this year alone would afford a change every month. But, judging from past experience, I am inclined to think that many of them can possess no character for distinctness. Apart from this, however, I know of some which it would be difficult to surpass. As an exhibition Cucumber, Tender and True may be grown; and Empress of India is equal to this in size and beauty, more hardy in constitution, and far more prolific. Cardiff Castle is a distinct kind, which everybody should grow who values a perfect table Cucumber. I may add, too, that when ordering Cucumber seeds, I never omit to send for a few seeds of the true Rollisson's Telegraph; not that it is really better than those just named, but one does not like to neglect an old and trustworthy friend.

CELERY.—As a dwarf kind, White Gem is the most distinct and best white I have seen. In large reds, Mammoth is a solid, crisp, finely-flavoured sort; and Cole's Crystal White is a good companion to it. The Turnip-rooted Celeriac is very useful for soups or stewing.

CHOU DE BURGHLEY.—This is not only a distinct, but a really first-class vegetable; it grows freely, producing fine large delicate heads, which possess all the flavour of the most delicious Broccoli. Those who taste it once would not like to be without it afterwards, especially in the late autumn and winter months.

ENDIVE.—The varieties of this are numerous, but now we only grow and recommend one kind, and that is the Batavian Improved Round-leaved. From October until April this produces massive heads of the greatest excellence.

LETTUCES have now been brought to a high state of perfection, and there are plenty from which to choose. Of Cabbage sorts I must mention Tom Thumb, a very choice early kind; New Summerhill, large and of good quality; Marvel, a kind quite purple in colour; and Perfect Gem, a name which well explains its character. Of older kinds All the Year Round and Neapolitan are the best, and for winter Hardy Green and Stanstead Park. Amongst Cos varieties there are now many fine ones, notably Monstrous White, Kingsholm, and Reading Mammoth White, the last a new and excellent variety. Moor Park, Hick's Hardy White, and Bath Sugarloaf are the most reliable winter kinds.

LEEKS.—St. David is a kind much grown in Wales and one which gives much satisfaction. The Lyon is not true in character; some come large and finely formed, but not all. Ayton Castle and Henry's Prize appear to be one and the same: both are good, and so is the old Musselburgh, Dobbie's Champion is no improvement on these, nor is Conqueror.

ONIONS always form an important crop, concerning which it is said, "Breathes there a man with soul so dead Who never to himself hath said, This is my own, my Onion bed," and if the Onion grub can be kept off, a good bed too it may be. Giant Zittau is the best of the kinds for autumn sowing, and Banbury, Exhibition, James' Keeping, and Bedfordshire Champion are all excellent for summer use. The Queen is a wild, quick-growing kind.

PEAS.—Good kinds of these are so numerous that the list might easily be made a long one. As a dwarf early, American Wonder merits attention, and so does William I., still a standard sort. Sunrise is not this, but Sangster's No. 1 is. Of second earlies we must name Dr. McLean, and Giant Marrow and Paragon are two very fine Peas. Telegraph, Telephone, Stratagem, Triumph, Electric Light, and Stourbridge Marrow are also all good. Of late kinds Latest of All is the finest Pea I have ever grown. Omega and Veitch's Perfection may also be named here. Of midseason Peas on trial last year, Hurst's Duke of Albany was the best.

VARIETIES OF VEGETABLES.—French Breakfast, Red and White Turnips, Wood's Early Frame, and China Rose for winter are all good and useful Radishes. Rhubarb may consist of Johnston's St. Martin's and Mitchell's Royal Albert. Savoys of Drumhead, Green Globe, and Dwarf Ulm. Spinach of Round for summer and Prickly for winter use. Of Tomatoes, Trentham, Early Fillbasket, Glamorgan, and the Drumlanrig are very prolific, large fruited, and very fine in quality; Greengage is the finest of the yellow-fruiting sorts. Of Turnips select Early Munich, Snowball, Veitch's Red Globe, and Chirk Castle. Where yellow ones are preferred to the latter in winter, Orange Jelly should be grown. Muir's Hybrid Prolific Vegetable Marrows, Mr. Pettigrew, Cardiff Castle, asserts to be the finest flavoured Marrow he ever tasted. The Custard variety has singularity of form to recommend it, and Prince Albert is a good green variety.

POTATOES.—As varieties of these multiply it becomes more and more necessary to select the best. Early Ashleaf, Covent Garden Perfection, and the Gloucestershire Kidney should all be grown as early Potatoes. Reading Hero, Wheeler's Safeguard, Schoolmaster, Paterson's Victoria, and Champion have much to recommend them as the finest table Potatoes. Scores of others could be named which have been tried here, but their culture would only lead to disappointment, especially in wet unfavourable seasons. Of new and really good Potatoes I have not a large list to offer, but special mention should be made of Sharpe's Victoria, a flattish round variety of remarkably quick growth, free from disease, and of the highest quality. It is excellent for frames or early borders. Double Gloucester is a seedling from Magnum Bonum, not at all liable to disease, a heavy cropper, good in quality, and likely to become equally well known as the type from which it sprung. J. MUIR.

Margam Park, S. Wales.

SHORT NOTES.—KITCHEN.

Chou de Burghley.—I have grown this for two years, and have come to the conclusion that it surpasses every other vegetable of the Cabbage tribe for delicacy of flavour, and it is quite hardy here. I sow at three different times, so as to have a succession.—JOHN WORTHINGTON,

Early Peas.—Our first planting of Paragon Peas has come up strongly, showing a fine, even, healthy plant from one end of the row to the other. I shall put in a large planting of this variety about the 8th of this month.—RICHARD NISBET, *Aswarby Park.*

Which is the best Potato?—After repeated trials, I find Scotch Champion to be the very best. It is good in colour and a heavy cropper. The flavour, too, is very much in advance of that of all others. Its shape is ugly and it has deep eyes, but nevertheless it is my special favourite.—R. GILBERT, *Burghley.*

Celery maggot.—The simplest and most effective way of destroying this troublesome pest is dusting the leaves with soot on its first appearance, repeating the soot application as often as it is washed off by rains. Such dustings are also beneficial to the Celery in other ways besides saving the leaves from being materially injured by the grub.—J. D. E.

Earliest of All Pea.—In reply to Mr. Iggulden's note on this Pea (p. 519), allow us to say that we have now for two years grown large breadths of it in an open and much exposed field with the happiest results. It has proved itself under such treatment to be what we have always claimed for it—the earliest, greenest, and most productive of first crop Peas.—HOOPER & Co., *Covent Garden.*

5100 —**Mushroom spawn.**—It will run and produce Mushrooms after being kept two years.—J. D. E.

—— As to whether Mushroom spawn will keep good for two years or more, much depends on its quality at the beginning. Some have remained good with us for years, and many bricks have been useless at the end of twelve months; but it may easily be seen whether the spawn is good or not by breaking the bricks through the middle; if many white threads are seen it may be used with safety, but when the whole has a dull, dead-looking colour it will never give satisfaction.—J. MUIR.

BROCCOLI FOR WINTER AND SPRING.

NOTWITHSTANDING the fact that names have been largely added to the list of winter and spring Broccoli during the past quarter of a century, the gain to cultivators has not, with the exception of two or three varieties, been one of any great value—a circumstance much to be regretted, because the season for Broccoli is capable of being extended at both ends. We want more hardy varieties than Veitch's Autumn Giant and the Walcheren in order that we may rely upon them from November to the middle of January. For the spring we also want more trustworthy sorts to fill up the gap between the spring Broccoli and early summer Cauliflower with a greater degree of certainty than now exist. We also require an improvement in the habit of some of the varieties; they are much too long-legged and deficient in the number of leaves to protect the flower. In the case of many varieties, their vigour is out of all proportion to what is required to furnish heads fit for table, and the strong growers in question, with their thick fleshy stems, are the first to suffer in a severe winter. Those who know the variety called Miller's Dwarf, which has been so long in cultivation, will, I think, agree with me that it is a good type of the sort of Broccoli which we want. It grows very close to the ground, the stem rarely exceeding 9 inches in height, and it is furnished with an abundant leafage, which is capable of protecting the heart and stem from as much frost as these plants are ever likely to be subjected to when unprotected. If the work of selection is set about in a proper manner by those who have time and opportunities, I see no reason why a new race of Broccoli should not be introduced that would combine close sturdy growth with a sufficient number of leaves near the heart to render them proof against all but the severest winters.

THE VARIETIES FOR WINTER use are limited. The only reliable sort is Snow's Winter White, which is as self-protecting as any kind we have, and the flower is beautifully white. It may be had sometimes in good condition in December, but the early part of January is its proper season. The Sandown Broccoli, which I have on trial for the first time this season, proves to be an inferior strain of Snow's Early. Penzance makes a capital succession to the last named, coming into use early in February. I look upon the Penzance as a very good selection of Adams' Early White; in many many points it is very similar to it, but it comes into use two or three weeks earlier. It is, however, rather a delicate variety, and is one of the first to suffer in a hard winter. It may be well to remark that none of the winter Broccolies are fit for use except in mild weather; all of them suffer when exposed to cold frosty weather. In making a

SELECTION FOR SPRING USE the choice of sorts is not at all restricted, at least as regards names but it is doubtful if more than half-a-dozen distinct kinds could be had out of the multitude of supposed different varieties. Placing them in the order in which they come into use, I would select Knight's Protecting, Chappell's Cream, Dilcok's Bridge, Frogmore Protecting, Leamington, and Veitch's Model; as a late variety the last named is worthy of its name. It is quite as late as Cattell's Eclipse, but superior to that sort on account of its dwarf habit and the excellent colour of the flower. On more than one occasion this variety has kept up our supply until Cauliflowers came in for use. Frogmore Protecting is equal to Model as regards colour and is somewhat earlier, but more lanky in growth. It comes very near my idea of what a good Broccoli should be. For small gardens I should select Chappell's Cream, Frogmore Protecting, and Model. As regards

CULTIVATION, two distinct sowings should be made. The winter varieties should, when practicable, be raised in the open ground, as plants thus raised are more hardy and shorter in the leg than those brought up under glass. The seed of Snow's Winter and Early Penzance should be sown on a warm border early in March. It should

be sown thinly all over the bed, and if the plants come up too thickly, they should be thinned out, so as to obtain short-legged plants, which cannot be had when they stand closely together in masses. Sowings for the spring supply should be made about the middle of April. We allow these to stand rather thicker in the seed-bed than the others, because early in June we draw out as many of the strongest as are required, and transplant them 6 inches apart in another piece of ground, where they remain until finally planted out. We like to get the plants in their permanent quarters by the middle of July, but as space is restricted, we are bound to wait until sufficient ground is vacant. I am satisfied, however, that the sooner they are planted after the middle of July, the better heads they produce, and the better able are they to stand against severe frost. I do not think it necessary when the ground is in fairly good heart to dig and manure for Borecole, for it grows just as well in ground that is so firm as to require a crowbar to make a hole to receive the roots. Broccoli is a crop often crowded under the mistaken notion that just as good heads will be obtained under such circumstances as if the plants had plenty of room. This, however, is not the case, for the thicker they stand on the ground the weaker they become, and as a consequence the heads will be small. Moreover, the plants get drawn and are the first to suffer from frost. If a plantation of Broccoli is examined after a hard winter, more live plants will be found in the outside rows and at the ends than in the middle; this shows plainly that the more room they have in reason the hardier they are; 2 feet apart each way is a very good distance at which to put them, but 30 inches would be better.

J. C. C.

FRUIT BUDS AND TEMPERATURE.

It is best, in gardening as in other things, to begin with first principles. In the forcing of fruits like the Peach, Cherry, Apricot, Plum, and many other subjects of the deciduous class which mature their fruit or flowering buds the previous autumn, it is often said that, provided the wood and buds are properly ripened, there is little or no fear of a crop. No doubt perfect maturity of the wood is of the first importance, but it is by no means a guarantee of a crop or even a good "set" of fruit the following season if the plants are pushed too hard at the first by too much heat. I have good reasons for supposing that many a crop of Peaches, for example, is lost from no other cause than the premature pushing of the leaf-buds in advance of the fruit buds. I daresay many gardeners have noticed that when the leaf-buds of a Peach tree expand before the flower-buds, the latter never open, or but very imperfectly, and soon fall off without setting. I have noticed this many times in the case of the Peach and other plants; and although badly-ripened wood is always most inclined to push its leaf-buds prematurely, still the best-ripened examples behave exactly in the same way if started in too high and moist a temperature. I was called upon two years ago to examine the Peach trees in a good garden where, although they grew and looked well and flowered too, they did not bear satisfactorily. When I went the trees—trained to perfection—were in full leaf, and had been disbudded once, but the flowers were only newly opened, and not a petal had fallen; whereas at that stage the fruit should have been set and swelling. I never remember disbudding Peaches before the flowers dropped. That season there was a very poor crop again on the trees mentioned, but the following season (1883) there were fewer leaves on the trees before the fruit was set, and the crop was a very fine one, there being, I think, thirty dozen on one tree. In the case of the Peach, therefore, and other stone fruits, and certain other plants to be named, it may be set down as a rule that the flowers should always be well in advance of the leaves, and in order to secure this the trees must not be forced in a too high temperature at the beginning. It takes a higher temperature to bring the leaf-buds out than it does the fruit-buds, and whenever the former are observed to be pushing in front of the latter it is a sure sign the temperature is too high for the stage. After the leaves have grown beyond a certain point, nothing can be done to mend matters, but if the leaf-buds are just pinched at their points in good time, it will cause the flowers to expand and the crop may be saved. What happens in the case of the Peach happens also in that of

The common Azalea and other deciduous shrubs of that kind; if forced too quickly in too much heat, they will push leaves instead or flowers. The greenhouse Azalea will behave in the same way, and no plant affords a better subject for experiment. If at this or any other season, a plant, however well developed its flower-buds may be, is placed in a stove heat, the leaf-buds at the base of the flower-buds will push quickly, and the flowers will never open, but in the end will turn brown and fall off. Many a well-set Azalea is lost from this cause. A suitable temperature cannot be always provided for everything, but in the case of Azaleas if the leaf shoots are pinched clean out as fast as they grow and at an early stage, the flowers will expand, and it will do the plant no harm. It is the same with bulbs. Hyacinths, if hard forced, will throw leaves only, leaving the flower-spike like a knob in the socket, while the leaves may be a foot long or more. In a perfect specimen they should be short and stiff, and just form a collar to the flower-spike. Curiously, too,

The Pine-apple behaves just in the same manner, and I have known whole batches of finely ripened plants produce nothing but a tuft of leaves, that would have been the crown of the fruit had it had time to grow up. Acting on these principles, we reduced our Pine plants to the fewest number—when we grew Pines—and used to fruit almost every plant at the right time with the utmost constancy. I would undertake to make the finest grown and ripened Pine-apple plant that was ever produced miss fruit by treatment at starting, and I would not subject the plant to a higher bottom heat than 90° or 100°. The plant would, however, have to be at rest when I got it, and the fruit not already visible in the socket; but even at that stage it could be made by the same means to develop an unduly-sized crown at the expense of the fruit. Another plant which will not bear pushing at the start is

The Strawberry.—I know of no plant so impatient of much heat before the flowering period. No matter how well ripened the plants may be none will flower if at that stage they are subjected to a too high temperature. They will grow freely enough and produce fine foliage, but the flowers will never come up, or if they do they will hardly set. And there is nothing singular about this at all. Mostly all deciduous trees and many plants produce their flowers in spring or early in the year when the temperature is comparatively low, and when it is only gradually rising, completing their growth of wood and foliage later in the season under the influence of more heat. Spring is now coming on; the forcing season is already begun, and I advise all those who have to grow early crops of fruits or flowers to be careful and watchful at the commencement of growth and make up time after the critical flowering or setting periods are over. J. S. W.

Eucharis amazonica.—Someone asked whether it was possible to get two crops of flowers on this plant in the same year. At the time the question was asked we had several plants bearing their third crop of flowers, and now, January 2, one of these has opened its first flower of a fourth crop, so that although this last cannot be said to have opened in the same year as the three previous crops, yet it might be said that four crops of flowers were produced by the same plant in one year. Now all this has been the result of quite ordinary treatment; no drying off, no placing out of doors, no sun scorching has been necessary to bring about this abundant display of bloom; all that has been done was using good loam in which to pot the bulbs, the potting being done at this time last year, placing the plants in a light stove and watering them whenever they were dry—treatment simple enough considering the plentiful supply of flowers. Of course everyone knows that the bulbs of this plant require to be placed with their bases almost touching the crocks at the bottom of the pot. There is not much fear of the bulbs rotting when thus planted.—B.

Garden Flora.

PLATE 422.

DIANTHUS ATKINSONI.*

Among hardy herbaceous plants there are perhaps none that are more universal favourites than the different species and varieties of Dianthus, and deservedly so, for they have everything to recommend them. They are easily grown, are rich and varied in colour, graceful in shape, many of them very sweet-scented, evergreen, and lasting long in flower. The whole family contains something under a hundred species, of which the greater number are European, while a few are found in temperate Asia and Africa; but in America there are said to be none truly indigenous, and the few they have are strangers from Europe. In England we have six species, but, though European and growing in many parts in great abundance, it is curious to observe that they are not described by any Greek or Roman authors. But in England they have been very old garden favourites, and the old writers can scarcely find words to express their admiration of them. The names were all expressive, and many of them have stood their ground for more than 400 years, such as Pinks, Carnations, Cloves, Gillyflowers, Sweet Williams, and Picotees. It would take more than one whole number of The Garden to describe all the good sorts of Dianthus, but I will name about a dozen which are interesting and worth growing either for their beauty or for some other interest attaching to them.

D. barbatus.—This is the type of the Pinks with clustered flowers, and is the parent of Sweet Williams. It is found wild in several parts of Southern Europe, but as a garden plant it is too much confined to cottage gardens. In all its varieties it is worth growing, but it requires to be constantly renewed, or it is apt to die out soon. One of the best is a deep red dwarf variety, which I believe originated some years ago at Mr. Ware's, but I have not seen it lately.

D. chinensis.—This is a species that in its single form has been in England nearly 200 years, and in its double form almost as long. It is the parent of the garden Mule Pink, and is by some supposed to be the parent of the very common double white Pink, certainly one of the best we have for hardiness, free growth, and scent. But it more probably comes from D. plumarius.

D. Caryophyllus.—A British plant, but not a true native, being only found on some of our old Norman castles. It is abundant in many parts of Europe and is the parent of the grand family of Carnations.

D. cæsius.—Another British plant, and very interesting, as being only found on the mountain limestone rocks of Cheddar. It is a beautiful little plant, and very easily grown when once established. Its proper place is on an old wall, and there seeds may be sown, and they will probably soon produce good plants. Old rooted plants do not transplant well, but young plants from cuttings grow rapidly, and if placed under the coping

* Drawn in Mr. Ware's nursery, Tottenham, July 20, 1883.

of a wall, will grow downwards and form a beautiful ornament to the wall, and will require no more care or attention for years.

D. PLUMARIUS.—Another plant that claims to be British, but it is only found in a few doubtful places, and is certainly an alien. The typical plant is of no great beauty, but it is interesting, as the parent of the Pinks as distinguished from the Carnations.

D. ALPINUS.—One of the best of the very dwarf Pinks, and where it grows well a most effective plant for a rockwork; but it is capricious, and will not grow in every garden. D. glacialis and D neglectus are both very similar, and it would be well to grow all three and then see which does best. In some highly favoured gardens all three might be induced to grow.

D. SUPERBUS.—Native in many parts of Europe and one of the best for garden purposes, but not the most brilliant. The petals are jagged, and it has always an untidy look, but the scent is delicious. It should be treated as a biennial, for it soon dies away, though I have known self-sown seedlings come up freely.

D. HISPANICUS.—I mention this because, though an old inhabitant of our garden, it is very little known, and it is at present scarce. I saw it for the first time last year at Heatherbank, and (according to the good custom at Heatherbank) carried away a plant. It is very distinct and of a brilliant colour. It is probably a near ally of the typical Sweet William.

D. CINNABARINUS. — I name this also for its variety and for its peculiar colour, which is unlike any other flower. I first saw it at Mr. Joad's at Wimbledon, and I believe he imported it direct from Greece. It is not so striking a flower as many of the others, but its peculiar cinnabar colour at once attracts attention and makes it well worth growing. It is grown at Kew among Mr. Joad's other plants, and is being increased. It is a rare plant, and strictly confined to Eastern Europe.

I reserve for the last the subject of the coloured plate, D. Atkinsoni. This beautiful variety is said by Mr. Sendall (in a recent number of THE GARDEN) to have been raised by Mr. Atkinson, of Bacton, Norfolk, about forty years ago. Mr. Sendall considers it "one of the most beautiful of old-fashioned Pinks," and I quite agree with him. It seems to be a hybrid of the Chinese Pink, but it is very difficult to increase, and I never saw seed on it.

I may close these few notes on Dianthus by the two remarks that the ambitious name of Dianthus (*i.e.*, Jove's Flower) was borrowed by Linnæus from a name given by Theophrastus to some other flower not now recognised, and that nearly all the species are easily increased both by seeds and cuttings.

I should also like to add that the family is not much given to run into (so-called) monstrosities; but there is one very curious form of Carnation which I have never seen and what I should much like to see if any of the readers of THE GARDEN can send it. It is figured in the *Botanical Magazine*, vol. xxxix., 1622, as the Wheat-eared Carnation, or Dianthus Caryophyllus imbricatus.

HENRY N. ELLACOMBE.

5119 — **Pruning Bougainvillea spectabilis.**—"B." should cut away all the small growths, leaving only those that are strong and well ripened. Every shoot that the plant produces will then flower; in fact, it will be in flower more or less from the middle of June till November. This Bougainvillea should, however, be grown as a rafter plant if one wants to see it in its fullest beauty, and thus treated the pruning would be slightly different. Two rods should be selected and cut in the same manner as one would a vine. The older the rods the better the flowers, which would be nearly as large again as those produced by a plant in a pot. One planted out here and thus pruned never fails to yield any quantity of flowers during the summer and autumn.—J. S.

SEASONABLE WORK.

FLOWER GARDEN.

HERBACEOUS AND OTHER PLANTS of that class show off best in wide shrubbery borders with low evergreens to back them up, but these latter ought not to be of a kind that root far about, or they rob the former, and so spoil their growth. Rhododendrons, Berberis Darwini, B. stenophylla, and such like do not do this, and therefore should be largely made use of, as they are not only valuable on this account, but they are more desirable than most others on account of their moderate habit and the great beauty of their flowers, which they bear so profusely in spring. For variety of foliage, Aucubas, Euonymus, and Hollies are the most suitable, and to these may be added the variegated Dogwood and Acer fraxinifolium, and by way of contrast to these one or two of the dark-coloured Nut, which, with its rich coppery leaves, shows up well. To make sure of old borders being perfectly free from roots of trees and shrubs near, it is a good plan at this season to trench up the same, and when doing so to work well up around, cutting and removing all in the way. As most herbaceous plants are fond of rich soil, the opportunity afforded when trenching of giving a good dressing of manure should not be lost. The kind of manure most suitable for the purpose is that of a mild nature and which has been lying by for some time to get well decomposed. Such as this is agreeable to most plants, and may be used freely without fear of injuring the roots, but it is always best to keep it low down.

FLORAL DECORATIONS.

WHERE early Dutch bulbs are cultivated in quantity for decorative purposes other than for the conservatory or standing in small vases in the house, it is an excellent plan to follow to some extent the system pursued by those who grow for the trade. Of course, appearances have to be studied more in a private establishment than in market producing places; and therefore in lieu of rough and ready boxes in which to bring forward the bulbs to a flowering stage, seed pans of goodly size (square ones will occupy least room) should be chosen. In these the bulbs can be grown more closely than in pots, and when required for decoration can be taken, bulbs and all, for any uses other than vases where the bulb and rootlets would be unsightly. This system will be found to be preferable to any other for the making up of what might be termed rustic arrangements, and will afford a pleasing change where much decorative work has to be carried on. Too much sameness renders decorations of any kind monotonous and uninteresting, and therefore should be avoided. In table decorations especially it is well to add a fresh feature occasionally; this can be done with ease. When all the costly epergnes and vases have been exhausted to give variety, a very pretty effect can be produced by choosing a medium-sized dish or a large dinner-plate on which to arrange our chosen material. For a large table select an oblong dish, such as would be wanted for a fair-sized joint. A slender-growing Palm, such as Cocos Weddelliana, Euterpe edulis, or Chamædorea glaucifolia, having a good healthy head of foliage in a 3-inch or 5-inch pot, might be set in the centre, after which some sand and fresh green Moss or Selaginella should be at hand. Sand should be placed around the central plant at once. Then choose, say, of the early Dutch bulbs some scarlet and white varieties of the Duc van Thol Tulips, a few bulbs of each; two or three of the white Roman Hyacinth, bulbs, foliage, and spikes included (if the latter are not too much drawn up), and three or four small Chinese Primulas flowering in 3-inch pots, from which they should be removed. Fill up between these with the Moss, so as to cover the sand, and dot in a seedling Fern or two where opportunity offers, but avoid crowding. Around the base use a few growths of small-leaved Ivy or other convenient material, to rest on the table cloth. Again, with the same Palm, as a change select some tiny plants of Pandanus Veitchi and graminifolius, or growths of either will do instead of plants, likewise a few tufts of the Cyperus alternifolius. Having arranged these, let us procure a few spikes of Eucharis amazonica that have say one perfect flower and another partially open; about three of such will be sufficient with a few small leaves. To these add a few spikes of Lily of the Valley, Paper-white Narcissus, or Spiræa japonica, using for colour either the yellow or scarlet Duc van Thol Tulip but sparingly. As a finish a few Fern fronds around the margin would add to the effect, and a few slender trailing growths of Ficus repens reaching beyond these would be a welcome addition. A slight bedewing with a syringe to either of these arrangements would tend to keep the flowers and foliage all the fresher. Other forms of arrangement could be followed out, modified, of course, according to the supply and other circumstances.

INDOOR PLANTS.

STOVE PLANTS.—There is nothing in the whole range of cultivated plants able individually to give such a lengthened succession of flowers as a few of the best stove species, such as Ixoras, Allamandas, and Dipladenias. If so managed as to enable them to continue in bloom for the greatest length of time throughout the year of which they are capable, it might almost be said that they are continuous flowerers, for it has been found that when all the conditions of cultivation are suited to their wants, that they, along with a good many other occupants of the stove, require only a short rest—very much less than they are often subjected to—but the length of time out of the twelve months that admits of their being submitted to enough heat to keep up this lengthened active growth depends upon two things, the houses in which they are cultivated being such as to admit a full amount of light, and, what is of equal consequence, their being kept close to the roof. This latter is a matter of importance not nearly so generally accepted as it should be. We train Vines, Cucumbers, Melons, and other fruit-bearing plants as close to the roof as we can get them without absolute contact with the glass, with the admitted result of increasing their fertility; it is just as necessary to keep plants that are intended to produce all the flowers we can get from them in a similar position so far as proximity to the roof of the house goes. The least experienced grower of plants under glass cannot fail to have noticed the strong healthy leaves and short-jointed wood that are formed with plants of all sorts kept with their heads close to the glass, as compared with that which results from others, identical in every way, but stood further from the roof in the same house. Such subjects as we have named and many others can only be had in flower for the full length of time by submitting them to a corresponding amount of heat, and where the houses are comparatively dark through their construction, or the position they stand in, or where lofty, without the means of getting the plants well up to the roof, it will not do to use as much heat as will start them into active growth until the days are longer. Our own practice with houses as light as they could be made and adapted in their construction to have the plants occupying them continually within a very short distance of the roof, was to give all the rest that the majority of them received through the months of November, December, and the first week or two in the new year, during which time there is usu-

ally much less sun than after the turn of the days, and as soon as fairly into January the temperature used to be raised in the night to from 65° to 70°; by this means we had no difficulty in having the same plants of Dipladenia, Allamanda, and Ixora in flower from the middle of April until the beginning of October, or longer if the heat requisite was given them; under the same conditions, Clerodendron Balfouri and Thompsoni, Bougainvillea glabra, Gardenias, Tabernæmontana, Scutellaria Mocciniana, and others of like character gave several crops of bloom alternating with growth; consequently where the stock is in strong robust health, and has been subjected to a rest of a couple of months, preparation should be made for starting them into growth. Any examples of such things as require cutting in should be so treated at once previous to giving them more heat.

Stephanotis.—Where the flowers of this general favourite are wanted over as long a period as possible, several plants should be grown. There is the advantage of obtaining larger specimens when planted out, but this is over-balanced by the inability to retard or push them on at will in the way that can be done when they are moveable and grown in pots; moreover, the plant only requires a limited root space, and very large examples can be grown in good sized pots. It never succeeds so well as when trained close to the glass under the roof; we prefer thin string for thus supporting it rather than wire, as when it is necessary to remove the plant to a lower temperature to give a rest, the string can easily be taken down and the shoots wound round the trellis or a few temporary sticks. Plants that have been so rested may at once be put into active heat, distributing the shoots under the roof tolerably close. With this plant whatever cutting back is required should take place after the blooming is over.

Gloxinias.—There are few flowers so useful as these, for with judicious management in arranging for successions they can be had nearly all the year round; but to have them in a condition to be really serviceable for cut purposes, they must not be too much hurried, and whilst growth is going on they cannot be too near the glass. It is much better to start the corms at different times. If a few are at once potted and placed at the coolest end of the stove they will come in early; do not use the soil too moist, and let them be put in heat immediately they are potted. We have seen the corms destroyed through two or three days' inattention by leaving them in a potting shed after they have been placed in contact with the new moist soil. It is scarcely worth while now going in for named varieties of Gloxinia, as really splendid flowers both in form and colour can be had from seed. If a little is sown at this time, the plants will bloom nicely through the later months of the year after the older examples have become exhausted; the seed should be sown thinly in a wide pan drained and filled with finely sifted soil, to which has been added a good deal of sand. Make the surface smooth and firm, so that the seeds may not get down too deep, covering them very slightly with a little fine soil, pressing gently down and putting a sheet of glass over the pan, by which means the material will retain moisture, so as to minimise the amount of water necessary to be applied, a matter that it is always needful to be careful about with small seeds that require heat to enable them to vegetate.

Tuberous-rooted Gesneras.—These are a beautiful class of plants somewhat neglected. The old bright scarlet G. Cooperi may be taken as an example, and is still a very fine kind; there are numbers of hybrids equally deserving of places. There is an advantage in starting them early, as by so doing they may be induced to flower twice before autumn. All they require is such treatment as is needed by Gloxinias; they will thrive in either loam or peat. The time of flowering of the winter blooming Gesneras, such as G. exoniensis and G. zebrina, will depend upon the amount of heat they have been subjected to; where well managed they will now be very useful, their long spikes of bright flowers standing out conspicuously in the stove. They like a fair amount of heat up to the blooming period, but when in flower they will stand an intermediate temperature, not giving them too much water. When the flowers fade the plants must still be kept warm, applying less water until the well matured foliage dies down slowly.

Epiphyllum truncatum.—So accommodating are Epiphyllums in their time of flowering, that with a sufficient stock and due attention to their management, they may be had in bloom through a considerable portion of the winter. To secure this it is only necessary to vary the time of growth and rest in the plants. Those that have been forced into flower early should now, when the blooming is over, be placed where they will at once have warmth enough to push them on, so that they may have time for a long rest and thorough ripening of the growth, which is essential to their being forced early. The naturally limited root room these plants will do with is often the cause of their being kept so long in small pots that their strength is impaired, and not unfrequently through the same cause the drainage becomes defective, in which condition the plants cannot possibly thrive. The usual manner of growing them is grafted on the Pereskia stock in the form of standards, short or tall. In this way they admit of being arranged when in flower with other plants. They form nice little bushy heads when grown on their own roots, in which style they soon get large enough to be effective, as good sized pieces will root; if these are now put in a brisk heat they will soon get established; they should be placed singly in small well-drained pots, in loam to which a large amount of sand and some finely broken crocks have been added. They ought only to have as much water given to the soil as will keep it from being so dry as to cause the cuttings to shrivel until roots are formed, when more may be applied. The larger growing kinds of the Ackermanni and speciosum section are not grown now so much as in time past, or as their merits for decorative purposes entitle them to. Provided they have a fair amount of heat with full exposure to all the light and sun possible whilst their growth is being made, with a thorough roasting out-of-doors in the summer, and they are kept moderately dry and not too cold in winter, they will bloom profusely in spring and summer, their gorgeous flowers giving an effect of which few other things are capable.

Dionæa muscipula.—This remarkable plant, which often grows well for a time and then dwindles away, may easily be kept for an unlimited period in a thriving state if it is fairly treated. The usual cause of its getting into an unhealthy state is through keeping it too hot, which induces over much growth for a time, by which it gets exhausted. The plant will grow in an ordinary greenhouse temperature, but likes a little more warmth than this; at the same time it cannot bear to be dry at the roots, and a dry atmosphere is equally unsuited to it. Now when it is at rest it should be kept at about 45° in the night, always maintaining the soil quite moist, but not confining the plant under a bell-glass or hand-light, unless the atmosphere of the house in which it is kept is unusually dry.

Euphorbia jacquiniæflora.—When well managed this is one of the best of all winter flowering plants, either grown in pots or planted out. One of its peculiarities is that it makes little roots and is impatient of being over-watered. It is usually short lived when planted out, for although so treated it grows fast and gets much stronger than it ever does when its roots are confined, yet it generally dies off suddenly; this often occurs after a considerable quantity of the shoots bearing flowers have been cut. The same is not unusual with this Euphorbia where grown in pots; this points to the necessity of using more than ordinary caution in giving water at a time when the reduction of the shoots and leaves renders the plants less able to take it. When this useful subject is turned out, the bed should always be much smaller than is given to the generality of other things. Where it is grown in pots, if the plants are strong, they will give a second crop of flowers from shoots produced below where the first bloom was forthcoming. Manure water in small quantities will help the second flowering. In the same way all other winter-blooming stock that produce a second growth of flowers will be benefited, as the roots in most cases will have impoverished the soil during the formation of the first crop of bloom.

Imantophyllums.—These plants are so manageable that they will bloom at almost any time of the year when wanted by subjecting them, after they have had a good rest, to heat. If good large examples are at hand, one or two may be put in moderate warmth, where they will quickly push up their flower-stems. There is a great difference in the brightness of colour and in the size of the different forms of these plants, some of which are so superior to the ordinary variety as to make it comparatively not worth growing. Imantophyllums are naturally much slower to increase than plants that produce cuttings in the ordinary way, and where only a limited stock of a good form exists, it is desirable that it should be increased. With this view the plants ought to be kept in heat and the crowns divided as they get strong enough. They like plenty of root room, and as fast as the soil gets full of roots they should be moved on.

Kalosanthes.—Whether large specimens in big pots or small stock, such as that grown from cuttings put in in spring, Kalosanthes should be accommodated with the lightest position the greenhouse affords. Give no more water than necessary to preserve them in health, but, though it is advisable to keep them drier at the roots during the dormant season than most things require, this must not be carried too far, for if the leaves shrivel at all they will perish, leaving the lower part of the stems in a bare, unsightly state. It seems singular that Kalosanthes, which flower in the advanced summer at a time when there is not much variety, should now be so little grown; and yet there is not a conservatory or greenhouse but would be brighter for their presence. They are amongst the easiest of all plants to propagate and grow, and are certain bloomers when fairly treated. They are the most useful grown in small pots, as when used in this way in sufficient quantities they produce a better effect in a mixed assemblage of plants than when larger, but limited in number.

ORCHIDS.

East India house.—The weather at present is all that can be desired for starting to surface-dress or re-pot any plants that may require it. Moderately dull mild weather is the best to do such work in, as under these circumstances the plants do not feel any root disturbance so much as if the weather was very cold and much artificial heat was required to bring the temperature up to the necessary heat. Care ought to be taken with the plants while they are being repotted that they do not suffer any unnecessary check. In places where the houses have been erected specially for Orchids, the potting shed would be somewhere in proximity to the plants, and so as they would not be required to be taken into the open air. In many places there is no such convenient arrangement, and all plants have to be taken into the open air to be conveyed to the potting shed; rather than do this we would erect a temporary potting shed in the house, and do all to the plants that they required without subjecting them to a change of temperature. It may have been stated before, but it cannot be repeated too often, that it is in what may be termed the minor details that success is to be achieved or failures made. For instance, many persons either do not know how to place the drainage in a pot, or they think it does not matter how it is done, and they are careless about it. The drainage and pots should be clean, the potsherds to be put in carefully in a way that the water may run off freely. The Sphagnum should be carefully picked over to remove all dirt and weeds; finally wash

and lay it out to dry. Orchids resent any injury to their roots, and as a rule all the best of them are clinging firmly to the sides of the pots. It is better, therefore, to carefully break the pot with a hammer rather than to turn the plant out in the usual way to the serious injury of its roots. Many of the broken bits of potsherd to which the roots are clinging may be allowed to remain and be potted along with the usual compost. Owing to the mild weather it has not been difficult to keep up the required temperature of 65°.

Cattleya house.—The remarks just made referring to repotting apply equally well to this department and the cool house section. Nearly all the strong-growing Cattleyas succeed best grown in pots, with good fibrous peat and Sphagnum in equal proportions, some broken potsherds and charcoal being added to keep the compost open and for the roots to lay hold of. The nature of nearly all Orchids is to lay hold with their roots to every firm substance with which they come in contact, and with a grasp so firm, that the roots cannot be removed from the substance to which they adhere without breaking or lacerating them seriously. Cattleya roots will either be amongst the drainage or else clinging firmly to the sides of the pots: few indeed of them will be amongst the compost, and yet give them nothing but drainage and the sides of the pots to grow in they would require more attention as regards watering, and they would not succeed so well. We are always very careful when repotting them to save all the roots; and any young roots that are being produced from the base of the last formed pseudo-bulbs are not buried in the compost. We have seen peat and Sphagnum piled round these to their hurt. If they are let alone they will lay hold of the material they like best; some will run along the surface and others will push into the potting material; and when the circumstances are favourable the roots will also push over the sides of the pots. Cattleyas like to be near the glass; many of the shy flowering species will not flower if placed on the stage, but if the pots containing the plants are placed in baskets and these are suspended near the roof glass, where the air can freely circulate under, over, and around them, they will flower freely. The smaller growing species may be placed in teak baskets or potted into small shallow pans to be suspended from the roof. Some of them will succeed well on blocks for a time, but after two or three seasons' growth, the plants that have nothing but the bare blocks to support them soon show signs of exhaustion. When these signs are evident, place the block in a pot with the base of the pseudo-bulbs well raised above the rims, and then place round them the usual potting material recommended for Cattleyas.

Cool house.—A look through some of the cool Orchid houses in the neighbourhood of London at this season of the year shows very conclusively what a very valuable adjunct to a garden the cool Orchid house is, and how easily the plants are to cultivate successfully. It will be a surprise to many, as it is to us, to read of the fastidiousness of cool Orchids as they are grown on the Continent. We are sure with the instructions given from week to week in the columns of The Garden anyone with an ordinary knowledge of plants may grow cool Orchids well. The principal thing to do is to build a house for them in a cool place. If the whole truth was known, it would be found that in most places where cool Orchids did not succeed well the result would be due to too much heat in summer. It is difficult, when the houses are exposed to the full blaze of the sun, to keep down the temperature sufficiently during hot weather, unless the shading is too thick, and in that case the plants are debilitated as much as they would be by too much heat. As far as we know the wants of Orchids, we believe they like as much heat as can be afforded them; and if the shading is left on to do more than protect from the direct rays of the sun they are injured. It was recently stated that the attention required by the occupants of this house was of a very simple kind at present, but what attention they do require ought not to be omitted. A look through the house the first thing in the morning to ascertain the lowest night temperature is necessary; during the present mild weather if it does not fall below 50°, it will be all the better for the plants; a very low temperature causes many of the delicate blooms to become damp-spotted.

It is easy to see whether much or little moisture will be required by evaporation, and the person in charge ought to act accordingly. Too many, it is feared, throw water about every day, summer and winter, with no thought as to the necessities of the case. Air ought to be on all night, and it may not be necessary to admit any more during the day. It is also necessary to look through the houses between 8 p.m. and 10 p.m. to regulate the heating apparatus, and see that no garden pests are enjoying themselves at the expense of the plants.

FRUIT.

Figs.—Within the last few years the increasing demand for early Figs, without which a first-class dessert can hardly be considered complete, has led to the more general cultivation of the best kinds, and it is gratifying to find in the majority of places fairly furnished with glass one or more houses devoted to the culture of Brown Turkey, Negro Largo, White Marseilles, Osborn's Prolific, and others either in pots or planted out in internal borders. Where their growth has not been attempted this is a favourable time for making a start; and as good fruiting trees established in pots can be purchased at any of the leading nurseries, and every gentleman's park produces Oak or Beech leaves, the best of all materials for giving bottom-heat, there are few difficulties in the way of a new beginner having ripe fruit by the end of May. For early forcing trees in pots are recommended, but if confined at the roots they do equally well in inside borders composed of good loam and old lime rubble resting upon liberal drainage. Light span-roofed houses or pits adapted to the growth of early Grapes or Melons answer best, as Figs, although they may be carried through the early stages in a swamp, require plenty of light, heat, and air from the time of flowering until they are ready for gathering. In many places the earliest trees started in November will be pushing forward the terminal buds, and the young Figs will be swelling fast. When this stage is reached the night temperature may range from 56° to 60°, and that by day from 65° to 75°, with a little air when it can be given without creating a draught. Syringe well backwards and forwards to prevent the appearance of red spider; keep the roots liberally supplied with warm diluted liquid, and make additions to the beds of fermenting material when the heat shows signs of declining to 60°. An abundance of Figs for the London season being most valuable, a second house may be started. Former directions having been followed, all detailed operations will have been completed, and, if not already done, the borders may be well watered with warm water at a temperature of 90°, mulched with good rotten manure, and watered again to insure the complete moistening of the soil quite down to the drainage. This done, commence syringing twice a day, and allow the temperature to range from 50° at night to 60° by day; prune or rather thin the shoots in late houses, wash well to remove the remains of spider and scale, tie into the trellis, and ventilate freely until the time arrives for starting the trees into growth.

Early houses.—If the Vines have been bent down to a horizontal position, to insure an even break, get them tied up to the wires as soon as the most backward buds are on the move. Syringe with warm water when the temperature begins to rise. Give air at 68°, close early, and syringe again if the afternoon is fine. If inside borders are well drained, a second supply of water at a temperature of 80° will help the young growths rapidly forward, and old Vines will benefit by the addition of a little clear liquid from the tank, or a dash of guano in the water, while vigorous young canes will produce more compact "shows" and set their fruit better if stimulants are withheld. Pay timely attention to disbudding, or rather the removal of weak breaks from which bunches of Grapes cannot be expected, and when the best shows become prominent raise the night temperature to 58° or 60° on mild nights. If forcing has been commenced with fermenting material on the borders, make frequent additions, turn the whole mass, mixing the old with the new, and aim at a temperature of 70° to 75° on the surface of the soil. Where external borders have been well covered with a good body of dry warm Oak leaves, and protected from wet, they will retain their warmth much longer than when fermenting manure, which is objectionable, is used.

Hardy fruit.—Take advantage of frosty mornings, should they occur, for wheeling out manure to Raspberries, Strawberries, and all other kinds of bush fruit. It is not necessary for the manure to be thoroughly decayed, as a long period will intervene before the plants actually require stimulating food, but once placed on the borders the roots will be protected from frost, and digging being objectionable the work will be finished for the season. If the planting of fruit trees has not been completed, and the ground continues wet and adhesive, allow them to remain laid in until the buds begin to swell and there is a fair prospect of immediate root action; meantime prepare good compost, consisting of fresh loam and burnt earth. Keep it protected from heavy rains. Stake and mulch as soon as the trees are planted. By this time the pruning of nearly all the wall trees will have been brought to a close, and advantage having been taken of the mild open weather nailing will be well advanced. Peaches and Apricots should be left till the last, but all shreds and nails should be removed for the twofold purpose of exposing the young wood to the action of the weather and cleansing the walls. If the old spurs on Apricots have become long and naked now or a little later will be found the best time for cutting back to the main shoots. Healthy old trees in favourable localities may be entirely denuded of spurs with the certainty that one or two years will refurnish them with young flowering wood in the best possible position for the protection of the blossoms and the swelling of the fruit.

Orchard house.—In commencing the culture of orchard house trees it would be well to purchase fruiting trees in pots. We get ours in November, and as soon as they come to hand they are potted. We plunge them in Cocoa-nut fibre, where they remain until January, which is a good time to prune them. The question is, whether the form of tree is to be bush or pyramid. We prefer a few of each. In some positions the bush form works in best and in others the pyramid, and to fill up spaces in the centre border of large span-roofed houses standards come in well. A tree that has made one year's growth from the bud has a straight centre stem and usually a number of lateral branches. In order to form a pyramid about a third must be cut off the main stem and the side growths should be cut back, those near the top close to the stem, gradually leaving the lower ones longer until the lowest side growth is reached, which should be the longest, so that the tree will be of a pyramidal form to start with. A bush tree is formed by cutting the main stem down to within a foot of the bud, and cutting back any side growths to 4 inches or 6 inches from the stem. It is easy enough to form standards by cutting the side or lateral growths off close to the stem, leaving the latter the entire length. The trees ought not to be placed in a forcing temperature, but be allowed to grow on slowly with plenty of air; under those circumstances they will break freely, but they grow most freely from the highest parts of the trees; and to prevent these growths from taking more than their due share of nutriment their points should be pinched off at the fifth or sixth leaf; this allows the lower growths to run out more strongly, but they also ought to be stopped in the same way. The second growths will not be so strong as the first,

but they will be strong enough to produce fruitful wood—the object in view.

Vines.—If late black Grapes are still hanging on the Vines lose no time in getting them cut and bottled, as nothing can be gained by allowing them to remain, and it is now well known that late hanging is quite as detrimental to the Vines as early forcing. Choose a mild dry day for cutting, sever the wood just above the pruning bud, leave it the full length beyond the bunch, insert in bottles of clean soft water, and ventilate the Grape room for a few days with gentle fire-heat to dry up moisture which may have escaped during the process of bottling. If the Grape room is properly constructed, and not liable to be affected by sudden fluctuations of external temperature, a mean of 45° or a few degress lower in severe weather will be quite sufficient for all the black kinds, while Muscats will retain their colour for a greater length of time in a temperature of 50°. When the Grapes are cut, and pruning, cleansing, and top-dressing finished, throw the houses open to the full extent of the ventilators, unless the weather is very severe. Examine internal borders, and if the surface roots have become very dry give a moderate supply of water before the top dressing is placed over them. Remove the shutters from external borders, top-dress with good loam and crushed bones, and protect from frost with fresh stable litter. Cut back young canes which have not hitherto borne a crop of fruit, and allow the points to droop to the level of the pipes, or tie them to the wires in a horizontal position near the front ventilators, where they can have a free circulation of air. Also cut down pot Vines intended for growing into fruiting canes. Dress the cuts with styptic, and keep them in a dry cool house until the time arrives for starting. Select thoroughly ripened wood for eyes, insert in small pots firmly filled with sandy soil, and keep them in a cool pit for three weeks before plunging them in bottom-heat. If any of the houses require internal painting, immediately after the Vines are cleansed and tied down is the best time to get in the workmen. Add a little turpentine to the paint, and wash the walls with a mixture of quicklime and sulphur. Early houses from which ripe Grapes are expected in May will soon be fit for the general disbudding, a process which must be regulated by the vigour of the Vines and the position of the spurs. If widely placed, two shoots may be left on each spur, the terminal shoot to give the bunch, and one nearest home to give the pruning bud next year, and as this will be the weaker of the two it may be allowed to supply the greater part of the lateral foliage for covering the trellis. Gradually increase the temperature to 58° to 60° on mild nights when the bunches become prominent, but avoid set figures when the weather is unfavourable. Syringe regularly with water a few degrees higher than the mean of the house. Force by day when clear and bright, and husband fire-heat by paying regular attention to the fermenting ridges.

KITCHEN GARDEN.

Horse Radish is generally grown in an out-of-the-way corner where sunlight seldom reaches it. We are at present busily engaged taking up one half of our entire crop; we select the large roots and lay them in for the use of the house, whilst the smaller roots, about the thickness of one's finger, we cut into lengths of 12 inches. We well clean the outside, rubbing off every particle of fibre, and these we plant with a crowbar 1 foot apart all ways. We are thus in due time rewarded with fine straight sticks of this valuable root. Our earliest sowings of Peas are just breaking through the ground; we have put 2 inches of fine coal ashes over all, thus keeping them safe from frost and slugs, and they form in a great measure a preventive to the attacks of mice. We prefer Laxton's Earliest of All Pea to all others; the seed is round and hard. We always find wrinkled Peas tender, and if the weather is excessively wet, they crack. Broad Beans we serve exactly in the same manner. Our best vegetable now in use is Snow's Broccoli, which we lift, laying the heads northwards and covering with Bracken for protection. All kinds of Broccoli planted late, without any digging on the crowbar principle, are fine sturdy plants, close to the ground, and will stand any amount of frost with a slight covering of Fern without any lifting. The varieties which we grow are Watt's Excelsior, Barr's Criterion, Portsmouth for mid-season, and for latest of all Burghley Champion and Cattell's Late White. We have again a magnificent quarter of Black-seeded Brown Cos Lettuces, which we cover with Fern, and cut daily to supply the house. This is, perhaps, the most remunerative crop in the kitchen garden. Endive we lift and tie and place it on the Mushroom house floor, where it bleaches beautifully white, and, with the assistance of a few scarlet Tropæolum flowers, makes a very fine addition to the dinner table. All kinds of greens have been most plentiful, but the wet weather has played great havoc with both autumn Cabbages and Savoys. Chou de Burghley, however, stands out triumphantly—not a single head cracked or discoloured, thus showing that after the proper cultivation of this Cabbage is known it will become very serviceable for autumn and spring use. The present time is almost a dead letter as regards the planting of any kind of vegetables out of doors, giving us kitchen gardeners an opportunity of getting all vacant ground roughly turned up to be in readiness for spring crops. Keep a sharp watch on all plantations of young Cabbage and Lettuce, filling up the blanks as they occur. A dusting of soot over all is, we find, a great protection; it makes the leaves distasteful to most kitchen garden enemies. In the forcing department we have been gathering French Beans from 7-inch pots in abundance, the variety being Osborn's. We plant five Beans in a 3-inch pot, and when they are 6 inches high we pot them into their fruiting pots. When Beans are set, we treat them to a little very weak manure water, which they seem to enjoy immensely. Asparagus we lift entire from the beds and place it in one of our old Pine stoves, putting 3 inches or 4 inches of fine soil on the crowns. We keep the pit at about 60°, and we get Asparagus in plenty. In the same pit we have green Tarragon and Mint. The roots of these two herbs we plant yearly and get good strong crowns, so that we find no difficulty in always having a constant supply. Seakale we also lift, plunging the roots in large pots and placing them in the Mushroom house. This system is preferable to the old one of forcing outside; but due precaution must be taken to plant fresh quarters yearly.

FRUIT GARDEN.

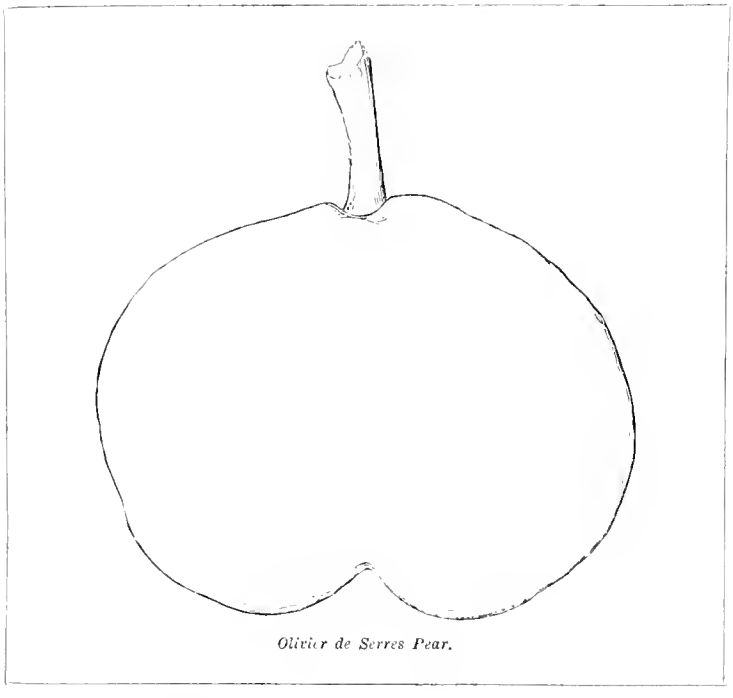
EARLY MELONS IN POTS.

A good Melon is generally acceptable at any time, from the commencement of the London season onwards, and Melons are especially valuable throughout May and June. At least, this is my experience; but perhaps it is not incumbent on the majority of cultivators to have them ripe till the end of June or early in July. The following remarks are, however, for the benefit of those who may feel disposed to commence the culture of these choice fruits rather earlier than usual. Not a little depends upon the choice of suitable varieties for the purpose, some ripening much quicker and with much less sunshine and heat than others which are perhaps no better in quality. The old Victory of Path we used to grow for the earliest crops. This, in my estimation, is superior to Gilbert's presumably improved form and also Dell's Hybrid. All of these are of easy culture, being very prolific and free setting, but unfortunately all are liable to crack, and if we give more air to check the cracking tendency we also check the swelling off of choicer successional fruit. Eastnor Castle, if obtained true, much resembles the foregoing as far as growth, free bearing and free setting are concerned; but, being rather more vigorous, it perfects a heavier crop of good-sized and, as a rule, well-netted fruit, which are less liable to crack, besides being of a better appearance and quality. This variety is, however, by no means perfect, and I only grow it for early crops. The best scarlet companion to it is Blenheim Orange, an excellent Melon for all crops. Even of this there are different forms; but one which we were fortunate enough to obtain from the gardens in which the variety originated ripens more quickly than any other sort we have, and the fruits are large and handsomely netted; the flesh, too, is thick and unsurpassed in flavour by any Melon grown. If a third variety is required—and I advise no one to rely exclusively upon one or two sorts—I would recommend High Cross Hybrid, this with me being another free-setting, richly-flavoured, green-fleshed Melon. The greatest difficulty in the case of those with imperfect means is experienced in

Preparing the young plants for early forcing. When raised, as they oftentimes are, on hot-water pipes, or over evaporating troughs, and then transferred to warm shelves near the glass, the plants are liable to become much drawn and weakly, or, worse still, infested by some kind of insect pest common in general plant stoves. Weakly plants may be induced to gain the required vigour, but any on which either mealy bug, red spider, black aphis, and thrips have effected a lodgment had better be thrown away at once, as it is almost impossible to clean them. If not thrown away, it not unfrequently happens that by the time the infested plants have set their crops they will be completely ruined by one or more of the pests just enumerated, and much valuable time and space are wasted. The best place in which to raise the plants is in a light forcing house and on a raised hotbed formed of either tanners' bark or this and leaves mixed, or leaves and stable manure which have been previously shaken up together and allowed to ferment for about eighteen days or longer, if heat is generated slowly, being turned once in that time. A bottom-heat, obtained by means of either of these materials, ranging from 80° to 90°, is of great value for propagating and seed raising generally. To sow the seeds thickly in 5-inch or larger-sized pots, thus necessitating potting off, and perhaps a loss of plants, or at the least a considerable check, is a mistake by no means uncommon. We prefer to sow Melon seeds singly in 3-inch pots filled with moist loamy soil. Plunged in moist bottom-heat no water is given, as if it is the seeds are liable to rot. I find the newer the seeds the sooner they germinate, and in spite of the old-fashioned prejudice in favour of old seeds, I give the preference to the stronger plants, resulting from new seeds. Slugs are very destructive among young Melon plants, and must be closely looked after. The seedlings, being raised early in January and even February, are certain to become more or less drawn, and will require to be lightly supported from the outset, and also to be well raised up to the light, but not subjected to a low temperature. Before becoming at all root-bound a shift should be given, placing them carefully in 6-inch pots and good loamy soil previously warmed. They ought from the first to be kept growing in a temperature ranging not lower than from 60° to 65° by night to from 70° to 75° by day. Early Melons need not necessarily be grown in pots; on the contrary, they may be planted in small raised heaps of soil, and which plan shall receive the preference ought to depend entirely upon circumstances. Supposing plunging material is unavailable, the

Bottom-heat being entirely provided by two or more hot-water pipes, then I should say, grow the Melons in heaps of soil on a slate staging. Again, if the pipes are high, being, in fact, for top-heating purposes, I would employ pots set on the pipes, taking care that they always received abundance of water. In such a position I have had them do well, but during bright weather they were frequently watered heavily three times a day. They, however, paid for it, and would have been failures without the closest possible attention. Where there is a pit along the front of a forcing house, with perhaps one or two return pipes by

way of bottom-heat, and heating material abundant, I would recommend pots for the earliest crops, as there is no doubt that pots induce an early disposition to fruit. While the plants are gaining strength in 6-inch pots, one of these pits may be filled with heating material—the best perhaps being a mixture of good Oak or Beech leaves and farmyard manure prepared as above recommended—and in this when found not to exceed 90° be plunged the fruiting pots. Various sizes are adopted by different growers, but we prefer those either 15 inches or 18 inches in diameter and arrange them about 12 inches apart. They are then loosely filled with good turfy loam to which has been added a few shovelsful of slaked lime, and some clay if this latter is absent in the loam. The soil will become thoroughly warmed in time to receive the plants before they are root-bound. When planting Melons at any time, the soil cannot well be too firmly rammed, as the firmer and close it is the more fibres do the roots form, the result being more sturdy and fruitful top growth. Manure in the soil also encourages



Olivier de Serres Pear.

a too luxuriant top growth. A particularly strong bottom heat during the earlier stages of the plant's growth is also objectionable, and too often do Melons get it than instead of when more required, viz., when swelling off their crops. In anticipation of renewing the bottom heat as often as required, and also to prevent undue sinking, it is advisable to place the fruiting pots on either temporary brick pedestals or other large pots, and this admits of much of the old material about them being replaced by some that is fresh and unexhausted. The new material ought not, from fear of over-heating, to be packed very firmly about the pots; but when the heat declines it should be rammed more closely, thus tending to check rapid radiation. No one thinks of

Training the plants otherwise than over a wired or trellised roof, the wires or trellis being usually about 12 inches from the glass. Strong stakes should be placed behind the plants, and fixed to the lowest wire of the trellis Up these the plants should be led, all side shoots which they form being kept closely rubbed out. The leaves will act as stem-swellers, and if the laterals are left till it is necessary to cut them out, that almost invites an attack of canker, especially when the top-growth overshadows the under-growth. When the wires are reached the main growths should still be trained, stopping not being resorted to till about 3 feet in length has been added, while the laterals should be carefully laid in on each side, a few of them only being rubbed out where at all crowded. Most of the laterals will show fruit, a joint or two beyond which the points may be pinched out. This is done before it is necessary to use the knife, the aim being to have the trellis thinly covered with strong, healthy leaves, as little pruning being resorted to as possible. The crop of Melons in pots especially must be set simultaneously, and fertilising, as a rule, should not be attempted till three or four blooms are open on a plant at the same time. Then, after a little air has been given and the pollen has dried, the female or fruit-bearing flowers should be set with the pollen of the male or barren blooms. Syringing should be discontinued till sufficient fruit has set, and the atmosphere also must be kept drier. A strong plant in an 18-inch pot ought to perfect four good fruit, averaging 2 lbs. in weight, but we are frequently satisfied with three rather larger fruit. If this number is not set at the first attempt, pinch off the fruit or two that have commenced swelling off, and fertilise the blooms on the upper laterals and those sub-laterals resulting from stopping the lower strong laterals. All superfluous growths should be kept rubbed out or pinched off. This tends to concentrate the whole strength of the plants on the fruit, and it will generally be a waste of space to attempt to secure a second crop from one set of plants. With regard to

Watering and other details, I should strongly advise beginners to attend well to the watering of pot plants, as they should never be dry at the roots, not even when the fruits have reached the ripening stage, as this greatly impairs their quality. From the time the fruits are set till near ripening liquid manure should be given almost daily, and both this and the water given at the roots and used for syringing ought always to be of the same temperature as the house. Some of the artificial manures are suitable, including Peruvian guano, but these must be used cautiously and no stronger than the respective vendors advise them to be used. We prefer the liquid manure obtained from a farmyard. We dilute it according to its apparent strength, and prefer frequent moderate supplies to occasional heavy doses. The houses in which early Melons are growing require but little ventilation, and if the temperature reaches 100°, it does the plants good, provided the soil in the pots is moist and plenty of water is distributed about the house We do not syringe the plants heavily overhead in the mornings, but when the house is closed early on a clear day they are freely syringed. A top dressing of loam and horse manure in equal quantities is given directly the fruiting laterals are forming, and subsequently a thin dressing of short nearly fresh manure encourages top root action. Great care is to be taken not to break any of the fully grown leaves, or the footstalks may decay and affect the stems. If a brisk growing temperature rather above the figures given above is maintained, canker, the greatest evil we have to contend with, seldom occurs. Directly there are signs of this, keep the stems as dry as possible, and frequently coat the affected parts with either common cement or powdered unslaked lime. This serves to dry up the exuding sap, and in this manner we have preserved affected plants till the crops have ripened. Green and black aphis and thrips must be kept down by fumigating, mealy bug by catching and crushing, and red spider by liberal treatment, and the maintenance of a moist growing atmosphere. In small establishments three or four plants in batches are preferable to a greater number at one time with the contingency of an undesirable glut of ripe fruits. The second or successional sowing may be made about three weeks subsequent to the first. A drier atmosphere best suits ripening Melons, but need not be resorted to when there are later batches in the same house. W. I. M.

PEAR OLIVIER DE SERRES.

This excellent Pear has, with me, just attained its maturity. I grew it on an east wall, and the tree is still a small one, though it always bears a good crop. Leroy, in his "Pomological Dictionary," thus describes the tree: Wood, strong; branches numerous, large, growing upwards, wide, but not long; eyes, large, egg-shaped; leaves oval, of medium size, nearly flat, deeply indented. Culture.—Its vigour is perfect, whether grown on its own or a Quince stock. It grows well as a pyramid. Description of fruit.—Medium size, spheroid, flattened at the extremities, but with an embossed surface; peduncle short, thick in the middle, inserted in a cavity more or less deep with ribbed sides; eye large, regular, rather deep; skin thin, of an olive-yellow, covered with dots and spots of a fawn colour, but reddish on the side next the sun; flesh white, melting, and perfumed; juice of medium quantity, sweet, but with a pleasant acid, and strongly perfumed. Maturity during February and lasting till the end of March. Quality, the first. History.—It was in 1861, not in 1859, as it has been erroneously stated, that the stock of this variety was produced from Pippins of the Fortunée d'Angers or Fortunée Supérieure, as it is sometimes called. It exhibited its first fruit at Rouen, in the orchard of M. Boisbunel, the producer. It was submitted to the examination of the Horticultural Society of Paris, February, 1862. The Pear Olivier de Serres has been justly described as a very good late fruit; it received a medal in 1867. M. Boisbunel has acted wisely in bestowing on his Pear the name of the illustrous man who has been styled "the Father of Agriculture," Olivier de Serres, who published his "Théâtre d'Agriculture et Mesnage des Champs" in Paris in 1600, during the glorious reign of Henry IV, just nine years before that mighty monarch fell beneath the knife of Ravaillac. M. Hardouin Perefixe, Bishop of Rodez, whose history of his prince is of great interest, is so taken up with narrating the stirring events of the reign, the battles and the victories, that he overlooks so small a matter as the publication of a scientific book. Neither do I notice any allusion to it in the delightful memoirs of the Duc de Sully, which contain so graphic and minute an account of the state of France in his day. The people of Ardèche, the

country of his birth, have however, recently erected a statue to him at Villeneuve de Berg. Though Olivier de Serres is passed over, Perefixe mentions that Henry caused a number of white Mulberry trees to be planted in different parts of France, especially in Touraine, in order that the culture of the silkworm might be carried on, and that a home manufacture of silk might supersede the necessity of importing this costly article from other countries. The "Fruit Manual" gives the same account of our Pear as that I have just quoted from Leroy. He fixes its maturity at the same time. I am at a loss to account for this, as with me it is in full perfection now. Last year it was ripe at the end of December. Situations and soil vary considerably. I shall be glad if any of your readers can throw any light on this matter.
W. N.

Prices of Apples.—"Veronica" states, in the last volume of The Garden (p. 563), "that really good home-grown Apples are very difficult to procure, and were it not for American kinds they would be too high priced for all but the well-to-do." This statement I read with astonishment, considering that for the past few weeks I have been sending to the London market very fine samples of Blenheims, for which I receive nett about 3s. a bushel. Whose fault is the high price complained of, the producer's or the retailer's?—G. Frankum, *Woolhampton, Reading.*

5128.—**Carolina Strawberry.**—The Strawberry which Mr. Blackstone saw under this name in Sussex was probably the Bicton Pine, an exceedingly good Strawberry not so much grown as it ought to be. Probably its colour is against it, or rather its want of colour, which is as described (see p. 10). Carolina superba is a very good Strawberry, pale red in colour, with white flesh. It is a hardy, free-bearing kind, which does well in some gardens; but it is one with which we could not do much in our light sandy soil. Carolina I do not know at all; probably it is the same as Carolina superba.—J. Douglas.

5122.—**Apple trees and Strawberries.**—The relative value of espaliers or bushes in borders has not yet been decided. Some prefer the one, some the other. Espaliers, when well trained, produce the best fruit, and the trees do not take up so much room as bushes. The latter are more natural looking, but I find that in the rich, light soil of some gardens they have a tendency to produce wood at the expense of fruit, and no amount of summer pinching or stopping can quite overcome this tendency. Why not give both systems a trial? The best six Strawberries are Black Prince, Keen's Seedling, President, Sir J. Paxton, British Queen, and Frogmore Late Pine.—J. Douglas.

Flavour of fruits.—"Veronica," in last year's Garden (p. 563), revives a subject which I remember was one of the earliest I used to hear discussed, viz., the comparative excellence of fruit from young and old trees. A very general opinion used to prevail that old trees produced the finest flavoured fruit, and some still entertain that opinion. It is one of those problems that have never been settled to everybody's satisfaction, but I believe I express the opinion of a good many fruit growers when I say that I do not think old trees do produce the best flavoured fruit. I will not speak so confidently of Apples or Pears, but my impression is that fruit of old trees is both smaller and more woody than that of young trees. As to Grapes, however, I feel on safer ground, for, like most growers, my opportunities of comparing on the spot the fruit of young and old Vines have been many, and I have always found the fruit from young Vines as good as that from the oldest, if not better, and superior in size and abundance of flesh. The most seeds exist in Grapes from old Vines, and seeds are at all times better absent than present in a Grape. I was struck with this fact not long since in tasting some beautifully-coloured Grapes from old Vines. The berries were not very large and the seeds did not improve them to the palate. Flavour I believe to be almost wholly dependent on the state of the plant's health and on the character of the season. In respect of flavour, fruit somewhat resembles the flesh of animals, and we know that old chickens or old bullocks do not produce meat that is either tender or well flavoured. The inferiority of the Hamburgh Grapes mentioned in The Garden, p. 563, might be due to other causes than the growth of the Vines—gross feeding for example, and which is probable, as the berries are described as being like those of the Gros Colmar in size—unusual dimensions for the Hamburgh to attain. Perhaps also one crop was riper than the other when used.—S. W.

Gas tar on Vines.—Every gardener familiar with mealy bug in plant houses or vineries knows that this insect hybernates or harbours in winter not only on the Vines, but also in the woodwork, masonry, and border, from which it comes in summer. I know growers who could testify to mealy bug swarming on Vine roots deep in the border not unlike the Phylloxera, to which it is allied, and Mr. Clayton has admitted that it harbours in walls and woodwork by the very energetic measures which he took to clear these from it. That being so, will he or anyone else tell us how the bug was cleared so effectually from these quarters by painting the Vines only with a weak solution of gas tar? I know Mr. Clayton is a more than usually observant gardener, and he will, I am sure, see the force of this and explain it if he can. Bug is far more easily removed from bare Vines than from the surrounding structure.—J. S. W.

5181.—**Planting fruiting Vines.**—The best way would be to plant a fruiting cane, and one intended not to fruit alternately; each alternate Vine could then be fruited heavily. Cut down those canes intended not to fruit, and train up two canes from each. The temporary Vines will bear twice as much fruit as it would be safe to allow them to carry if they were intended to be permanent. They may be cut out as soon as the fruit is gathered, and the permanent Vines with two rods each will quite fill the house, and would bear a good crop without fear of being injured thereby.—J. Douglas.

——As "S. C." appears to be anxious to secure a crop of Grapes the first season after planting, I should advise him to procure a number of strong fruiting canes, but on no account to rely on them for a permanency. They should be treated as supernumeraries, to be fruited to their full extent during one or two seasons and then be cut clean away. To be certain of a crop the same year in which they are planted, "S. C." will have to plant strong canes just referred to, with their balls of soil intact, and even then very careful watering will be necessary or they will fail. The roots of plants grown in pots are necessarily much coiled, and unless the balls of soil are soaked in water, the roots carefully uncoiled, and spread evenly throughout the new soil, they do not readily become established. Wherever a permanent rod is required, or say one to each rafter, these being about 4 feet apart, I should advise "S. C." to plant a cane, the stronger supernumeraries being worked in between them—the former to have their roots loosened and treated as just described, and the latter planted with their balls moist and intact, the soil about them being made very firm. As there may be a difficulty in maintaining these large balls in a moist state they should be planted rather deeply, and this admits of a basin being formed above with the soil, a practice which greatly facilitates watering, as well as encourages the formation of strong new tap roots. If the border is inside, the permanent Vines may be quite small, and should be cut down to near the ground; but if planted outside they ought to be much stronger, and be shortened to the nearest point to where the young shoots will get sufficient light; the lower outside buds should not be rubbed off, but stopped at their fifth or sixth joints, these laterals being encouraged owing to their being good stem-swellers. If the permanent Vines make good progress they should each carry two or three bunches the year after they are planted, and will be in full bearing by the time when the supernumeraries are exhausted.—Vitis.

——"S. C." is right as regards the gain to be derived from planting some fruiting Vines at once in his new vinery instead of waiting. For his information I may state my own practice. I first reckon how many permanent Vines will be required, using those of ordinary planting size, and then put between each a good, well-ripened fruiter, turning these out of the pots and planting them without any disturbance of the roots, or spreading them out, seeing that the soil is made quite solid round the balls, so that water will reach the roots instead of passing through the surrounding soil, which it naturally will do if left loose; to still further provide against this the balls should be sunk 1 inch or 2 inches lower than the surface of the border. Fair-sized, well-ripened Vines thus managed will carry seven or eight pounds of Grapes each the coming summer, and finish them well without taking so much out of them as to stop their bearing as much or more the second year, after which they must come out to make way for the permanent Vines.—T. B.

5124.—**Fruiting Vine canes.**—The plan your correspondent thinks of adopting is not a good one. If fruiting canes were planted as he proposes, it would not be desirable to take more than two or three bunches from each. Supposing they were planted 3 feet apart, a dozen Vines would produce from thirty to thirty-six bunches, and the growth would probably be unsatisfactory, rendering careful cropping next year necessary. The system I would advise is this: plant a fruiting and a planting cane alternately, with the intention of destroying the fruiting canes as soon as they have produced one crop of fruit. In that case each of the Vines would produce six bunches, which would give thirty-six the first year. In the meantime all that the planting canes will have done will be the production of two strong canes from each, but they will have made plenty of roots, which will be ready to aid in the production of a good crop of fruit next year, say from six to eight bunches on each vine. They would, if allowed, produce a dozen bunches each, that is six on each rod, but that would be rather over doing it.—J. D. G.

5113.—**Liquid manure to fruit trees in winter.**—The advisability, or non-advisability of giving liquid manure to fruit trees in winter, either in or out-of-doors, depends on several things. If the trees are young and strong, as from what "C. M." (p. 582) states they presumably are, it would be a mistake to give manure; or if in a wet locality, or where the soil is at all of a retentive character, its application would also do harm instead of good. Where, however, the reverse of these conditions exist it would do good if used in moderate quantities, and not too strong. But manure in a liquid form is never so effectual as when the plants to which it is applied, of whatever kind they may be, are in active growth, tops and roots alike. It is then that liquid feeding is advantageous. I have tried a good many experiments with liquid manure in winter on crops of all kinds and on vacant ground such as that to be planted with vegetables the following year. Its subsequent effects depend a good deal not alone on the character of the surface soil, but also on that of the subsoil. On heavy land, if applied in large quantities, it induces a sour, cold condition not suitable for early planting. Where the under stratum is porous, unless where the top soil is deep, much of the strength of the manure gets washed down by the rains beyond the reach of the roots of the crops to be planted. The best way of disposing of this sort of liquid in winter is to throw it on a good body of any sort of dry material that may exist about a place, such as ashes, sawdust, loam, or decayed vegetable matter of any kind. Where a sufficient body of any of these is available for the retention of the liquid, it can be used with advantage in the many ways in which solid manure is applied.—T. Baines.

—— If the trees are healthy and vigorous, it would be throwing manure away to supply them with it. It is only exhausted soils and trees to

which liquid manure may be applied with the greatest advantage. Trees while bearing heavy crops are also benefited by liquid manure.—Cambrian.

Vine borders.—The excellent article on "Outside *versus* inside Vine borders" which appeared in your last volume (p. 535) should have provoked some discussion on this important subject. It has always appeared to me most unnatural that Vines should be placed with their tops in a temperature of, say, from 60° to 70°, and their roots in an outside border with a temperature of from 40° to 45°, as is too often the case when early Vines are being forced. Why should a heat-loving subject like the Vine be planted in an outside border at all any more than a Stephanotis, Allamanda, or any other stove climber? No one would dream of planting these plants in a cold outside border, and yet they are kept in vigorous health for almost any number of years by good cultivation, and without the borders being at any time aërated by exposure to the atmosphere. Outside borders are often warmed by the use of fermenting material, but heat derived from that source is so liable to fluctuate, that I think it better dispensed with altogether. Inside borders of course require a much greater supply of water than those outside, and in the growing season can scarcely have too much. I, like "W. W. H.," never could see the advantage of borders half inside and half out, as the roots of Vines thus placed can seldom be in the same condition as regards moisture.—G. T. B.

Apples for cider making.—As regards the large amount of cider which "N." gets from 500 bushels of Apples, as recorded in last year's Garden (p. 566), viz., "25 hogsheads of 100 gallons each," I feel there must be some mistake, which he may glad to correct. This is a good cider district, on "a strong, deep loam, resting on the red sandstone," but we can only make a hogshead of 54 gallons from 21 bushels of Apples, weighing 40 lbs. per bushel; so that 500 bushels would make less than 24 hogsheads of 54 gallons each. "N.'s" 500 bushels multiplied by 40 lbs. would give 20,000 lbs., and from these he gets 25 hogsheads of 100 gallons each, which would give at 10 lbs. per gallon the following: 100 × 10 lbs. = 1000 lbs. × 25 hogsheads = 25,000, or 5000 lbs. more in cider than his 500 bushels of Apples, weighed at 40 lbs. per bushel, making no allowance whatever for pulp and waste. Moreover, he says: "The grass under the trees will pay the rent!" Orchards are usually valued here at about £5 per acre, and the value of the grass is in proportion to the thickness of the trees—usually not worth more than 15s. or 20s. per acre. Cheap indeed must 1¾ acres of orchard be where the grass will pay the rent and £50 worth of cider be made also. The best cider in this neighbourhood has been selling from the press at 20s. per hogshead, and some even less.—John Garland, *Killerton, Exeter.*

5108.—**Pot Vines.**—"A Young Gardener" has given his Vines in pots at least one year longer to grow under such conditions than is generally allowed them. He ought to have stated the size of the pots, how long they have been in them, the length of the rods, and if they are to be thrown away after being fruited. Supposing they are much root-bound and in pots 11 inches or 12 inches in diameter, I should say by all means give them a liberal shift, or better still plant the moist balls intact in a temporary bed of good soil, either enclosed by loose bricks or partially decayed turves. Here, if they are frequently watered and given plenty of liquid manure, they ought not only to perfect on an average 12 lbs. or say 8 bunches of good Grapes, but become sufficiently strong and established to be fruited a second time. If kept in pots they must have great quantities of water and liquid manure, two waterings per day being often required. In either case if neglected and allowed to suffer for a few hours irreparable mischief is soon done. Where the Vines are planted out such very close attention is not necessary, and the new soil, in addition to preserving moisture, is also an inducement to root action.—Vitis.

Indoor Garden.

TILLANDSIAS.

These Bromeliaceous plants are mostly epiphytal in habit. Some of them have exceedingly handsome flowers, as in the case of the charming T. Lindeni, the exquisite blue colour of which is equalled by very few tender subjects, whilst others possess little beauty in their flowers, but have handsomely marked leaves, like T. zebrina. They are all of dwarf habit, having more or less of the peculiar vase-like arrangement of the leaves present in the Bromeliaceous plants generally. They are handsome subjects for the decoration of warm plant structures, such as Orchid houses, where their form of growth and appearance contrast with the uniformity of the principal occupants. But coming, as most of them do, from parts of the world where there is always, or nearly always, present a considerable amount of atmospheric moisture, with a good deal of warmth, they will not bear being kept in a cool, dry place; nor should they be allowed to get dry at the roots. They are increased by seeds and suckers, the latter the method that will most commend itself to the generality of growers. Plants of these Tillandsias that have flowered usually afterwards throw up from the base

Suckers more or less in number. These should be allowed to acquire strength before taking them off. If severed from the parent plant whilst very small much time will be lost, as they will thrive a deal faster attached to the plant on which they have been formed than when separated, if this is done before they have gained enough strength. It is necessary that the material in which they are to be grown should be of a loose, open description, such as the roots in their native habitats revel in—fibrous matter like that furnished by good Orchid peat, mixed with Sphagnum, broken potsherds, or charcoal, to which has been added a little sand. Suckers in the state described should be taken off in spring, or sufficiently early in summer to admit of their getting established before autumn. Strip off a few of the small leaves at the base, and put them in similarly to the way in which Pine suckers are treated in open material such as described, kept moderately moist and shaded, in a temperature of 70°. They will soon root, but they must not be confined in the manner that ordinary cuttings are struck under propagating glasses, or they will most likely rot. Pots that will just hold the suckers will be large enough for a time until they have made a good quantity of roots. This is the more so, as less pot room suffices for these Tillandsias than most things; but when the pots get full of roots move them into others larger proportionate to the strength of the plants and the size that the particular species attains, using rough fibrous soil like that already named. Little further is required than a routine course of treatment, keeping them quite moist at the roots in the growing season, and never dry, even in winter, with such shade and air as required for most stove plants.

The spring and summer temperature should be from 60° to 70° at night, with 10° or 15° higher by day, and air in the daytime. In the winter, when at rest, a night temperature of 60° will suffice, giving a few degrees more warmth by day. The plants last for many years provided they are fairly treated, being not liable to die off in the way that some things do. There is great difference in the size the various species attain; consequently the root space, when the plants are fully grown, will need to be regulated in this matter in accordance with the requirements of each particular kind, but as they increase by the production of suckers it is better with most of the species to separate them, as they look the best when confined to single crowns.

Species.—The undermentioned are all very handsome, viz.: T. Lindeni.—This is a charming plant of small growth with olive-green, recurved leaves, producing beautiful blue flowers issuing from an erect scape with bright rosy bracts, the combination of which colours has a charming effect. It is a native of Ecuador. T. musaica.—The leaves of this plant are a foot long, they are banded across with broad, irregular patches of dark green and greyish yellow alternating. It comes from the United States of Colombia, and is a very handsome plant. T. tessellata.—Another very fine species with bold leaves, glaucous green mottled with yellowish green on the upper surface, and veined with rose-purple on the under side. T. splendens.—A handsome compact growing species that has green leaves deeply banded with blackish brown. The flowers, which are white, are produced from a stout erect flattened stem, clothed with pinkish red bracts. T. Balbisiana.—A medium-growing species with green leaves, coated with whitish powder. Flowers violet-purple, bracts dark rose. West Indies. T. (Wallisi) circinalis.—Leaves heavily covered with the silvery powder-like coating peculiar to Tillandsias. Flowers violet. Uruguay. T. (argentea) Gardneri.—A pretty species; leaves densely silvered; flowers small and much crowded; colour purple. Trinidad. T. Roezli.—A strong growing kind, leaves green, with dark markings; flowers rose colour. Peru. T. zebrina.—A low spreading species, the leaves of which cling to the surface, and are banded across with brown, ground colour green. A native of South America. There are several other species in cultivation, but those described are the most distinct and handsome; all the others will succeed under the treatment detailed.

Insects.—The hard nature of the leaves renders these plants little liable to the attacks of insects. Scale, both the brown and the white species, will live upon them, but is easily removed by sponging.

T. Baines.

WINTER PELARGONIUMS.

The Rev. W. Atkinson is a good variety for winter flowering, but there are many others also well adapted for the purpose. We have a house 50 feet long nearly filled with zonals, and a most cheerful sight it has presented during the last few months. The plants have been in fine bloom all through the season along with the Chrysanthemums, and now they are as fresh and blooming as well as ever they did, there being plenty of trusses in all stages of development. Our house is a span-roofed one, and has been specially built to produce flowering Pelargoniums in winter. There is a flow and return 1-inch pipe fixed to the roof about a foot from the base of the rafters. As the weather has been very mild, we have used these roof pipes only, but in case they should be required pipes are also fixed in the usual way. The cuttings are put in in April and May, and during summer the plants do as well out of doors in an exposed place as anywhere else; they are potted in 6-inch and 7-inch pots in August or September; they begin to flower in October, and continue to do so until the houses are gay with Hyacinths and other spring flowers, when they are not so much wanted. We have grown during the last few years a great many varieties, but have made selections again and again, reducing the double varieties very much indeed. They do not seem to open their flowers well with us; there are a few exceptions, notably the one named The Lord Mayor, a deep rose-coloured variety, which can be highly recommended for its free blooming propensity and also for its neat dwarf habit. Nymphe is put down as the best double white; it is also of dwarf habit. Raspail is the best double scarlet, although we also grow Wonderful, another dwarf form of this colour; its numerous small trusses of flowers are very useful when cut. Aglaia has a decided purple tint, tinged a little with crimson, and has been selected as the best in its class. Ville de Nancy forms a sturdy plant, producing fine trusses of paper-white flowers tinged with rosy red at the base. The above seems to be a very limited collection; but what is the use of growing scores of varieties if they do not produce good blooms and

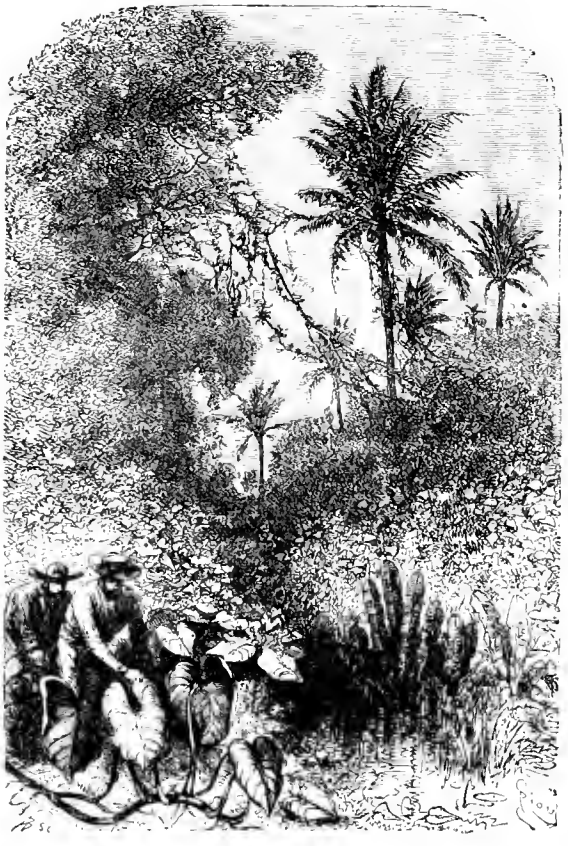
in quantity? We grew quite thirty-six varieties this winter.

As to single kinds, their name is legion; but I find on referring to my note-book that they have been reduced to 17 varieties. These have been selected from our own collection, but some new varieties which I saw at Swanley are likely to induce us to make a new arrangement next year. Our best white is a variety with the absurd name of "I've got it," but I fancy when we grow Snowball with it, the first named will not be wanted. Olive Carr and Constance are our best rose-coloured varieties, but probably Constance, fine as it is, will be displaced. Mrs. Sturt is another good rose-coloured variety, dwarf in habit, and a free bloomer. Evening Star and Fanny Thorpe are of the salmon tints, and I know nothing that can be placed before them either new or old. It requires a very great stretch of imagination to describe any of the zonals as being yellow. Donald Beaton's Indian yellow seems to have gone out of cultivation; those that represent that colour at present are Jealously, Guinea, and lastly New Guinea. We grow a few plants of each, as the bright orange-red colour has a charming effect amongst the others.

Others of which we do not grow large quantities are Dr. Orton, Eva, Rosa Bonheur, Miss Hamilton, Edith, Ouida, Leona Dare, W. B. Miller, and Commander-in-Chief. I would add that if the best results are to be obtained, the plants must not be crowded; on the contrary, they must have a circulation of air round them almost constantly. The night temperature of the house is not more than about 50°, and the dryish atmosphere always makes it a pleasant promenade. Such a house is well adapted for flowering Bouvardias, Tree Carnations, and other plants. When a house of this kind is being built and the hot-water pipes fixed, the extra expense of roof-heating is scarcely worth thinking about. J. Douglas.

PHILODENDRONS.

One of the great attractions of the jungle and forest vegetation of Tropical South America is that presented by the Philodendrons, which cling round the trunks of the giants of the forest, and stretch their arms from one tree to another in great festoons. Here one finds a little dark velvety-leaved species covering the tree on which it grows with a coat of heart-shaped leaves and Ivy-like stems and roots; there a great strong rope-stemmed species climbing to the top of the tallest trees, and then stretching to the next and the next until its connection with the ground is left a long way behind. Tree lovers they are, as the name implies, for they are all great climbers, never developing their finest characters unless they have their stems and roots clinging to a moist tree trunk. We talk of a tree as a wonder if its age is above 500 years, but these Philodendrons never die of old age; they go on prolonging themselves, and the shoot that is now stretching across from one Brazil-nut tree to the other is most likely the end of a plant started thousands of years ago. Philodendrons are great water-drinkers; an atmosphere continually at saturation point is their great desideratum; with that and a tropical heat, they will thrive even on bare flagstones; soon finding the side of the house, they would commence to climb by means of their sucker-like roots, and in no great length of time reach the top of the highest stove. This accommodating character renders Philodendrons of the greatest value for covering walls, filling dark corners, or draping pillars in moist tropical houses. Amongst their foliage there is great variety both in size and shape, ranging from the small heart-shaped leaf of P. cuspidatum to the large shield-like foliage of P. grandifolium. Some of the Philodendrons are handsomely variegated. Such is the species here figured, viz., P. gloriosum. The leaves of this plant are about a foot in diameter of a deep green colour, the central and lateral veins being picked out with crystallised white. P. Carderi is another handsome-leaved species, the satiny green ground contrasting well with the pale green, almost white markings along the principal veins. The leaves are heart-shaped, 8 inches wide, and the petiole is covered with short hairs. The underside of the leaf is deep purple. This is, perhaps, the most beautiful and most convenient sized of the Philodendrons for small houses. P. melanochrysum, with green, gold shaded leaves, and P. melanolanum, with dark velvety leaves, are two other handsome species which along with the above are worthy of a place where ornamental-leaved plants are admired. P. Lindeni differs very little from P. Carderi. The pretty little P. cuspidatum is admirably adapted for growing upon a raised mound or a small Fern stem. In a moist house these plants will cling to the woodwork or a board and thrive admirably. Some of the flowers of the larger species of Philodendron are very strongly scented, some agreeably, others disagreeably. The flowers,



Philodendrons at home.

too, of several of them are very handsome; one of these is P. grandifolium, the flowers of which are waxy white and as large as those of an Arum Lily, the base bulging out and marked with blood red. The spadix is yellow and thick. Philodendrons may be easily propagated, every eye producing a plant if placed in sand or Cocoa-nut fibre in a propagating frame. Until strong enough to climb, any open sandy soil will suit them, peat and loam being, perhaps, the best, and they must have, as has been stated, moisture and heat and subdued light. In a dry house they are always miserable. Kew is the headquarters of the genus in this country. There about one hundred species may be seen growing in the Aroid house (No 1).

B.

5110.—**Striking Bouvardias.**—Cuttings of Bouvardias will strike freely in a close case, with or without bottom heat, provided the temperature is kept at about 75°, but they must not be kept so close as to cause them to damp off. Unless, however, the plants from which the cuttings are taken have been properly managed, so as to furnish them in the right condition, the chances are that not one in twenty will root, no matter how treated. The shoots of Bouvardias that have been allowed to go on through the autumn and up to the present time in the ordinary way, making more or less growth, are not in a condition to furnish cuttings that can be dealt with satisfactorily. To yield the right sort of cuttings, the plants should be dried off in autumn, so as to cause the leaves to fall off, like those of old Fuchsias that are permitted to get quite dry; after that the shoots should be shortened back in a way to remove all the soft wood, putting the plants in heat, and giving them a good soaking, so as to moisten the soil properly. Thus treated, they will break out directly at almost every eye, and when the young shoots are about 2 inches long if taken off at the bottom they will root as freely as those of Fuchsias and very nearly as quickly.—T. B.

A greenhouse without plants in pots.—One is so accustomed, when visiting different gardens, to find greenhouse plants growing in pots, that it is an agreeable change when one has an opportunity of seeing them treated otherwise—that is, planted out in open beds; when treated in that way they are so much stronger, better developed, and far more healthy than when confined to pots. In a garden near Kelso the planting-out system is well carried out. The house is only a small one, being 11 feet by 9 feet. It is span-roofed, the sides being 6 feet high, and glass to the bottom No artificial heat is applied, except during very severe frost. The first plant to attract attention was Hydrangea Otaksa, a bush 6 feet high and 3½ feet through, bearing nine heads (each 15 inches in diameter) of pure white blos-

soms! Lapageria rosea was simply charming, its racemes of rosy wax-like flowers being very abundant. Fuchsia corallina trained up one of the pillars was in full beauty. Another plant which I was pleased to see in full bloom was Pleroma sarmentosa, the blossoms of which are deep brilliant Gentian-blue in colour. Of Daphne indica rubra, there was a very fine bush, but not in flower. It was, however, easy to imagine what it would be when thickly furnished with its lovely sweet-scented blossoms. On one side of the house a Laurustinus was in full flower, and very well it looked, its growth being totally different from what it is when grown out of doors. These were all planted on the ground level, and amongst them were to be seen various species of Ferns, rare and somewhat tender bulbs, and other plants which served to give to the bed of earth an interesting appearance.—R. POTTER.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 8.

BEYOND a bright display of Cyclamens and Chinese Primulas, there were not many interesting exhibits at this meeting. Among the few new or rare plants shown the following were awarded first-class certificates:—

CATTLEYA PERCIVALIANA.—This new Cattleya was represented by a superb variety sent by Mr. Percival, from Birkdale, Southport, after whom it was named. The flowers were about two-thirds the size of those of an ordinary C. Trianæ; the sepals and petals were of a deep purplish lilac, while the labellum—the most beautiful part of the flower—was of an intensely deep maroon-crimson with blotches of bright orange in the throat and beautifully frilled with pink. This is the finest variety of Percival's Cattleya that has yet flowered in this country.

LÆLIA ANCEPS PERCIVALIANA.—This charming variety was also exhibited by Mr. Percival, who, we believe, is the sole possessor of it. It is distinct from all the other forms of L. anceps, and has no rival as regards beauty. The flowers, which are about the size of those of the ordinary form, have the sepals and petals almost pure white; the lip is white with the lowermost lobe and side-wings tipped with a deep rich amethyst. The plant shown bore several spikes and as many as five and six blooms on each spike.

CYPRIPEDIUM LEEANUM.—A new hybrid Lady's Slipper, and one of the most remarkable that has yet been raised; it is a cross between C. insigne Maulei and the new C. Spicerianum—parents, the features of which could be distinctly seen in the hybrid. The flower is larger than that of ordinary Spicerianum; the broad dorsal sepal is nearly wholly white, lined and dotted with purple; the pouch is much darker than that of either parent, but the lateral sepals are much the same as in the typical Spicerianum; the foliage is intermediate, and the habit of growth promises to be dwarf and sturdy. Exhibited by Messrs. Veitch, in whose nursery at Chelsea it has been raised by Mr. Seden.

DIEFFENBACHIA JENMANI.—A very handsome new variety and a real acquisition, notwithstanding the many Dieffenbachias already in cultivation. The ample leaves are broadly lance-shaped, of a deep green, variegated with transverse lines of white, which so contrast with the deep green as to make the foliage very handsome. Exhibited by Messrs. Veitch.

CYCLAMEN CRIMSON BEAUTY.—A superb variety as regards the colour—an extremely bright crimson-carmine, a shade different from that of any of the numerous varieties now in existence. It was shown by the well-known Cyclamen raiser, Mr. H. Little, Hillingdon Place, Uxbridge.

Among the Orchids shown were some from Messrs. Sander & Co., St. Albans, including the new Saccolabium giganteum illustre, which appears to differ from the type in the larger flowers and brighter colouring. Messrs. Sander also showed a new Odontoglossum named Hrubyanum. It is in the way of O. cirrhosum, the flowers being pure white, with the exception of the yellow crest on the labellum. From Mr. Southgate's garden, Selborne, Streatham, Mr. Salter sent two plants of Cattleya Percivaliana, both representing different varieties, both beautiful. Mr. Salter also showed two plants of Sophronitis grandiflora, both admirably grown in shallow pans—evidently the best mode of cultivating this little Orchid gem. One of the plants bore fifteen flowers, each 3 inches across—a pretty sight. The beautiful Odontoglossum crispum guttatum was shown by Mr. Philbrick's gardener (Mr. Heims), Oldfield, Bickley, and a fine example of O. roseum, bearing several spikes of rosy flowers, was shown by Mr. Chamberlain, gardener to Mr. G. F. Wilson, Heatherbank, Weybridge, for which he was awarded a cultural commendation.

An attractive display of Cyclamens, Primulas, and Orchids came from Mr. Little's garden. The Cyclamens were the admiration of everyone, inasmuch as they were exceptionally fine specimens, large plants with huge tufts of healthy foliage and perfect sheaves of blooms, yet only grown in 6-inch and 8-inch pots. Some half a hundred such plants were shown, and among the varieties were those named Amethyst, a beautiful plum-purple; Mrs. Little, a very dark crimson, probably the deepest that has ever been raised. It was evident from this fine display that Mr. Little is sustaining his reputation as one of the most successful Cyclamen growers. The Primulas were scarcely less remarkable for good culture, and they included some choice new sorts, such as Magenta Gem and Carmine Gem, both of which are probably unsurpassed in their respective colours Mr. Little supplemented the Cyclamens and Primulas by a choice group of Orchids, the culture of which family he has recently commenced. Among these were some fine forms of Odontoglossums, the white Lycaste Skinneri, and an unusually dark crimson one appropriately named atro-rubens. A splendid variety of Odontoglossum Roezli named superbum was noteworthy; also flowers of Phalænopsis Stuartiana nobilis and a panful of Cypripedium Spicerianum remarkable for the exceptionally dwarf flower-stems, not more than 6 inches high, and broad healthy foliage. A silver Banksian medal was awarded to Mr. Little.

Mr. B. S. Williams was awarded a bronze Banksian medal for an extensive group consisting of some hundreds of Cyclamens and Primulas. The former were as fine as Mr. Williams usually shows at these winter meetings, the plants being remarkable for the sturdy growth, abundance of flowers, and diversity and richness of the tints, varying from snow-whites to the deepest crimsons. The Primulas consisted of such beautiful sorts as Chiswick Red, magnifica alba, one of the finest of all white sorts, and fimbriata rubra, one of the deepest rose-purples. Two new white Azaleas were shown by Mr. Connell, Busby Down, Tooting, named Snowflake and Bridal Wreath, both of which promise to be useful varieties for forcing into flower early. Flowers of a new Salvia named Sheppardi were exhibited by W. Sheppard, Woolverstone Park, Ipswich. It bears a great resemblance to S. splendens, but is said to be quite distinct in growth and later flowering.

For some exceptionally fine examples of Poinsettia pulcherrima, Mr. Mann, gardener to Sir W. E. Welby Gregory, Bart., M.P., Dunton Manor, Grantham, was voted a cultural commendation. The specimens certainly were uncommonly fine, consisting of two stout stems, each bearing three widely-spreading branches, terminated by a broad cluster of bracts as large as those usually seen on single stems. Mr. Mann's exhibit attracted considerable attention, and it would be interesting to learn how he managed to produce such growth. Some good specimens of the so-called double Poinsettia (plenissima) were shown by Lord Dacre's gardener, Mr. Merritt, from The Hoo, Welwyn. Cultural commendations were also accorded to Mr. Herbst, Richmond, for some well-grown and flowered examples of forced Lily of the Valley; and to Mr. Brockbank, Brockhurst, Didsbury, for a very fine specimen of Christmas Rose named Helleborus niger angustifolius (Brockhurst variety) The plant was nearly a yard in diameter, and bore a huge cluster of pure white blossoms.

From Swanley, Messrs. Cannell brought some of their finest specimens of Primulas, about 2 feet in diameter, in 6-inch pots, with broad vigorous foliage and with a profusion of huge flower-spikes Such specimens as these are not often seen even at South Kensington, and they admirably served to show to what perfection the Primula may be grown. The plants were two years old and represented such lovely new sorts as The Queen, Swanley Red, Swanley Purple, Swanley White, and the old Fern-leaved White, still one of the best. Besides these there was a new sort named Mammoth, with bright rosy purple flowers some 2½ inches across, and beautifully fringed. Among a large collection of Primulas from Chiswick was one named Chiswick Purple, an uncommonly fine sort with large flowers of bright colour. It will probably eclipse even the superb varieties that have been raised of late years by Mr. Barron, such as the Chiswick Red and others.

Among the most noteworthy exhibits was a display of Princess of Teck Chrysanthemum from Mr. H. Bennett, Shepperton, consisting of four dozen superb blooms as fine as any we saw in November. These blooms were from plants which had been grown in the open ground, lifted in October, and placed under glass. Such a beautiful collection of Chrysanthemum blooms at this season was an uncommon feature, and formed the centre of attraction. The flowers of this sort are white, evenly incurved, and with a delicate flush of rosy purple on the outer florets. Some new seedling Crotons were exhibited by Mr. Ross, gardener to Mr. Eyre, Welford Park, Newbury. About half-a-dozen plants were shown, most of which were stated to be crosses between C. Weismanni and C. Johannis. Two or three of them we considered distinct and very handsome and quite worth naming. All were remarkable for the brightness of the golden variegation, and some for the elegance of growth. One named C. Eyrei was particularly noteworthy for gracefulness of growth and bright variegation. The new Panax Victoriæ was shown well by Mr. James, Castle Nursery, Lower Norwood. It is an extremely elegant variegated plant and valuable for room decoration.

FRUIT.—There was but little work for the fruit and vegetable committee, there being only a few seedling Apples, and none of these remarkable.

Scientific Committee.—Sir J. D. Hooker in the chair. The following subjects were discussed:

Sclerotia in Potatoes.—A communication was read from Mr. A. Stephen Wilson, expressing his views of the necessity of further examination of these bodies, which he proposes doing next season. He questioned the probability of Mr. Murray's experiments with nitric acid being decisive in showing that they are solely oxalate of lime. Mr. Murray remarked that the acid used was so excessively diluted, that it could not have destroyed either protoplasm or starch if either had been present.

Impregnation of Potatoes through the surface by spores.—A letter from Mr. Plowright was read restating the fact that spores readily penetrate the epidermis of fresh tubers underground, but only through the eyes after drying. Mr. Murray observed that the question was not so much whether the earth could be penetrated, but whether it is usual for Potatoes to become injured in that way, and that the evidence for the disease reaching them by the haulm was certainly the common method.

Sifting fungus spores through sand and water.—Mr. W. G. Smith referred to some experiments he had made in reference to this subject. He said spores of the Potato fungus were not readily procurable in sufficiently large numbers wherewith to make satisfactory experiments, but spores belonging to the smut of corn (Ustilago carbo) he had in large quantities, and with these the experiments were made. Ustilago spores, being nearly

black in colour, possessed a great advantage over the spores and zoospores of the Potato fungus, which were colourless.

Cylinders of glass were taken, each 8 inches long and half an inch in diameter; into one of these 6 inches of fine sand was placed, the bottom of the tube being first tied over with calico to prevent the sand escaping. A teaspoonful of water charged with Ustilago spores was then poured on to the top of the sand; in ten minutes the water all ran through, and on examination with the microscope as many spores were present in the water which had percolated through the 6 inches of sand as in the water which had not run through.

A second and similar cylinder was taken and charged with dry earth in fine powder. Water was then poured on the earth to make it quite compact, and more powdered earth and water placed in the tube till a compact 6-inch mass was presented. A spoonful of water charged with Ustilago spores was poured on the top. In two hours no water had run through, so the tube was left in a perpendicular position over a saucer all night. In the morning a part only of the water had run through, and this water was thickly charged with Ustilago spores. Mr. Smith said he was in the habit of filtering collodion through purified cotton wool, so that every particle of dust and all minute atoms of grit might be retained in the wool, and he had never found the purified cotton wool fail. He therefore placed a plug of wool an inch deep in a third cylinder, and poured water charged with Ustilago spores on to the wool. In a short time most of the water had passed through, and there were as many spores, or nearly as many, in the filtered as in the unfiltered water.

In these experiments, as was to be expected, all the spores did not run through with the water in which they were originally held. Some of the spores, together with a little water, remained, but on the application of additional water (as must occur in the case of rain) all, or nearly all, the spores doubtless ran through. In the water which had passed through the earth a considerable number of spores belonging to two other fungi made their appearance. These must have been present in the earth. Mr. Smith said he had not the slightest wish to depreciate the value of Mr. Jensen's interesting full experiments, or to underestimate the value of high moulding in Potatoes. He had merely challenged the experiments with sand, earth, and fungus spores. It had been proved, he said, that spores of a fungus (Dactylium oogenum) could find their way through the shells of fowls' eggs and grow on the membrane within the shell. In the face of a circumstance like this, and several others of a similar nature might be added, said Mr. Smith, the reports of spore-filtering through sand should not be received with too much credulity.

Professor Balfour remarked that spores—*e.g.*, of Penicillium, contain fat, which renders them difficult to be wetted; while Professor Church added that carded cotton wool contains a half per cent. of fat, and it is only when treated with ether or boiling spirits of wine to remove this that it renders it easily permeable by water. If the wool has been thus treated, water runs through with extraordinary rapidity.

Phylloxera in Victoria.—Mr. M'Lachlan alluded to a report made on this subject by a committee of the Royal Society, when no Phylloxera was discovered in the roots sent for examination; but, unfortunately, on examining some fresh material it is found to be undoubtedly present in some quantity. Not only was it in the living Vines, but in the roots left in the ground, showing the necessity of destroying by burning or drowning (as is done in England) the soil with the contained insects.

Coltsfoot in flower.—Mr. M'Lachlan recorded the first blossom of this plant as seen by him on January 7 near Lewes. It blossomed on same day in 1882, and on January 12, 1883.

Deoxidisation of chlorophyll.—Prof. Church referred to a rediscovery by a French chemist of the possibility of restoring, not only the green colour to brown or oxidised chlorophyll, but also its characteristic absorption bands. He stated that about five years ago he discovered this process himself by mixing powdered zinc with boiling water and oxidised (brown) chlorophyll. It became after two or three days a brilliant green. It had been extracted from Beetroot leaves.

Freesia sp.—Prof. Balfour exhibited a spray of small greenish yellow flowers. It was referred to Kew for identification.

Orchids from out of doors.—Mr. Smee exhibited a plant of Odontoglossum Alexandræ which had stood 8° of frost, but that species could not stand 11°. O. Rossi majus, however, withstood 11° on December 13; the plants were only protected by boughs.

LECTURE.—The Rev. G. Henslow first called attention to a Panax Victoriæ. It had variegated foliage and with leaflets varying between pinnate and bipinnate. Comparing with Aralia Sieboldi, he pointed out how compound leaves, both of digitate and pinnate types, are formed from simple leaves by dividing them up into separate leaflets. The word panax was from the supposed virtues of P. Schinseng of China, the root of which was a panacea for evils, and would make men not only young, but immortal. It had failed to do so in Europe. P. quinquefolia from North America was sometimes imported into China as a substitute. He next alluded to Chimonanthus fragrans, the Japanese Allspice, introduced in 1766 from China. This and the genus Calycanthus, called the Carolina Allspice, were the sole representatives of the order. The bark of the latter was sometimes used for Cinnamon. Mr. Henslow then remarked upon the fact that many plants, including Maples, Conifers, &c., had representative species in Japan and North America, and alluded to the speculations of geologists to account for the present distribution of such plants, and their descent from common forms, which probably existed in Miocene times, some of which appear to be those found at Oeningen and elsewhere in a fossilised state.

Crotons and Poinsettias were next taken to illustrate the order Euphorbiaceæ, characterised in England by weeds like Spurges, but in tropical countries by trees and shrubs. He drew attention to the introduction of the Poinsettia in 1828, and figured in the "Botanical Magazine," tab. 3493. It was named after Mr. Poinsette, who discovered it in Mexico, who sent it to Charlestown, and from thence it came to Europe. Of Crotons, he mentioned the useful species—viz., Croton tiglium, from the Indian Archipelago, whose seeds yielded the very acrid Croton oil; C. eleuteria, from the Bahamas, which supplies the "cascarilla bark," containing bitter tonic and astringent qualities; C. balsamiferum of West Indies, from which a spirit is made called Eau de Mantes; and C. laciferum of Ceylon, which furnishes a resin for varnishes. He alluded to the coloured and white foliage of these variegated plants, and explained how it was due to a want in the composition of the green chlorophyll, which is usually a compound substance of at least yellow chlorophyll and blue chlorophyll. In the case of the yellow leaves of the Croton the latter substance appeared to be wanting. In the white leaves of the Panax it was probably due to the extreme scarcity of chlorophyll grains.

The last subject for remark was a beautiful hybrid raised by Mr. Seden of Messrs. Veitch's establishment. It is called C. Leeanum, and received a first-class certificate. Its parents were C. Spicerianum, introduced in 1878, and C. insigne Maulei. It showed several intermediate characters; thus while C. Spicerianum had a corrugated purple and white shield (staminodium), that of C. insigne was smooth-edged and yellow-green. The hybrid shield had the colour of the latter, but the crimped edges of the former. Again, while the large upper petal is much spotted in C. insigne, not at all in C. Spicerianum, the hybrid is spotted, but to a much less extent than its parent. The slipper, however, was of a deeper red than is the case with either of the two species.

Books.

The English Flower Garden.*—We have merely to announce the appearance of this book, and to state that, after discussion and illustration of all the more important divisions of the subject, occupying 124 pages, the whole of the materials useful for our flower gardens is arranged in the form of an illustrated dictionary. There are in all over 700 closely printed and illustrated pages, the number of illustrations being nearly 1300. The English names as well as the Latin ones, are given in the alphabetical arrangement.

The most famous tree in Paris is about to disappear—viz., the Février or Gleditschia of the National Library. It is believed to have been planted as a tree of liberty in 1789, and was the gift of the English botanist, Catesby. In 1859 on the erection of the new reading room it had to be removed 50 yards to the court of the library, a difficult task, for it was 60 feet high, and the expense came to £320. The court after the enlargement of the library is about to be paved, and the tree is to be felled. A like fate has very unnecessarily attended the Elms in the adjoining Place Louvois, and Chestnuts are to be substituted. The papers have been protesting against this municipal vandalism, the more so as the planting of every tree costs £8, the tree itself costing 5s., while the rest are swallowed up by digging, draining, railing, &c.

Royal Horticultural Society's Committees.—The meeting of these committees at South Kensington on Tuesday last may be said to be the first movement this year in matters horticultural. This first meeting is also notable from the fact that the floral committee has been divided into two sections—one for florists' flowers, the other for stove and greenhouse plants—a step in the right direction. By this arrangement greater attention and more time can be given to the different subjects brought under notice. It is, I understand, the intention of the Council to concentrate all the Society's energies on these meetings during the present year and abandon the big shows—another step in the right direction. These meetings form the very backbone of the Society, and deserve every encouragement from the fact that probably nearly everything that is novel, good, and interesting in the way of plants, fruits, or vegetables find their way to them. As for the big shows, they are in the main but repetitions of the same things year after year, few novel features being introduced, and what is of great moment to the Society just now is the fact that the prize money given away at such shows will be saved for, let us hope, some more useful purpose.—Q.

Cinerarias (*A. Z.*)—Good, but inferior to the strains exhibited in London in spring.

Clematis coccinea.—I flowered this Clematis in pots in a cool house last year, but I was disappointed with it. The flowers are not much like those of a Clematis and the colour by no means striking.—J. C. C.

Davallia bullata.—The Davallia recently imported from Japan by Mr. O'Brien, and quaintly arranged on Cocoa-nut fibre in the shape of boats, &c., proves on fruiting to be a small variety of D. bullata, and not, as was supposed, D. Mariesi.

Blenheim Orange Apple.—The fact of this Apple realising in this year of plenty 6s. per sieve in Covent Garden, where good fruit may be bought at less than half that price, is sufficient proof of the estimation in which it is held. Unfortunately, it does not thrive everywhere, but where it does it should evidently be largely planted.—J. C. B.

Names of plants.—*Constant Reader.*—1, Dieffenbachia picta; 2, D. Bausei; 3, Chamæranthemum Beyrichi; 4, next week.——*A. T. B. Bareno.*—1, Gymnogramma decomposita; 2, Polypodium appendiculatum; 3, Polystichum angulare; 4, Polypodium pertifolium.——*R. Elliott.*—1, Cheilanthes myscrensis; 2, Adiantum hispidulum; 3, Polypodium appendiculatum; 4, cannot identify for want of fertile fronds; may be either an Anemia or a Cytomium.——*Bareno.*—Eucalyptus pulverulenta (Sims)——*S. T. (Bari).*—Not an Abutilon; Pavonia spinifex (Cav.), West Indies.——*E. R. (Melbourne).*—Aristotelia Macqui;——*G. T.*—Senecio mikanoides.——*D.*—Santolina incana; Cyclamen vernum.

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* "The English Flower Garden." By W. Robinson. London: John Murray, Albermarle Street. New York: Scribner and Welford.

No. 635. SATURDAY, Jan. 19, 1884. Vol XXV.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM CAPRI.

I SEND you flowers of the beautiful Lithospermum rosmarinifolium. They are extremely fugacious when picked, so that I can hardly hope that after a four days' journey by post, they will reach you in anything like good order, but the colour is so remarkable that it is worth the trial. This Lithospermum grows mostly on the limestone cliffs overhanging the sea, but happily also in more accessible places, nearly always in company with Rosemary, which it strongly resembles when out of flower. Crocus Imperati is now flowering in bushy places facing the north.

The berries I send you of Smilax aspera show the fruit in two stages. This Smilax is one of the most frequent plants in this island, beautiful in all its forms and extremely variable in the shape of the leaves, for whereas they are usually long and more or less marbled with white, in some cases they are broadly heart-shaped, 3 inches across, and in proportion more thick and leathery, like old Ivy leaves, and of an even deep green colour. Its graceful garlands decorate walls, rocks, bushes, cliffs, and all waste places.

Passerina Tartonraira is an interesting, shrub-like plant, or perhaps true shrub, 2 feet high, allied to Daphne, and common in the Greek Islands. Locally, it is said not to be a native, but to have been sown all over the uncultivated parts of the island about sixty years ago, to increase the supply of brush-wood for fuel. Anemone hortensis is very common, and now starring the hillsides with its bright flowers. The form of the Rosemary, known as Rosmarinus officinalis procumbens, grows in crevices of exposed rocks near the sea; the branches are quite prostrate, hugging the rock and following all its forms. I have secured some seedling plants and rooted natural layers, wishing to prove if it will retain its prostrate form in cultivation. I am inclined to doubt it, observing that where it grows in better soil and shelter it is an upright bush, though less free in growth than our garden kind.

G. J.

A PUZZLING TIME FOR ROSES.

WHEN in November last we gave our Rose trees their usual annual mulching of old manure, tied together the branches of the heads of standards, and the more tender ones amongst bush Roses, in anticipation of a winter at least ordinarily severe, we were reckoning without our host. The visits of Mr. Frost (we must speak of him respectfully just now, for he may be upon us at any moment) have been so gently paid up to the present time, that our Roses have scarcely known that they took place; they have continued growing and blooming on the old shoots, and now that the new year has come the 1884 leaf-buds are sending out vigorous shoots three months before their time, all, it is feared, to be nipped off by subsequent frosts. Two side shoots will probably take the place of each of these, but the mischief will have been done; the best efforts of the plants will have been wasted; and even thus early it is not difficult for us to forecast a year of small blooms, generally speaking, with but a very little summer wood. The perfected sap of last season has not been driven down by the winter's cold into the storehouses of ripened wood and roots; therefore, when called upon after pruning time to support foliage and blooms, it will not be forthcoming. It is, therefore, necessary that we should not cease to heavily mulch the ground so as to afford warmth and nutriment. The roots will make active growth under their blanket of manure, which will also protect the junction of stem and soil. In a season such as this of almost unprecedented mildness so far as it has gone, it is almost impossible to prevent the warm spring-like air from drawing up the sap to the tops of the shoots, and there must of necessity be great waste at pruning time, but without the mulch all this waste would impoverish an already disabled tree to such an extent that if it survived at all, would make but an ineffective show during the ensuing season. It is just possible we may pass through this winter without any very severe frosts, but when we remember that four years out of five we have frosts on the night of May 20, we must expect our poor Roses to suffer. As it is, they are nonplussed by the cruel kindness of the season, and the hardier kinds of Hybrid Perpetuals, with characteristic boldness, are pushing onwards with June-like energy. Teas and other tender kinds, almost hidden from light amongst Bracken and old netting, are, however, not making much growth. Of pruning time it is too early to speak—"much will happen before then;" but we do know this, that so far as we have gone, the terminal shoots now acting as safety-valves for the trees as it were will be cut off in due time, and the dormant buds will be found none the worse for the abnormal temperature to which they have been subjected if supplies of nutriment are furnished and the roots kept warm. Those who have not already mulched their Roses should therefore do so without delay. R. A. H. G.

Horsforth, near Leeds.

DOWNHILL, COLERAINE.

THIS, the seat of Sir Hervey Bruce, Bart., M.P., is situated on a high promontory several hundred feet above the level of the sea, facing the Atlantic on the north, and Lough Foyle on the west. Here is an interesting field for the antiquary, but it is not my province to enter into topics relating to bygone times, but simply to note a few horticultural characteristics, which I do from a few hurried notes, taken on the 10th ult. Being so high and exposed to merciless storms from the adjacent ocean, shelter for the castle is an impossibility, and it has to withstand the fierce blasts which blow from the seaboard. The hill on which it is built is surrounded by a glen, which in places assumes by its wild abruptness, precipices over which water falls, in some cases, 40 feet. In this glen the trees, if such they can be called, partake of the form of veritable scrub nearest the sea, but farther in they gradually become larger, until, on the sheltered side, they look as if they had no relationship with their storm-beaten brethren to which I have just adverted. On each side there are lakes, one being of considerable size, and in the centre of it there are a few clumps of Rhododendron ponticum which, when in bloom, must have a fine appearance. On the sheltered side of the glen shrubs of various sorts grow with the greatest luxuriance. Hollies attain a height of from 30 feet to 40 feet, and are full of berries, which, by-the-way, are pretty plentiful hereabouts, though scarce in some parts of England. Laurels, too, and Pontic Rhododendrons, &c., make up, as it were, for the scrubbiness observed elsewhere. A good breadth is being converted into a wild garden, in which Camellias, Cotoneaster frigida, Phormium tenax, and many other half-hardy plants (rarely bearing more than 10° of frost) are planted out and apparently doing well; also Daffodils in numberless quantities and Lilies of several sorts; L. auratum produces flower stems from 4 feet to 5 feet high, and will undoubtedly become stronger when better established, being only planted one year. Hosts of other bulbs are also being introduced, and in spring the "banks and braes" are covered with wild Hyacinth (Scilla nutans). In addition to this there are numerous nooks and crannies in which are to be planted out different sorts of hardy Ferns, the common and coloured Primroses, and other shade-loving subjects. As regards

THE KITCHEN GARDEN, on account of the fury of the elements, Mr. Carter (the gardener) has necessarily much to contend with, Cabbages even being wrenched out of the ground by the roots, as well as other things; and in order to counteract these misfortunes as much as possible, it is surrounded by a substantial wall nearly 12 feet high and divided by other walls, all being well and profitably covered with fine examples of fruit trees and flowering shrubs. As to the former the well-stocked shelves of the fruit room testify to the quantity and quality of their produce this year. Of Pears I was shown fine fruits of Hacon's Incomparable, Beurré Bachelier, Marie Louise (exceptionally fine and even throughout), Beurré Diel, Beurré Rance, Autumn Bergamot, and Duchesse d'Orleans, all finer than we usually see them in this part of Ireland. Of Apples I may mention as being very good Lord Grosvenor, Lord Nelson, Cox's Pomona, Blenheim Orange, Yorkshire Greening, Winter Greening, King of the Pippins, Lemon Pippin, and a local sort called Ballyfatten, a kind on which dependence can always be placed for producing a crop. During the last year or so several hundred feet of moveable glass coping have been put up, under which were healthy and well-trained Plums and Apricots; the latter, as usual everywhere this season, ripened some very few fruit. Of Plums Pond's Seedling, Reine Claude de Bavay, Coe's Golden Drop, and Orleans bore good crops. Worthy of special notice on the walls are

THE FLOWERING SHRUBS. On the west aspect are healthy, vigorous plants of Myrtles, consisting of buxifolia, Jenny Reitenbach, and the common variety, the latter covering a space of 12 feet by 15 feet, and literally one mass of bloom-buds, waiting, as it were, for a glint of bright sunshine to become one sheet of white. Ceanothus azureus covered a breadth of 160 square feet. Escallonias seemed apparently at home on a north-east wall. E. macrantha flourishes here as a bush. The Kew and Glasnevin varieties (E. illinita) are also on this wall, and also E. rubra, floribunda, sanguinea, Ingrami, and Phillipiana; the latter, however appears to be somewhat tenderer than the others Althæa frutex also does well on a west aspect.

THE GLASS STRUCTURES, of which there are many, consist of vineries, Peach houses, stoves, and show houses. There are also numerous pits (heated) and cold frames—indispensable auxiliaries for the rearing of what is termed furnishing material, such as Cinerarias (single and double, in different stages), Cyclamens, Calceolarias, Marguerites, zonal Pelargoniums, Libonias, &c. The stove, a three-quarter span-roofed house, contains a varied collection of clean and well-grown plants, and a fine row of the different Calanthes takes the eye on entering; their spikes vary from 2 feet to 3 feet in length, many of them being well branched. A fine pair of Phaius grandifolius in 12-inch pots were throwing up their flower-spikes; last year they had eighteen and twenty spikes respectively, and they look as if they will be as floriferous this year. On the roof is a Stephanotis, which covers not less than 300 square feet, and is one of the freest of the free-flowering varieties. A few other subjects in this house deserving of notice were Croton angularis, Mooreanus, Disraeli, Baron Rothschild, Rex, Weismanni, and some others; also Aralia Veitchi, gracillima, large masses of Anthurium Scherzerianum, Cocos Weddelliana, Dieffenbachia Bausei,

Dracænas in variety, Poinsettias, Ixora Williamsi, and the Zanzibar Balsam (Impatiens Sultani), which is always in bloom. Of Ferns there were fine plants of Davallia Mooreana and Microlepia hirta cristata, and numerous others usually seen in a well-stocked plant stove. In the conservatory were fine, healthy, well-grown plants of Bouvardia elegans, the largest being 4 feet through; Statice imbricata, from 3 feet to 4 feet in diameter; and the old double white Primula, over 2 feet. Other varieties of Primula were rubra and grandiflora, also finely grown. In another house was a grand collection of Chrysanthemums, conspicuous amongst incurved sorts being the well known Mrs. G. Rundle, Mr. G. Glenny, Bronze Jardin des Plantes, General Bainbridge, Golden Beverley, Golden Empress, and about a score of others. In the Japanese section were Baron de Prailly, Cry Kang, Elaine, James Salter, Lady Selborne, Red Dragon, Peter the Great, Bouquet Fait, and many others. Amongst reflexed and pompones were Dr. Sharpe, Julie Lagravère, the different sorts of Cedo Nulli, Marabout, Golden Madame Marthé, and others too numerous to particularise. The most striking feature, however, speaking horticulturally, about Downhill is

The winter garden. This building, which adjoins, in fact forms part of, the Castle itself, is worth going a long way to see; its dimensions are: 70 feet long, 30 feet wide, and 40 feet high. A glass door leads into it from Lady Bruce's boudoir, which is opposite the centre walk, and from which a fine panoramic view of the interior of the house is obtained. From the opposite end a commodious billiard-room is entered. In this winter garden there are stately Palms, Tree Ferns, &c, the dimensions of a few of which are as follows, viz.: Dicksonia antarctica, 20 feet high, with fronds 15 feet long; Cyathea medullaris, 30 feet high, fronds 20 feet long; Alsophila excelsa, 15 feet high, fronds 10 feet long; Woodwardia radicans has a spread of 15 feet; Lomaria gibba may be seen of different sizes and very fine in every respect; and Todea africana is 6 feet across; this last came from the Sydney Botanic Gardens. Associated with these were also Alsophila pruinata, a neat-habited Tree Fern; Seaforthia elegans, a grand Palm 30 feet high; Areca sapida, 20 feet high; A. Baueri, the same height; a Corypha, 16 feet high; and Latania borbonica with enormous dark shining leaves. Dracæna australis and indivisa are 30 feet and 25 feet high respectively. Below these noble specimens a groundwork is being formed of suitable shade-loving plants, such as Aspidistras, Marantas, green-leaved Dracænas, Sword Fern (Nephrolepis ensifolia), Pteris tremula, Caladium esculentum, with leaves from 4 feet to 5 feet across, and many others. The walls and girders are clothed with Asparagus tenuifolius, which last season made shoots 15 feet long. Ficus repens, Abutilons, Habrothamnus elegans, Newelli and fasciculatus, Tacsonia Van Volxemi, Cobæa scandens variegata, &c., are also all well grown in this house. Worthy of special notice, too, are the hanging baskets of Maiden-hair Fern (A. cuneatum) which are well clothed top and bottom. This Fern is also artistically used in making up pyramids built on defunct Tree-Fern trunks of different heights, and from which an almost inexhaustible supply of fronds can always be had. On the whole Mr. Carter is deserving of much credit for the taste and ability with which he conducts this fine horticultural establishment. S. Kevan.

Castle Upton, Templepatrick.

*** Along with this communication came some Pears quite as good as we have seen from any gardens in the southern counties of England. They are large, varied, and good in flavour. The fact is encouraging when we consider the bad repute for fruit-growing which our climate now enjoys.—Ed.

Lily of the Field.—My experience of Sternbergia lutea is that it is very shy as regards flowering, while the variety angustifolia, both in the form of large and small clumps, flowers with great profusion under precisely the same conditions. I would therefore recommend "B." to obtain this narrow leaved variety, which is one of the loveliest flowers of its season.—R. I. L.

PLANTS IN FLOWER.

Comte Brazza's White Violet.—I send you two or three flowers of Comte Brazza's beautiful white Violet, the flowers of which are not in such good condition as we have had them, but they will enable you to form an idea of the beautiful and sweet scent of this finest of white Violets.—Thomas Ware, *Hale Farm Nursery, Tottenham.*

*** Not so fine as the flowers sent to us by Mr. Allan from Gunton, but beautiful even in their present state.—Ed.

Coloured Primroses.—Mr. Dean, Ealing, sends us a bunch of these, in order to show what a wealth of bright colours they afford during mild winters like this. Mr. Dean states that they are the produce of seedling plants flowering for the first time, and adds that he finds the inferior forms bloom first. With the shelter of a cold frame, it is evident that one might have Primroses all through the winter.

Acacia platyptera.—This Acacia blooms before any of the others—at least, before any of those that resemble it—and therefore it forms a very useful greenhouse or conservatory plant at this time of the year. It is of vigorous yet bushy growth, and differs greatly from the others, owing to its peculiarly winged stems, which seem to take the place of leaves. The whole plant is just now a mass of deep golden-coloured little balls and strikingly beautiful.

Spiræa confusa.—At the last meeting at South Kensington some beautiful sprays of this elegant shrubby Spiræa were exhibited by Messrs. Stuart & Mein, Kelso, which admirably showed how suitable the plant is for forcing into flower early. It has small leaves and clusters of tiny white flowers, produced in a wreath-like manner the whole length of the slender shoots. This was the first time we had seen this particular Spiræa forced so early.

January flowers.—As a proof of the mildness of the season here, I may mention that the sweet-scented Coltsfoot has been in blossom in this neighbourhood since the 30th December. I have also a pink and a blue Hepatica out in my garden, Snowdrops out in the pleasure ground, and I this morning found a blossom of the wild yellow Ficaria. I may also remark I have been gathering Violets out of the open garden for the last month or six weeks. I enclose the blossom as a curiosity.—A. M., *Castle Wray, Letterkenny.*

Hardy flowers in January.—Mr. Kingsmill sends us from his snug little garden at Eastcote, Pinner, a bunch of bright-looking hardy flowers, which include Pansies, Primroses, double Daisies, and Elwes' Snowdrop (Galanthus Elwesi), large and fine; also Iris stylosa, Limnanthes Douglasi, with golden and white-cupped flowers and Fern-like foliage; Ficaria grandiflora, the finest of the genus, the flowers being 2 inches across, bright yellow, and shining as if varnished. Likewise the Chilian Triteleia uniflora lilacina, bright and cheerful at this season of the year in the open border.

Cytisus filipes.—Among the rarer kinds of flowers that now adorn the greenhouse at Kew, this pretty Canary Island Broom is so conspicuous that it deserves to be mentioned as being worthy of general cultivation for greenhouse ornamentation in winter. It has long slender shoots much like those of our common Broom, but less robust, and the whole length of the shoots is wreathed with tiny blossoms of snowy whiteness. The elegance of growth, combined with the purity of the flowers, renders this Broom most valuable for intermingling with showier plants. It flowers naturally at this season without forcing.

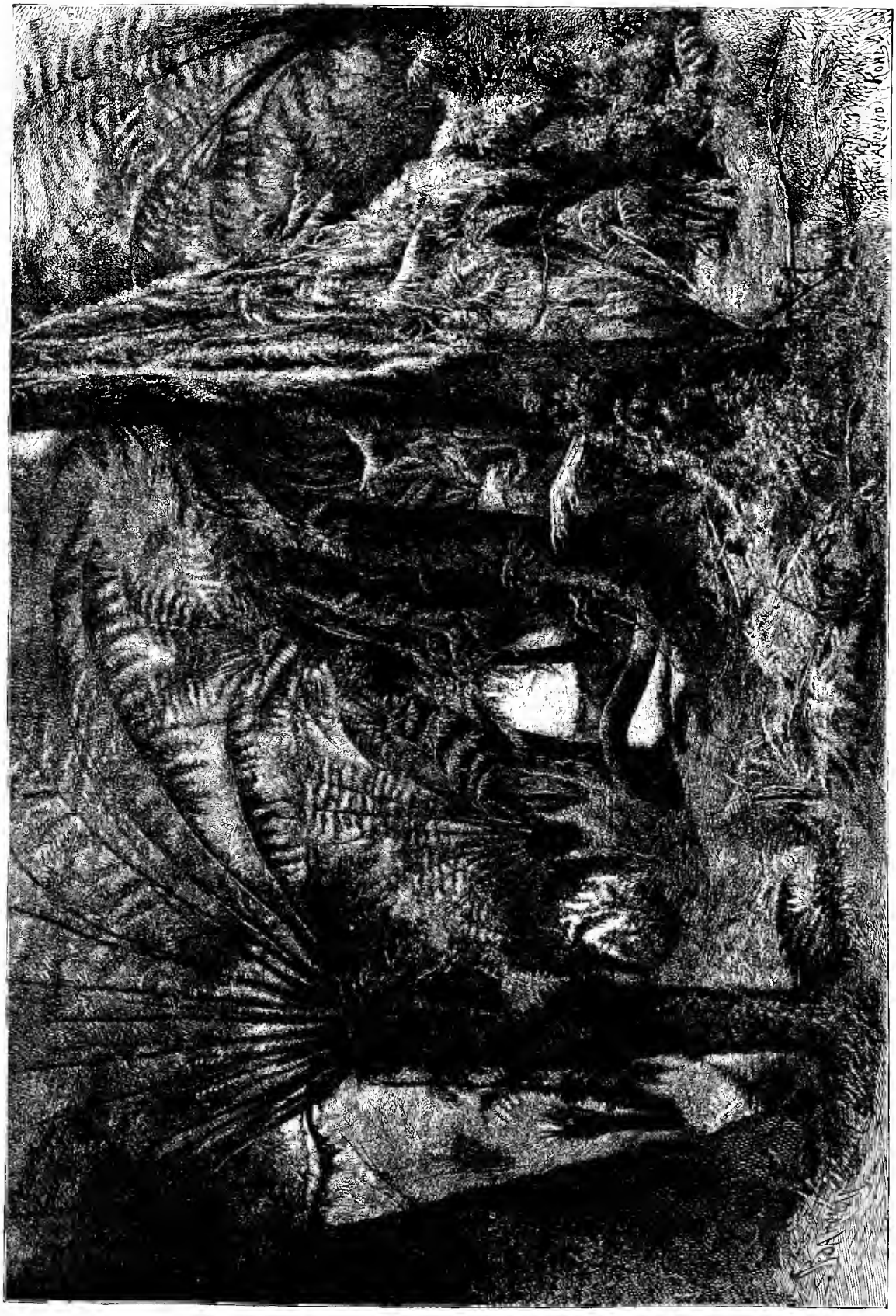
Garrya elliptica. — This elegant, hardy, evergreen shrub is now an object of much interest to visitors to Kew Gardens, where there are now several fine specimens of it, laden with its long and slender male catkins, hanging on all sides of the bush in graceful profusion. There are certainly very few hardy shrubs that can compare with this for elegant beauty, and one cannot conceive any winter flower more charming than this is for vase decoration. The quiet, greenish colour of the catkins needs only to be relieved by a few sprays of some attractive flower—an Odontoglossum Alexandræ, for example—in order to make a most tasteful arrangement. This Garrya is perfectly hardy, but it likes a dry, sheltered spot, as sharp frosts are liable to injure the catkins. It is an admirable object for clothing a wall, being green all the year round, and in winter attractive in the way of bloom for several weeks at a time. The common form of this shrub is the male, the female, which is less attractive, being rarely met with.

FERNS.

AUSTRALIAN TREE FERNS.

Although a few of the temperate region Tree Ferns which now are frequently seen in our cool conservatories and winter gardens come from different parts of the globe, situated even so widely apart as Mexico, China, and South Africa, their production is not by any means limited to the countries just named; on the contrary, we are indebted for the great bulk of the most decorative of them to the mountainous regions of Australia, where, as is clearly shown in the accompanying illustration, they grow thickly in deep, dark, shaded ravines, or in naturally and constantly damp valleys, where they attain very large dimensions. Nor could the Tree Ferns of Australia proper, that is to say, the particularly straight-stemmed Alsophila australis, native of the Stuart and Gawler ranges, the Alsophila Cooperi, the stem of which is slender, very straight, and totally deprived of aërial roots, completely distinct in that respect from any other known arborescent kind, found in abundance in Queensland and the handsome Dicksonia Youngiæ, from the Blue Mountains and Liverpool Range in New South Wales, particularly remarkable on account of its rough, slender stem and its long, plumose fronds, borne on stout stalks, furnished with light brown hairs, be kept apart from those of Tasmanian and New Zealand origin, as they not only succeed admirably under similar treatment, but are likewise often found scattered over the different habitats just alluded to. However productive of Tree Ferns other parts of Australia may be, it is undoubtedly in Victoria, a natural grove of which district the annexed illustration represents, that those possessing the most imposing proportions are found. There Dicksonia antarctica grows to a height of 60 feet or more. Its great height is not, however, the only quality which recommends it as the handsomest Tree Fern known; the symmetry of its noble head of ample fronds, and its massive trunk are also striking features belonging to it, as may be seen by the fine specimen in the left hand corner of the illustration. Victoria, however, possesses no monopoly in the way of forests of this Fern, as Tasmania, or what formerly used to be called Van Dieman's Land, which is only separated from the Australian continent by Bass's Straits, has also a great share in the production of this Dicksonia, especially Mount Wellington. In both places the habitats of the Tree Ferns are so damp that they seem to be enveloped in perpetual mist, an assertion borne out by the fact that most of the trunks imported into this country are either partially or totally clothed with the little Hymenophyllum rarum, and the equally diminutive, though exceedingly pretty, Trichomanes venosum, both species which could not possibly luxuriate under any other atmospheric conditions. The hardiness of Dicksonia antarctica is surprising; it has been even found with its head heavily laden with snow. Notwithstanding this, however, its culture out-of-doors does not seem to have met with any decided success. Besides antarctica, New Zealand might also claim the possession of the Silver Tree Fern (Cyathea dealbata) a kind with large fronds, which, owing to the silvery colour of their under-surface, are very attractive. C. medullaris, a gigantic Tree Fern, with stalks of a beautiful ebony-black colour, and C. Smithi, an arborescent kind with very delicately divided fronds. Also Dicksonia squarrosa with a very slender stem and fronds disposed in a nearly horizontal position, D. fibrosa, which seems only a crisp form of D. antarctica, and the less-known Dicksonia lanata—all natives of New Zealand where they form the bulk of the forest vegetation as regards arborescent Ferns.

S.



TREE FERNS IN VICTORIA AUSTRALIA.

Indoor Garden.

GLORIOSAS AND THEIR CULTURE.

These consist of a limited number of bulbous plants which bear handsome, distinct, and somewhat singular-looking flowers. They are deciduous, the stems dying down gradually in autumn after flowering, which they generally do in July and August, a time at which they are more useful for conservatory decoration than at any other season, when there is usually a comparative scarcity of flowers. The peculiar character of their blooms befits them for association with either fine-leaved or ordinary flowering plants. They are especially adapted for cultivation by those who have not a large amount of stove room, as their roots can be stowed away in winter so as to occupy no more space than those of Gloxinias and similar plants, and they are likewise well suited for purposes of exhibition. They are easily managed, and require no special treatment to insure their growing and flowering abundantly.

Propagation.—They may be increased by division of the roots in spring, just as they have started into growth, in the same manner as Gloxinias, cutting through the crown with a sharp knife so as to secure to each piece thus divided a bud or shoot. When raised from seeds, they should be sown in March, in the stove, in small well-drained pots filled with equal parts of finely-sifted loam, leaf-mould, and sand, covering the seeds slightly, and placing them in a heat of 70°. Keep the soil moderately moist, and when the plants make their appearance set them near the light, in order to prevent their being drawn up weakly, and as soon as they are fit to handle put them singly into 3-inch pots in soil similar to that in which the seeds were sown. They will now, if well attended to by giving them the requisite amount of heat, moisture, and shade, make rapid progress; they only require to be slightly protected from the sun's rays during the middle of the day, for if shaded to any great extent, as some plants are, it will weaken them. As their pots get filled with roots, move them into larger ones, using the soil for this shift in a more lumpy condition than hitherto, but still containing more sand than would be necessary for the generality of plants, one-fifth not being too much to add to the soil at all times. The most suitable mixture in which to grow them after the bulbs have attained some size is two-thirds good turfy loam and one-third fibrous peat, covering the bulbs about 2 inches. They require plenty of water when in active growth; support the shoots as they extend with some neat sticks inserted round the outside of the ball. Give a moderate amount of air early in the day, closing the house in good time in the afternoon, syringing overhead at the same time. The coolest end of the stove or the temperature of an intermediate house will answer better for them than hotter treatment; they will grow in an ordinary greenhouse, but so treated they do not attain the size and vigour which they do when brought on in heat until the flowers are about to open. Plants from seed, if well managed, may be expected to produce a few blossoms the first season; but if not allowed to flower they will make better bulbs. As soon as they show signs of their growth stopping in autumn, give less water, but do not withhold the supply all at once, or it will have an injurious effect by preventing the bulbs going through their naturally gradual ripening process. When ripe, allow the soil to become quite dry, and keep it in that condition all through the winter, laying the pots on their sides in a temperature of from 46° to 50°. In March they may be again started, putting them singly in 4-in. pots in soil such as that recommended for the second shift the preceding summer, using it in a rather dry state, and giving little or no water until growth has commenced, as if too wet before the roots have begun to push, there is danger of their rotting. Place them in a heat of from 55° to 65°, when they will soon begin growing, and keep them near the light. As soon as they have made a fair quantity of roots, four or five of the bulbs may be put in a 12-inch pot; in this way whilst in a comparatively small state they will make much more effective specimens than if grown singly. When they are about a foot or so high, wire trellises should be fixed to the pots, and the shoots kept regularly trained round them. When the soil gets filled with roots they will require supplying liberally with water, and if liquid manure is given once or twice a week, it will assist them considerably. In other respects treat as recommended for the previous season, and when they begin to open their flowers they should be removed to a cool house, where they will last much longer in bloom than if kept in heat. When

The flowering is over, gradually dry them off as before, and if the size of the pots makes it objectionable to winter the bulbs in them, they may, when the tops are dead, be taken out and wintered in smaller ones filled with thoroughly dry earth, with which they must be covered, to prevent too much shrivelling. If, when the bulbs get large, it is found desirable to increase them by division in the manner stated, it is essential when so treated that they do not receive any water till growth has commenced and the cut part has had time to break, or they will be liable to rot, for the prevention of which mishap surround them with an inch of dry sand at the time of potting.

Two species only of Gloriosa are worth growing, viz, G. superba, which has rich orange flowers tinged with red, reflexed and crisped on the margins; a native of the East Indies. G. Planti.—Lower petals light yellow; upper portion of the flower bright red, tinged with orange.

Insects.—Gloriosas suffer but little from insect depredations, their juices not being of a nature to be relished by them. T. Baines.

TYDEAS IN WINTER.

With but little attention, these pretty, quaintly marked flowers can be had throughout the winter, or, indeed, at nearly any other season if desired, but still it is from October to February when they are especially valuable as flowering plants; they are by no means so plentiful then as at other seasons. We have had them in blossom since October, and the same plants will, unless some unforeseen event should occur, continue to flower till February or even later. At present our Tydeas attract greater attention than most other flowering plants owing to their pretty, delicate markings, and also from the fact that they are comparatively uncommon and seldom seen in a satisfactory condition. In spring we obtained a number of their singular rhizomes, and potted them three in a 4-inch pot, the soil used being loam, mixed moderately with leaf-mould, decayed manure, and sand. When potted, they were placed on a shelf in an intermediate house, and as soon as the young shoots were long enough they were taken off as cuttings, increase of stock being desired. When the plants began to grow again, they were hardened off and kept during the summer in a cold frame, the result being that the growth was short and sturdy, and towards autumn flower-buds began to show themselves in great numbers. As the nights commenced to get cold the plants were removed to a light position in the intermediate house, where they have been ever since, and where they are flowering profusely. During summer when well rooted they were potted into 5-inch and 6-inch pots, and after a time weak manure water was given them occasionally. The cuttings when struck were hardened off and by degrees treated like the others, a mode of proceeding that seems to suit them, as it is almost impossible to tell the cuttings from the original plants.

Another point to be considered in estimating the merits of Tydeas is that they are but little troubled with insect pests, the only ones that attack them to any extent being aphides, which are easily destroyed with tobacco smoke, used not too strong, otherwise the foliage might suffer. Another year I hope to carry out a plan I once saw successfully practised in the case of these plants—viz., raising them from seed in spring and growing them on so as to flower the following winter. Seed is easily obtained by placing a few plants, when in bloom, in a dry part of the house and crossing one with another. If representatives of each type are thus employed, the progeny will vary to a great extent, many of them being in all respects equal to named kinds. The seed should be sown early in February, and as it is very minute it should be very thinly covered, if at all. A good way is to sow on the surface and lay a pane of glass over the top till germination takes place. The young plants must be pricked off when large enough to handle and afterwards grown as those just referred to.

A selection of a few good sorts should include Madame Heine, Madame Halphen, Gigantea, Lady Caroline Kerrison, Cratère, Tricolor, Robert le Diable, Podalyre, Œsculap, Harlequin, and Venosa, the last five being selected from a number of varieties grown at Chiswick for trial, and awarded certificates by the Royal Horticultural Society. One of them, Robert le Diable, is a grand variety for winter, as also are those that precede it in the above list. H. P.

DICHORISANDRAS.

These are very distinct habited plants indigenous to Brazil and South America; they are evergreen, herbaceous in habit, with strong Reed-like stems, growing to a height of from 2 feet to 4 feet, and bearing broad, lanceolate, cordate leaves; the flowers are produced in a compact cluster at the top of the shoots. They are principally late summer and autumn bloomers, at which season their decided blue flowers—a colour common to most of the species—are very effective. They are easily grown where a moderately high temperature can be kept up, and are well adapted for associating with most of the more easily cultivated hothouse plants, to which their erect habit presents a decided contrast.

Their propagation is in no way difficult; they are best increased by division of the crowns, which can be separated readily with a strong knife, retaining to each a portion of roots. This should be done early in the spring, just before they begin to grow, which latter will, as a matter of course, be regulated by the amount of warmth the plants have been subjected to during the winter — their season of comparative rest. I have found them to succeed best in peat to which has been added a moderate quantity of sand. When the crowns have been thus separated, they should be placed in pots large enough to admit their roots with sufficient soil; if the crowns are strong, 6-inch pots will not be too large. Put them at once in a temperature of 65° in the night, or if a few degrees higher it will do no harm. Here they will soon begin to grow, after which supply them liberally with water. Stand them where they will get a full volume of light, for if kept over dark the shoots will be drawn up too tall. In the matter of air and shade, treat as for ordinary stove plants, syringing them freely overhead when the house is shut up in the afternoons. By the middle of May the plants should be ready for larger pots; 8 inches or 9 inches in diameter will not be too big, using soil similar to that already advised. Through the summer they will bear a liberal amount of heat, such as is found to answer for most stove subjects, regulating it in accordance with the weather. Beyond this nothing further will be required. The strongest of the plants will flower through the autumn, after which they may be subjected to a gradually reduced temperature, keeping them at about 60° in the night through the winter. In spring again give more heat and re-pot, giving them a 2-inch or 3-inch shift, treating subsequently in other respects as advised for the previous summer. In years to come the size of the plants will be regulated by individual requirements; they may be grown large, so as to have a dozen or more flowering stems each season, in which case the root room needed will be proportionate. The old stems should be cut away annually to make room for the young growth.

Species.—As to the kinds grown, there is a considerable sameness in their appearance; consequently it is not necessary nor advisable to cultivate too many. Amongst the most desirable are the following: D. musaica.—Three feet to 4 feet high. Beautiful deep blue flowers, borne on handsome Bamboo-like stems; the foliage bold and distinct. A native of the Amazon country, and one of the best of the species. D. Saundersi.—Stems 2 feet to 3 feet high. This makes dense racemes of white violet-tipped flowers. Introduced from Brazil. D. albo-marginata.—Stems of moderate strength. Flowers white and blue. From Brazil. D. undata.—A stout-growing plant with Reed-like stems; the flowers blue, and produced in summer. From Brazil. D. thyrsiflora.—A strong grower, like those already named, of erect habit. It blooms in summer; flowers deep purple. Brazil. In addition to being deserving of cultivation on account of their flowers, all the above have handsome foliage.

Insects.—Their smooth, glossy leaves do not afford much harbour for insects, the least difficult to contend with of which will be easily kept down by syringing. If scale or mealy bug make their appearance, syringe with insecticide and sponge carefully. T. Baines.

PROPAGATING BOUVARDIAS.

Neither Bouvardias nor double Petunias require to be plunged in bottom heat to cause them to root. In spring they strike readily enough without it; indeed, too much heat would cause them to damp off. We propagate ours in the following manner: In a small house kept at an intermediate temperature some air-tight cases like small frames are placed on a bed of Cocoa-nut fibre, beneath which run hot-water pipes; the heat from the latter rising through the fibre is just sufficient to maintain a healthy growing atmosphere, but it can in no way be regarded as bottom heat, for the fibre is pressed down closely and the pots of cuttings only rest on the surface. Regarding the question of plunging cuttings of this class when callused, I may say that under favourable conditions they root in spring without forming any callus, or at all events only a slight one, and roots are not pushed from it alone, but from all parts of the stem. By far the greatest point to be considered in propagating such plants is obtaining good cuttings. About the end of January we take our Bouvardias, which have had a slight rest since flowering, into the propagating house, and place them on the side stages, stock plants of Fuchsias, Petunias, Heliotropes, and similar subjects being also taken there. With the increased temperature and occasional syringings, the plants at once start into growth, and when the young shoots are long enough for cuttings they are taken off and put in pots of light sandy soil, when they root in about a fortnight. It is unnecessary to take the shoots off at a joint, as they strike equally well from any part of the stem, provided the entire cutting is of recent growth; should, however, just the bottom part be of a woody character then they root only with difficulty. We use 4-inch pots for the cuttings, filling them one half with broken crocks and the other with soil, consisting of two parts peat or leaf-mould to one each of loam and sand, the whole being passed through a sieve with a ¼-inch mesh. The soil is pressed but lightly down; then the cuttings are inserted as thickly as possible without undue overcrowding (from six to ten in a pot is a good number), and when all put in they receive a thorough watering. The pots are watered on the bench and when drained placed in one of the close cases on the bed of Cocoa-nut fibre. This precaution is necessary in order to prevent damping; otherwise if watered in the case and allowed to stand there the atmosphere might get too surcharged with moisture for success to be the result. The after treatment consists in taking off the lights each morning to examine the cuttings, removing at the same time anything decaying. Water and shade when necessary, as cuttings of so succulent a character are very sensitive as regards both dampness and strong sunshine. In about a fortnight they will be sufficiently rooted to allow a little air to be given, and it should be increased day by day till the light or lights are removed altogether, when soon afterwards they must be potted off. Want of success in striking Bouvardias is in nine cases out of ten the result of using cuttings other than the very young shoots. Petunias are struck in just the same way, but they are even more sensitive as regards excess of moisture than the Bouvardias. These latter can be readily propagated by means of root cuttings, and by some this method is preferred to any other. In my opinion, however, cuttings made of the shoots are best. Alpha.

DRACÆNAS.

Amongst the heat-requiring species and varieties of Dracæna are to be found some of the most beautiful and distinct variegated plants in cultivation, alike remarkable for the charming colouring of their foliage and the elegance of their habit; they are equally adapted for the warm conservatory or the greenhouse in the summer, or the numerous decorative purposes in rooms for which plants are now so extensively used. The narrow-leaved kinds are the most elegant, but some of those with massive broad foliage are very effective when associated with Ferns or flowering plants, and in these ways can be employed to the best advantage. All the

Warmer section will bear a stove temperature and are free growers, but do not progress at a rate to give them a weedy character; they are easily propagated, but not being plants that break out side shoots, they do not afford material to make stock so quickly as many things do. They yield cuttings from the roots differently from most plants; the feeding fibres proceed from a stout underground stem, thick and blunt at the extremity, which extends downwards, soon reaching the bottoms of the pots. If 2 inches or 3 inches of these stems are cut off and put points upwards in small pots, they will soon push growth, and, forming leaves, make plants similar in every way to such as are the result of striking the tops of the plants, which latter, if taken off with four or five leaves, root in a warm close atmosphere in a few weeks; but the most expeditious mode of increasing Dracænas is to take the stems of any old plants that have attained a considerable height, and in such condition have generally lost their lower leaves: if these are divested of the roots and the soft portion of the top, as also all the leaves, and are laid down in a propagating frame where there is a good bottom heat, on a bed of open sandy peat, with about half an inch of similar soil over them, most of the eyes will start into growth, pushing up sucker-like shoots, which, as soon as they have made three or four leaves each, should be cut clean off from the old stem with the roots attached that the young growths will have formed; they should be put singly in small pots in sandy peat and kept close and shaded for a week or two, when they will soon get established, and must then be inured to the full air of the house. Dracænas are not liable to become drawn or weakly, but their leaves are handsomer and more enduring when they are grown with enough light and have a sufficient amount of air every day during summer. Plants raised in the above way early in spring will, if kept growing in a brisk heat, be ready for moving into 4-inch pots by the end of June, after which continue to treat them as before, giving plenty of water so long as the season of growth continues. Syringe freely overhead in the afternoons at the time the house is closed. A temperature in the night through the winter of 60° is sufficient; in the spring increase the warmth day and night, and as soon as growth commences move them into pots 3 inches larger, treating as in the previous summer. Additional root room as wanted must be given proportionate to the requirements of the different kinds grown; such large growers as D. Shepherdi and Baptisti need much larger pots than the smaller sorts. The plants may be kept growing to any required height so long as they retain their lower leaves. After the loss of these they possess little beauty, and should have their heads taken off and struck, and young stock raised from the stems. Three years is generally as long as the plants can be kept fairly furnished with bottom leaves. Comparatively small examples in 6-inch or 8-inch pots are the most useful for ordinary decorative purposes. There are now an immense number of species and varieties, many differing very little from each other.

Varieties.—The following is a selection of the best: D. Shepherdi.—One of the largest and strongest growers of the family; the leaves are very long and broad, and of different shades of green, tinged with bronzy red. South Sea Islands. D. pulcherrima.—A medium-growing kind, with narrow leaves; very graceful in appearance; colour green, with red and white markings. South Sea Islands. D. Baptisti.—One of the finest of all the species. The leaves are large, and the general habit of the plant handsome. Ground colour, a peculiar shade of rich metallic green, edged with red suffused with white. South Sea Islands. D. Bausei.—A distinct and handsome variety of garden origin. It has stout, broad leaves, dark bronze, edged with crimson; the stalks highly coloured. D. Rex.—A hybrid variety of distinct character; stout in habit; leaves bronzy green, streaked and edged with carmine-red. D. Guilfoylei.—Another very distinct and handsome kind; ground colour light green, striped with white, pink, and red. South Sea Islands. D. congesta (rubra).—A fine decorative variety of small habit; leaves green, shaded on the edge with reddish green. A most useful kind. D. terminalis.—One of the oldest, but still one of the very best for general decorative purposes, grown more than all others put together for market, as it will stand much hard usage. Leaves bronzy green, edged and suffused with pale transparent red. East Indies. D. terminalis alba.—A form of the above with a good deal of white in the leaf marking. D. gracilis.—A small growing kind with slender, narrow leaves. A useful decorative plant. D. albicans.—A very distinct and handsome sort; leaves bright green, variegated with white. South Sea Islands. D. Fraseri.—This sort has very stout, broad short leaves; the ground colour is very dark, with red variegation. A distinct and handsome kind. South Sea Islands. D. Frederici.—A hybrid variety; dark bronzy green leaves, edged and veined with crimson. D. amboynensis.—Handsome in habit, the lower portion of the leaves heavily edged with bright red. Amboyna. D. Princess Margaret.—Different in appearance from most others, medium in growth, midrib crimson, most of the leaf-blade white, striped with pale green suffused with pink. South Sea Islands. D. Earl of Derby.—Leaves long and broad, ground colour bright green, broadly edged with crimson; leaf-stalks highly coloured. South Sea Islands. D. angusta.—A handsome small-growing kind; leaves 1 inch wide, dark clouded green, shaded with bronzy red. South Sea Islands. D. superba.—A small-leaved hybrid variety; leaves 12 inches long by 1 inch broad, bronzy green, edged with red. D. Mrs. Bausé.—A stout short-leaved variety, ground colour deep green, margined with bright crimson. D. Goldieana.—A most remarkable and distinct species; the leaves are broad and pointed, greyish green ground colour, banded across with broad irregular markings of whitish grey alternating with dark green. Tropical Africa.

Insects.—Thrips, red spider, and aphides can be easily kept under by syringing. Should brown scale or mealy bug attack them, sponging is the best remedy. T. Baines.

Forcing Snowdrops.—It is a singular fact that the growth of Snowdrops is rather retarded than hasteped by placing them in a high temperature; even very mild winters do not advance the blooming season perceptibly. Although this winter has been very free from frost, I have frequently seen Snowdrops, when we have had severe weather, more forward at this date than this year. Last season, by way of experiment, I planted a quantity of Snowdrops and Aconite

bulbs in the border of a Peach house, but I find that those outside are equally forward; in fact, these hardy bulbs seem to need a spell of exposure to severe weather before they start freely into growth. My experience, indeed, of forcing hardy plants is, that when subjected to a very cool temperature for some time previous, they respond to heat much more readily than when such is not the case.—J. G. H.

ORNAMENTAL-LEAVED BEGONIAS.

ALLOW me to add a few supplementary notes to Mr. Baines' remarks in last year's GARDEN (p. 548) regarding this beautiful class of plants. Concerning their propagation, I can safely say that success is greatest when the leaves are kept entire, and not cut into pieces as Mr. Baines directs. We proceed as follows: Leaves of a firm texture are selected, and the choicer kinds are laid flat on pans filled with sandy soil, and secured thereon by means of a few pegs. The leaf-stalk is buried in the soil, and the principal ribs are cut through with a knife at intervals of about an inch. From the cut portions buds are produced, just as when the leaf is cut up altogether, and in the case of some kinds one leaf will continue to push forth buds for a long time, till it finally decays. Those treated as just described are kept moderately close in the propagating house, but the commoner kinds we just lay on a bed of Cocoa-nut fibre, in which Palms and other fine-foliaged plants are plunged. The space between the pots is thus utilised, and the slight shade afforded by the plants overhead just suits the Begonias, which do well, but, as a matter of course, cannot be so thoroughly depended upon as in the propagating case. Another method of propagation which proved to be very successful with me is to raise these Begonias from seed, of which if fertilised they produce plenty. Having three or four distinct varieties in flower at one time, I intercrossed them with each other, and sowed the seeds thus obtained in a few pots of sandy soil and placed them in the stove, where they soon germinated. From the minute character of the seeds they were sown on the surface of the soil, and covered only with a pane of glass, which was removed as soon as germination took place. The small plants were pricked off when large enough and grew rapidly, so that they were soon placed in small pots. As the leaves began to develop themselves, there was seen to be great variety amongst them, some being variegated or marbled with white in different proportions, while in others the silvery tint overspread the whole surface. As these Begonias grew, it was interesting to watch the various changes in their coloration that took place. Thus some that were at first of a satiny white, after a time pushed forth leaves of a green ground colour, and the whole surface covered with minute spots; then again as they grew larger the leaves in some cases would assume an appearance something like that of B. Rex. Besides varying so much in their markings, there was just the same difference in the ground colours of the leaves, the shades graduating from a dark brownish green to quite a light tint. This batch of seedling Begonias certainly afforded as great a variety as would be found in a moderate collection of named kinds.

H. P.

5121.—**Charring turf.**—"M. L. W." (p. 10) will not be able to do much at this season in the charring of turf, unless he has the sods under cover and dry, as the fire would have to be very strong to act on them. If, however, he has them free from wet, the charring is easy enough. If only a small quantity has to be done, the easiest way is to put the turves in a furnace, but if the bulk is great, time will be saved by piling them in a round, hollow heap, leaving cavities between them and a space in the middle to start and keep up the fire. As soon as this has gained strength, the turves should be covered with earth, in which some apertures should be made to let out the smoke, and keep up combustion in a slow manner in order that the sods may be charred and not burned. Although soil may be improved by adding to it a certain portion of such charred material, it will not do to use much of it in potting material for greenhouse plants.—S. D.

Striking Petunias.—This is not the best season for striking Petunias unless the plants have been kept warmer than usual or than they require, as the growth is not likely to have been free enough to furnish cuttings in a sufficiently soft condition. I should prefer waiting a little longer, putting the plants in a temperature of about 50° at night, and setting them near the glass. So managed, in a few weeks they will yield cuttings that will strike under propagating glasses or in a propagating frame, if not too hot and confined, or in pans of sand and water, a method that is not nearly so much followed as it might be in the case of many things, especially where there not proper means at hand for propagating. Cuttings of soft stock, such as Petunias, strike freely enough in ordinary propagating frames if these are not so dark, over-moist, and over-heated as they frequently are.—T. B.

Ptychosperma singaporensis. — A handsome Palm, resembling both in habit and foliage the well-known Cocos Weddelliana, is growing at Kew under this name. I saw recently what appears to be the same plant in Mr. Bull's collection of Palms; and again in the Kew herbarium I saw specimens collected by Mr. Burbidge in Borneo which bear a very close resemblance to the Kew plant. Mr. Burbidge's plant is a graceful-stemmed Palm, the stems being produced in tufts of about half-a-dozen, although the tallest is not more than 1 foot high. The rachis and sheath of the leaf are covered with a brown furfuraceous down. The plants at Kew and those in Mr. Bull's nursery have this same furfuraceous character in the foliage, and although there is but one stem to each plant, this stem resembles very closely the stems of the specimens from Borneo. The name Ptychosperma does not properly belong to these plants; according to the "Genera Plantarum," the genus Rhopaloblaste is their true position This genus is composed of three or four Malayan Palms, all of which are graceful feathery-leaved plants, and likely to prove useful in gardens, although the name is not one likely to recommend itself to an Englishman's ears —B.

Joints for hot-water pipes.—Reference was made in THE GARDEN recently to the bursting of the joints in hot-water pipes. I did not think that anyone else had been so unfortunately situated as I was some years ago, when in a range of four forcing houses I had three bursted joints in one winter where iron fillings had been used to make the joints. I was so disheartened that winter that I have set my face against the use of iron joints ever since, and, except in the joints close to the boiler, I have not allowed one to be made in the garden here. Practically, I believe that iron joints are the best if properly made, but the work is sometimes placed in the hands of inexperienced men and then they fail. Although I have faith in a well-made iron joint, I have no reason to find fault with red lead. A large length of piping put down here in 1867, all with lead joints, is as sound now as it ever has been as far as is to be seen. It has not cost a penny for repairs, but then the work was done by a thoroughly good man, and no doubt if iron joints were made with the same care they would answer equally well. The next opportunity I get I intend to give the india-rubber joints a fair trial; it seems to me that they have not been used so extensively as they deserve to be. Quite lately I inspected a long length of piping that was entirely put together with these joints, and not one was faulty, although they had been fixed ten years.—J. C. C.

Imantophyllum leaf (*M. J. S.*).—The brown pustules on the leaf sent are swollen corroded masses, the result of some injurious attack, but whether from some insect which has vanished, or from some fungus in an incipient state, or from a scald I do not know. I can see nothing but the diseased cells, brown, swollen, corroded. I have often sent such examples to friends, but can get no light on the nature of the disease.—G. W. S.

Fuchsia Gustave Dore.—Although there are several Fuchsias with double white corollas of great merit, Gustave Doré beats them all as regards refinement of character. It is not so vigorous as some others, but it grows sufficiently strong to form a moderate-sized specimen in two years, and its habit is so good and its flowers so freely produced that we value it very highly for room decoration, as good examples of it may be had in 6-inch pots.—J. C. C.

Clematis coccinea.—"J. C. C.'s" statement (p. 32) relative to this plant would lead me to suppose that his flowers were unusually pale, otherwise he would certainly not speak of them as by no means striking, for in a good variety the colour is very bright and effective. I say in a good variety, as the blossoms vary to a great extent in colour, some being, in comparison with others, almost worthless. This Clematis forms a very pretty pot plant, one in the temperate house at Kew having been very effective during the last two summers. Regarding the shape of the flowers being different from that of other Clematises, I may say that they are a good deal in the way of C. viorna, a very old North American kind that has purplish flowers.—ALPHA.

A NEW YEAR'S WINDOW GARDEN.

THE admirable custom of placing beautiful objects in the way of plants in windows is one of considerable antiquity. Painted flowers and other objects preceded the use of real plants; still the use of the latter is of older date than has been generally supposed. Window gardening has taken such rapid strides and been so much improved in our days, that we are too apt to assume that our fathers were wholly ignorant of the art of adorning their windows with the beauties either of Nature or art. It is, however, by no means needful to decry the past in order to appreciate the present, and that some of the past is well worthy of preservation the following example will show. In the centre of the window stood a large Lily of the Nile or white Arum in a tub with three fully expanded blooms and five other flower-spikes showing above the leaves. The latter were numerous, exceptionally fine, and without flaw or spot. On either side of this fine plant were one smaller one in a pot also in bloom. In front of these were two large plants of Christmas Roses in pots, likewise in flower, the blossoms rising high above the green leaves—evidently old leaves, though numerous and fresh looking. That was positively all the garden in the window. It seems meagre on paper, but it was perfect to look upon. Almost severely classical in its simplicity, I have seldom seen a window more chastely or satisfactorily furnished. The plants, no doubt, owed something to the window curtains and other drapery; the former were crimson, with muslin over them, and so disposed as to form a background, with a small opening in the centre for the fine Arums at the back. No doubt the drapery helped to throw up and out with greater distinctness the beautiful leaf and flower form of the Arums. The window was a low one, rising from within a few inches of the floor, and the Arum was so tall as to reach to within a foot or so of its summit. The Christmas Roses in front also seemed almost as if they had sprung up out of the ground. Finally, though the window seemed fairly full, there was no overcrowding, the outline of each leaf and flower being distinctly seen, and there was obviously room enough between the foliage and blooms to admit sufficient light to render the room an useful place to work in or a comfortable lounge. The attempt to put too many good things into a limited space spoils more windows than it beautifies.

D. T. FISH.

Alternanthera aurea nana.—The following extract concerning this plant is taken from a letter which I have just received from an American correspondent: "It is," he says, "a sport from the old yellow variety, over which it has the advantage of not having, like its parent, the pinkish taint which renders it often indistinct. This sport

is dwarf, and has pure yellow foliage. It has been well tested during the whole of last summer, and is considered to be a valuable acquisition for border and bedding purposes."—J. SISLEY, *Monplaisir, Lyons.*

FLOWER GARDEN.

THE BEST ÆTHIONEMAS.

THESE are mostly, and perhaps wholly, natives of much warmer climates than our own. We find them under cultivation to be variable both as regards hardiness and duration. They consist of about eight or ten species, all of which (from the mountain habitats of one or two of the more popular kinds) we have come to regard as alpines, which is, however, not strictly correct. Though all are handsome and worth cultivating, but few can be regarded as really perennial in the open air in this country, and fewer still as capable of enduring the rigours of our worst winters. Reputed perennial species from countries washed by the Mediterranean, according to Sibthorp, prove but annual under cultivation, and certainly our experience confirms that fact. On the hardy character and duration of these charming little shrubs depend their value, for whilst they may be classed amongst gems in the way of rock garden plants, if they cannot withstand exposure they are not likely to be valuable. It will be seen from the descriptive list given below that but few come up to this standard of hardiness, but fortunately these few include the best kinds. All are of a well-branched or shrubby habit, varying in stature from 2 inches to 18 inches; the leaves are mostly fleshy, glaucous, sessile, entire, and somewhat linear; their flowers are purple, ranging to a delicate rose or flesh colour, and produced in summer in great quantities; the branches assume a prostrate habit, and in one season the larger kinds will form bushes a foot across. It may be useful, in order to indicate allied genera, to mention that throughout this genus the species have synonymous names largely authorised, as Iberis, Lepidium, and Thlaspi. In order that a general idea may be gained of their form and habit, Æthionemas may be described as slender Candytufts with glaucous leaves and rosy flowers, rich in colour and in numbers abundant. Within a few years several unfamiliar names have appeared in trade lists, a fact which at any rate shows that some attention is being paid to these miniature shrubs. Besides grandiflorum here figured, we see a variety of persicum called splendidum, also a difolium, pulchellum, and iberideum. In none of these names do we find that any new feature is indicated, and what or whence the varieties is not stated. The annual species are Æ. saxatile, of which there are one or two varieties; it comes from rocky habitats in the south of Europe, height from 2 inches to 6 inches, flowers in May and June, pale purple. Æ. cristatum, a very dwarf plant; height only 2 inches to 4 inches. Native of Syria; the pods are crested. Æ. Buxbaumi, a pretty plant; height 6 inches; flowers small and purple. It comes from Cappadocia and Iberia, and has many synonyms, the present name being authorised by De Candolle. The one-seeded Æthionema (Æ. monospermum), a Spanish biennial, is of a more herbaceous character and has more oval leaves than most forms. It flowers in midsummer; height 6 inches, flowers purple and somewhat large. The following under suitable conditions are of perennial duration, viz., Æ. gracile, a species with slender branches from Carniola; flowers pale red or purple; a shrub nearly a foot high. Æ. coridifolium, a Mount Lebanon species with Coris-like leaves and large rosy flowers; one of the handsomest and hardiest; height only from 3 inches to 6 inches. Very similar to this is Æ. pulchellum, which, however, has smaller flowers and more glaucous leaves. If this and Æ. persicum are not identical, they are very nearly alike; they belong to the more hardy sorts and the best for open-air cultivation. Æ. membranaceum, having seed-pods with a pair of wing-like membranes, is a most tempting alpine from Mount Elwend, in Persia. It is a neat shrub with slender branches not more than 4 inches or 6 inches high; the leaves are small and glaucous, and the flowers a lively rose colour freely produced in small clusters. Æ. grandiflorum is very similar, but taller; its flowers are in large clusters and more elongated. Height 18 inches. It is quite a new kind and easily raised from seed. Mr. Thompson, of Ipswich, believes it be one of Boissier's plants; if so, it is pretty sure to be from Greece or Asia Minor. This from its extra size and larger bunches of flowers is perhaps the most showy of all. The blossoms are veined and of a pleasing rose colour, which is shown off to advantage by the glaucous foliage. A. stylosum, another native of Mount Lebanon, is easily recognised by its long style; height 3 inches or 4 inches, and habit slender. The flowers are flesh-coloured and large.

It will be seen that the species just named vary but little in outward appearance, and the figure here given may almost be considered typical of the genus. In order to enjoy the beauty of these small, but telling plants, under open-air cultivation, special but simple treatment is required. I at any rate find that to be the best, though I have come across those who have been surprised that I should find anything difficult connected with their cultivation. As a matter of fact, I lost more

Æthionema grandiflorum, showing habit of growth.

plants than I should care to recount before I came to succeed with them. They not only make neater specimens, but more hardy growth when fully exposed to sunshine than when treated otherwise, and evidently their roots enjoy the warmth of such a position as well as warm, gritty, or somewhat dry loam. On rockwork where these conditions exist the plants are not only very floriferous, but they pass through our winters more bravely than when otherwise situated. After all it will be safest to keep up young stock by means either of cuttings rooted early in summer or seeds. By such management, not only can a finer display be made in the rock garden by planting numbers out after frost is over, but after mild winters there will be a large amount of bloom from two-year-old plants freely planted; and even in the worst of weather it is probable that some will continue strong, and it may be added that is a result which I never realised when the plants were grown in moist quarters or shaded from the sun. Grown in pots, plunged in cold frames, and kept well up to the glass, neat specimens may be had in a year's time, and there is no difficulty in preserving them through the winter if kept dryish. It hardly need be said that plants thus grown should have the glass completely removed during summer, unless for that season the pots are plunged elsewhere in the open. A group of Æthionemas consisting of a dozen or twenty planted near dark-coloured stones on the rockery is charmingly effective. J. WOOD.

IRIS SUSIANA.

I HAVE just read Professor Michael Foster's letter on this Iris with great interest. It is an axiom with me that whatever he says about Irises is right, and I should have held my hand if I had been sure that he would attend to the matter. I venture, however, to think that one point which is of considerable importance in a small garden has escaped his notice. My little piece of land, not quite an acre in extent, is nearly covered by the eye from end to end, and though Iris Susiana is a wonderful attraction in some prominent situations in the month of May, it is by no means so when it is covered up by a frame during the rest of the summer. The frame itself is an eyesore, and in my case would smother a multitude of Cape bulbs when they are just at their best. This led me more than anything else not to take kindly in the first instance to the idea of keeping Iris Susiana under a frame in the summer. Dr. Foster has all sorts of little retreats and winding places in his large garden where he can do what he likes. I also read in THE GARDEN a short note of the late Mr. Thomas Williams, of Ormskirk, to the effect that perhaps the best way of treating this Iris would be to take it out of the ground, and to bake it during the summer. This idea at once helped me out of my difficulty, and I have acted on it regularly for some three or four years. In the year 1881 I sent you a blossom which I am sure had been produced in this way, and you were good enough to call it a strange and enormous flower, of which you could not hope to give an idea. At any rate, I hope Professor Foster will come and judge for himself. He will soon be due in the Isle of Wight, and we are looking for his arrival with very great interest. I have many questions on which I wish to have more enlightenment from him; but with regard to Iris Susiana, I am conceited enough to think that I can show him a plant which he will regard as satisfactory from every point of view. It will even surprise me if he has ever seen a better one, and that plant was kept in a tray full of green sand on the greenhouse shelf the whole of last summer. Two or three others were left in the ground under a frame at the same time. I therefore, without disputing in the least what he says about Iris Susiana, which I should not presume to do, cannot yet see that it is a wrong practice to lift it bodily out of the ground for a few months. It certainly answers with me, and when I have shown Dr. Foster, as I hope to do in the spring, five or six large plants of this Iris treated in different ways, I will go by his verdict. H. EWBANK.

St. John's, Ryde.

Wild Mignonette (Reseda lutea).—I send you a few sprays of a perennial Mignonette fresh gathered out-of-doors, which I find very useful for placing with flowers in vases. It has the property of growing in water and lasting for weeks in an ordinary room. The piece with a lighter-coloured green top shows how much it has grown in about a fortnight after it has been cut. It shows up well by lamp-light. The plant is quite hardy and flowers in long spikes, but is nearly scentless.—E. R. MELBOURNE.

Jasminum nudiflorum.—Anyone having vacant spaces on their house or other walls should furnish them with this Jasmine. We have had it flowering on both east and south aspects for a few weeks past, and it will continue in good condition for many weeks to come. It is very useful at this dull season of the year in a cut state when arranged with some suitable green material. Some shoots of it have, I notice, got intermixed with those of Cotoneaster, which forms a pleasing background for them, the coral red berries of that charming wall plant contrasting well with the bright yellow blossoms of the Jasmine.—NORTHUMBRIAN.

Rose Garden.

THE ROSARIAN'S YEAR-BOOK, 1884.

This contains a photographic portrait of Mr. J. McIntosh, of Dunevan, and is, as usual, full of matter interesting to rosarians. Its contents are: The Rose Election Tested by Actual Experience; The Battle of the Buds and the Stocks; Old-fashioned Roses; The Rose and National Rose Society in 1883; The Rose Weather of 1883; Autumnal Roses; and Roses on their own Roots, by Mr. J. Brown, Great Doods, Reigate. From this we extract the following:—

As Roses on their own roots have to be struck from cuttings, that must be the point to start at. I have struck Roses in various ways, and at different seasons of the year. Cuttings taken from forced Roses and struck in heat make very good plants, but I do not think they are so hardy as Roses struck by cool treatment; moreover, it is not every amateur who has an opportunity of doing so. Those who strike in heat must pot off when ready, and return them to the same or similar quarters, and when established they must be hardened off by degrees, potted again in autumn, kept in cold frames during winter, and planted out in May in well-prepared soil, and kept well watered until they are well established. Of the various modes of striking Roses, I much prefer the following: Take a frame or frames, according to the quantity required to be struck, place the frame on hard soil, and then fill in with well-prepared compost, composed of one half loam, and the other half in equal parts of leaf-mould and sand. The above compost should be made very firm, and about 6 inches in depth, well watered, and left a few days to settle, at the end of which time it will be ready to insert the cuttings; the latter may be dibbled in about 4 inches between the rows, and 2 inches or 3 inches in the rows. The best time for putting in the above cuttings is the last week in September, or about that time, according to circumstances.

The cuttings that I have found to succeed best are half or two-thirds ripened shoots; soft shoots invariably turn black and die. When struck by cool treatment, the shoots that grow after the first flowering are generally in the right condition for cuttings; they should be taken with a heel, as I have found them strike much better than straight shoots cut at the joint. Our American friends say they strike well without a heel, but that may possibly be in heat only, not in the above cool treatment; I have struck them in heat without a heel, but prefer them with one. The cuttings should be made with a sharp knife, and inserted before they get dry; they should be dibbled in and made very firm at the base, or they will not grow. Cuttings should be about 4 inches in length, leaving about an inch above the surface of the soil, and the lower two leaflets on the two upper leaves; all eyes should be left on the base of the cutting, as on that depends the future of the plant. I have invariably found about ninety per cent. to strike by the above treatment, and scarcely a cutting miss when proper cuttings could be procured. After the cuttings have been planted, they should be kept close for a time, but a little air must be admitted in mild weather, to prevent the leaflets damping off. The frame or frames must be covered up to exclude frost, or the cuttings will be lifted by its action, and much labour will be lost, as if they are lifted the majority will not strike. About the end of April or beginning of May the above cuttings will be ready to pot off; they can be taken up with a ball, potted, and placed in a frame, and kept close for a time, hardened off by degrees, planted out in August, or kept in cold frames during the winter, and planted out in well-prepared soil in April or May, according to the mildness of the season, or convenience at hand. If they are not planted out in August, many of them will require larger pots, otherwise they will get potbound; if so, they never take freely to the soil, as the ball gets dry; they then only exist, but do not grow. I well know that much has been written in favour of and also against

Roses on their own roots. It has been said they are a long time before they are strong enough to grow show Roses. I have no doubt but Roses on the seeding Brier would be best for very heavy soils, but Roses will do well on their own roots in all ordinary soils if properly planted, and they do much better in light sandy soil, such as I have here, to grow show Roses on; therefore, they are an advantage to those that are situated like myself. In reference to the above Roses being a long time coming on, *i.e.*, before they make strong plants, if any one will raise his own stocks, and treat cuttings and stocks alike, he will find the cuttings will give him the least trouble and best Roses, as, in general, cuttings of stocks have to be made, planted, and left for one year, to be taken up and planted for budding the second year, and, before Roses can be cut from budded plants, the grower has to wait about two years and seven months, whereas a good quantity of Roses can be cut the second year from Roses on their own roots; and the third year they will be as strong as the majority of maidens budded on the stocks of the same age, at which time the Roses struck from the cutting of the same date will be well established in the majority of cases; the maiden has to be transplanted, which weakens it considerably for the ensuing year; therefore, it is five years before the budded plant is established, *i.e.*, to grow show Roses, as follows: First year the cutting, second year the budding, third year the maiden, fourth year the transplanted maiden, fifth year the established plant. Roses on their own roots are much safer in hard winters, as I have had plants killed down to the surface of the soil, start again vigorously in the following spring, making shoots during the summer from 5 feet to 7 feet in height in sandy soil. Plants here three years old are much stronger than maidens, many of them having from three to six shoots, from 4 feet to 6 feet in height, whereas, in the majority of cases, the maiden has one to three shoots of from 1 foot to 3 feet, and then has to be transplanted, and by the end of another year, in most cases, they are less than when planted, whereas those in the meantime on their own roots have been getting much stronger. I have no prejudice whatever against any

Variety of stock, as it is well known that Roses do much better on a particular stock in certain localities. Stocks are also *par excellence* necessary for all new varieties, as, if propagated by cuttings, it would be a long time before a new variety could be sent out by thousands to the public. It is the old-established sorts that can be propagated by cuttings, but where one has only a few buds of a new or choice variety, he will propagate it faster by budding if he has stocks at hand. Plants on their own roots can now be procured almost in any quantities from the trade. If I were about to plant a new rosary, I should procure all the Roses I could on their own roots; they are also best for any person who requires a few dwarfs, *i.e.*, if he does not understand them, viz., budded Roses, as I have witnessed many times Roses on their own roots flower freer here, and give more good Roses during the autumn than Roses on any stock which I possess, plants on the Manetti giving the least. It is not only my own plants that do so well on their own roots, but I must quote my much-esteemed friend, Mr. G. Baker, of Holmfels, Reigate, who has many on their own roots, and who has had better and more blooms from them than from any Roses in his garden. Although Roses on all stocks grow vigorously at Holmfels, the plants on their own roots have the best of it, and I can confidently say they are the healthiest plants in the garden.

Varieties.—I will now give the names of the sorts grown here on their own roots. The following three grow weakly, but they are about the same strength as budded plants of the same age; they are E. Y. Teas, Louis Van Houtte, Xavier Olibo. When on their own roots you can with safety cut them down level with the surface of the soil, and they will then break up strong and rejuvenate themselves again, making shoots 2 feet to 3 feet in length. The following varieties have done well: Abel Grand, Alfred Colomb, Annie Wood, Baroness Rothschild, Camille Bernardin, Charles Lefebvre, Comtesse d'Oxford, Duc de Rohan, Dupuy Jamain, Dr. Andry, Duchesse de Caylus, Duke of Edinburgh, Duke of Wellington, Etienne Levet, Fisher Holmes, General Jacqueminot, La France, Henri Ledechaux, John Hopper, Jules Margottin, François Michelon, La Duchesse de Morny, Madame C. Crapelet, Madame Therese Levet, Madame Victor Verdier, Maréchal Vaillant, Marguerite St. Amaud, Marie Baumann, Marquise de Castellane, Marie Rady, Marie Finger, Paul Neron, Prince Camille de Rohan, Senateur Vaisse, Victor Verdier, Pierre Notting, Baron Gonella, Rev. H. D'Ombrain, Le Havre, Auguste Rigotard, Sir G. Wolseley, Captain Christy, Duke of Connaught, Princess Mary of Cambridge, Annie Laxton, Duchesse de Vallombrosa, Abel Carrière, Mrs. Baker, Mons. Noman, Madame Marie Verdier, Cheshunt Hybrid, Baron A. de Rothschild, Devienne Lamy, Madame Boutin, Madame Eugenie Verdier, and Emilie Hausburg. The following Teas have done well on their own roots: Gloire de Dijon, Madame Willermoz, Madame Lambard, alba rosea, Marie Van Houtte, Souvenir d'un Ami, Catherine Mermet, Souvenir d'Elise Varden, Souvenir de Paul Neron, Madame Camille, Devoniensis, and Anna Olivier.

Rose Souvenir de la Malmaison.—Mr. Muir's commendation of this grand old Rose (p. 17) is well-deserved, but when he says "as a spring, summer, and winter flowerer, it has nothing to recommend it," he scarcely does it justice. In cool summers (which latterly have been the rule rather than the exception) and in a somewhat damp and sheltered situation, this Rose is not only one of the earliest, but also one of the most continuous and abundant of bloomers. Budded on the Manetti, and planted 2 inches below the bud, and grown as a dwarf, with scarcely any pruning, it quickly becomes a dense bush, and produces a mass of bloom from June to November; nor will any of the blooms be defective, unless injured by spring frosts, or the temperature and dryness of the summer must be greater than we have lately experienced. Thorough drainage must be secured. The most suitable soil is a sandy, gritty, loam, not very rich in vegetable manure; on the contrary, rather supply liquid manure when needed. The soil should be firm. By these means moderate growth and well-ripened shoots will be the result. —W. C. T.

Orchids.

TEMPERATURES FOR ORCHIDS.

I suppose there is a right and a wrong temperature for Orchids, but we appear to be all at sixes and sevens on the subject. While such growers as Messrs. Veitch and Williams continue to grow their warm Orchids in warm houses, and cool ones in cool houses, and to produce examples of health and flower that everybody praises, we find amateurs and others telling us the practice is all wrong. Now I have never met nor heard tell of a grower who successfully cultivated what are commonly called cool and warm Orchids in the same house. There are some who claim to have treated their Vandas and the like on the cool system, but I have never found any of them growing both sorts together if they could help it, but always in separate divisions, and that speaks for itself. I pay no attention to records of minimum morning temperatures in winter. We can drop the temperature with impunity in the dark, short, and cold days with many things, but what one wants to know is the heat the plants are subjected to between sunrise and sunset, and more particularly between February and November. I am told that Dr. Paterson is not particular to a few degrees about this season in regard to

Night temperature, but that if you go in among his warm Orchids at any time during the growing season you will find them enjoying an ordinary stove heat. I am further assured that the Doctor himself has never pretended to treat his plants in any other way

in the summer season. Those who have read Humboldt and other travellers who have written accurately on the geographical distribution of plants have not to learn that the different zones of vegetation are very clearly defined. All writers agree that there are points of longitude and altitude at which different species begin and end—disappearing where the temperature becomes too high on the one side or too low on the other—and that there is a middle or mean point where they thrive best and attain their fullest development. It is not recorded that any species thrives equally well everywhere within the zone of its distribution. It seems to me, therefore, that it is the mean point cultivators should seek to discover and imitate, and the nearer they do that all experience tends to prove that the better they will succeed. But another point we have got to consider is that even those who provide separate divisions for their Orchids cannot even then give each species exactly the treatment it needs, but have to compromise matters, and that is quite practicable with most things. Many of the so-called cool Orchids will endure, without hurt, a much lower temperature than it is needful to afford them, and others will endure a higher temperature in the same way, but between the two there is a mean that suits all very well and that is what the grower has to find ont. All the best cool Orchids, except the Disa grandiflora, I find succeed admirably in a temperature of from 50° minimum in winter to 80° or 85° in summer, with ample ventilation. Cœloygne cristata, Cymbidiums, Odontoglossums Alexandræ and vexillarium, Epidendrums, Cypripediums insigne and Maulei, and violaceum punctatum, Lycastes, Masdevallias, may be named as typical cool species and varieties that mature their growth satisfactorily and flower regularly in the above temperature, while some few of those named will not do well in any other. But after all there is a pretty wide margin to come and go upon, and within its limits it is safe to try. It is just the same with the

WARM ORCHIDS. Some species may be treated regularly to a very high temperature and *vice versa*, comparatively, but there is a mean between the two at which all will succeed very fairly, while considerable liberties may be taken with many in winter as regards night temperature. At the same time it will be found, in the long run, that the nearer we imitate the conditions under which any species is found growing naturally the better we shall succeed. I observe that when any species of Orchid is placed in a too cool temperature, it is later in ripening its bulbs and later in flowering every year, and that, *vice versa*, when the temperature is right the bulbs mature and the flowers come out at the same period annually. This is a test in the case of plants that make one growth annually like the Cœlogyne or the Odontoglossum vexillarium, both of which with me do remarkably well together, and also with O. Alexandræ and Pescatorei, &c. J. S. W.

SILVERDALE LODGE, SYDENHAM.

THIS is one of those pleasant suburban villas that have become celebrated in the horticultural world through the love of their owners for Orchidaceous plants. The houses are small in size and span-roofed, a style of construction well adapted for Orchids. I examined the Phalænopsids first. This house, being the warmest, is close to the stokehole—too close in fact, as one day, not more than twelve months ago, the stokehole, which had a wooden roof, took fire, and burned down part of the house in question, destroying most of the plants. There is now, however, no trace of the accident; indeed, more healthy or vigorous Moth Orchids could not be. P. Schilleriana has leaves 16 inches long by 4¾ inches broad, and is producing great branched spikes, as are likewise handsome plants of P. amabilis. There is also a fine group of P. speciosa; judging from one handsome plant of this which is showing flower, it seems to be a variety of, or at least allied to P. Luddemanniana. P. rosea tricuspis is in all respects a much more desirable form than the normal species. A plant of it now in flower had been in that state during the last nine months, the flowers are very rich in colour, and the leaves of a lovely deep green. P. Stuartiana seems to be very free in growth. Of this many of the varieties are distinct and handsome, although if we take it for all in all, it is not the best nor second best of this charming family. Vanda Sanderiana is making satisfactory development, and just forming roots. It occupies, as it ought to do, a prominent position in the house. A good plant of Renanthera Lowi is suspended from the roof along with Sander's Vanda. Thrixpermum Berkeleyi showing flower is also noteworthy. In this house, the temperature of which is kept at about 65°, the long slender stems of Asparagus plumosus trained amongst the Orchids has an excellent effect.

Another compartment kept about 5° lower contains some fine plants. Here is a large handsome specimen of Cypripedium Sedeni, and a quantity of C. Spicerianum, the last named being planted in ordinary calcareous loam, in which they seem to luxuriate. More than one house is set apart for the culture of Cattleyas, and remarkably well they look. The ventilation is arranged very much in the same way as in our own houses, and as far as I could judge, both temperature and atmospheric conditions are also about similar to those which I endeavour to maintain. It would not, however, be safe to give our houses quite so much air, as we are much more exposed to the north and east than those at Sydenham are. Mr. Cobb is justly proud of his fine plants of Lælia elegans, which, though recently imported, are making very fine growths. The same may also be said of L. purpurata, the growths of which are very fine, as are likewise those of numerous fine plants of Cattleya Mendelli. C. Gaskelliana is not so highly esteemed as some others. In another house, in which the temperature is kept at from 50° to 55°, the principal object of interest is a group of Odontoglossum vexillarium, well grown, clean, and free from spots or decay. Oncidium Weltoni is flowering here, and a plant of Cymbidium Lowianum has developed four spikes, on which there are, in the aggregate, seventy-two flowers. A fine form of Odontoglossum Rossi majusis in flower near the glass. Few plants are more pleasing to me than the sweetly perfumed Oncidium chierophorum, with its charming spikes drooping from the plants. Lælia albida and L. anceps are in flower, both in quantity and variety, while a noteworthy feature is a head of flowers on a plant of Masdevallia tovarensis, six being open at once. Vanda Boxalli Lobbiana is certainly a fine, bright-coloured form of this species.

The cool houses are in no way inferior to the others as far as interest is concerned, and the plants are equally well cultivated. Odontoglossum Edwardi has flowered well here. This distinct and fine species should be in every collection, its violet-coloured flowers, so different from any other, being sure to please. The plants of it here are now growing freely, and promise to flower freely in March. O. coronarium flowers satisfactorily in the cool house in boat-looking teak rafts; but it must also be allowed to push its young growths over the end of the basket or raft. Galeandra Devoniana, now in flower, is a distinct and valuable Orchid for blooming this season. In a house about 5° warmer than the coolest compartment I observed a fine lot of Cattleya citrina in pans. This distinct species, with its massive golden flowers, is again getting scarce. Another good importation of it would sell well.

J. DOUGLAS.

AT LAURIE PARK, the residence of Mr. Augustus Sillem, there is also a choice and very varied collection of Orchids, under the care of Mr. Billiald, who seems to take special delight in growing and flowering Orchids that have been proved to be difficult to cultivate. Some two years ago a successful importation of Phajus tuberculosus was received from Madagascar, and most of the principal trade and private growers purchased plants, but few could claim even a fair measare of success in their culture. Six small plants, however, placed in the hands of Mr. Billiald have done so well that three of them are producing fine spikes, and two others are also succeeding; they are growing in a temperature of from 65° to 68° in damp Sphagnum. Cypripedium Haynaldianum in the same house is flowering freely. It is a pale form of C. Lowi, and very handsome; while the charming little C. Schlimi is also flowering well. Cattleya superba, close to the roof in baskets, grows and flowers strongly year after year. A few growths of Galeandra Devoniana were crowned with handsome flowers, one variety being particularly fine. In the Cattleya house departments the finest of all the forms of Lælia anceps was in flower, viz., Dawsoni. Barkerias, too, are a credit to their cultivator. Of B. Skinneri there is a very fine spike, while a quantity of Lælia acuminata, flowering freely, is very valuable at this season; the pale pink flowers, with a dark base to the lip, being excellent in a cut state. Masdevallia leontoglossa will flower in a few days. It is a distinct-looking species, with thick coriaceous foliage. The plant of it here is a large one, and although the result of nearly twenty years' growth, is only just showing flower for the first time. The Odontoglossums, in the cool house, are in no way behind the others, and even here some new or little-known subjects are well managed. Nanodes Medusæ had made two very strong growths, each of them being furnished with two fine flowers; the dark maroon-purple lip, delicately fringed, gives the flower a quaint and even wierd appearance. Of Oncidium superbiens, or æmulum, there is here a grand spike several feet in length, carrying many brown and pale yellow flowers. It is of the O. serratum type, and is well worthy of a place in the cool house. J. DOUGLAS.

POTTING CATTLEYAS.

LET it not go forth that it is good practice to pot up freshly-imported Cattleyas as soon as received. On the contrary, no sounder advice could be given than that which directs the crocking into the smallest pots or baskets they can be got into. Cattleyas, and, indeed, all other freshly-imported epiphytal Orchids, as soon as they are put into the Orchid house, as such advice holds good in all cases. Orchids are frequently imported when there seems to the importers to be a demand for them, and from this and many other reasons they often arrive long before the growing season, In such cases, I consider it would not be consistent with common sense to pot them up, and in every other case, even when they are got over just at the growing season, they are benefited by being crocked up, if only for a fortnight. I am not saying that the plants at Silverdale Lodge are not treated as stated, or that the condition of those plants leave anything to be desired, but the healthy houses cleverly planned by Mr. Walter Cobb, and complete in every detail, are not to be found everywhere; neither has every collection the supervision of one who knows Orchids so well as he does, nor the advantage of such judgment as that which prompts him to buy only good, sound-eyed pieces. At Silverdale Lodge, too, Mrs. Cobb takes great interest in the Orchids, and is as untiring in her watchfulness for their welfare as her husband. I take it that instruction in the public press on any nice point emanating from such a sonrce can only apply to those who are as happily situated. Unfortunately, most amateurs commence, and even continue, Orchid growing in old houses not built for the purpose and defective in many points (which it should be our duty to teach them to remedy), and it is for such as they that writers should frame their remarks, as Mr. Douglas (who has a clear perception of the general prineiples of Orchid culture) invariably does. Many amateurs cannot afford to buy the best pieces of imported Orchids, and many gardeners only grow them on sufferance, and consequently get only the poorer pieces, and such as can only be greatly injured by being potted up at once. To such, too, the advice to place the freshly imported plants on shingle on the stage is not good. In many houses the heat from the hot-

water pipes is continually drying the stage and its covering, and necessitating frequent moistenings, which as often cause rapid falls in the temperature of the material on which the plants rest in a manner which cannot fail to be injurious to them. If the plants are worth having, they are each worth crocking up at once into separate pots (unless very small, in which case several can be put together) or baskets where they may be plumped up and remain until they start into growth, and no other course can be advised which will benefit beginners and not injure the adept.

Harrow-on-the-Hill. JAMES O'BRIEN.

Varieties of Calanthe Veitchi.—Of this popular Orchid there are three distinct forms, and these with us are unaffected by either shade or sunshine. I should say that Mr. Harris at Singleton (p. 13) has only one form, but whether the best of the three does not transpire. The ordinary pale form of C. Veitchi and the more richly coloured C. Veitchi superba throw up long arching spikes of bloom, and we have also an erect and very compact pale-flowered variety. The bulbs of C. Veitchi superba are the least contracted near the centre.—W. I.

Cattleya Percivaliana.—I send you a flower of this Cattleya; it is not a large one, and I merely send it to supplement the very just remarks in your last issue in reference to this Cattleya. It is not only a very fine kind, coming in at this season, but it must be a very free-flowering variety. This flower is from a bulb not over 2½ inches long and proportionately thin.—W. MACDONALD, *Woodlands House, Perth.*

—— Kindly allow me to say a word in reference to "W. G.'s" assertion (p. 13) that this plant has been the object of too much quibbling, and also of considerable bias. This may or may not be the case, but the real question at issue in what I may call the Cattleya Percivaliana discussion really lies deeper than the mere name or quality of the plant itself. As a matter of fact, there was the far greater principle of trade morality involved in the case, and this Cattleya merely served as the peg on which the argument was hung.—F. W. B.

—— I have abused this Cattleya for a long time, judging its merits from poor varieties, which are sure to crop up among all imported Orchids, but the other day I was at Southport, and saw the world-famed collection of Mr. Percival. He introduced me to a Cattleya just in flower, and quietly asked me its name. I confessed I did not know it; he then told me it was Cattleya Percivaliana. It was a most beautiful form, with a lip of intense purple-crimson, slightly margined with white. The sepals and petals were rosy white. There is, I believe, yet a great future for this hitherto much-abused plant.—JUSTICIA.

Orchids at The Hall, Stamford Hill.—In a large collection of Orchids such as this is there is always something to attract one's attention. The principal feature is the large cool Orchid house, which is 100 feet long, and contains about 2000 Odontoglossums, besides a well-grown group of Masdevallias. In Masdevallia ignea superba I noticed a peculiarity in the way in which the roots are produced up the stems of the growths. Mr. Bockett's variety is a very fine one. Odontoglossum coronarium is doing well in several collections, and here the variety miniatum is making very fine growth near the glass roof. This fine species does best when the growths are allowed to push beyond the raft containing the moist peat and sphagnum in which the plant is growing. Maxillaria grandiflora is making good growths in the coolest house. This is a plant that should be grown in every collection of cool Orchids. In the Cattleya house large pans of Trichopilia suavis are doing well hung up close to the glass. This is a charming plant when in flower, and one which is seldom seen doing better than it is here. Lælia flava is also making good flowering growths In flower in the Mexican house are nice plants of Odontoglossum Rossi majus, a handsome Cypripedium villosum, Lycaste Skinneri in good form, the pretty Oncidium cheirophorum, and the brilliant Sophronitis grandiflora. Dendrobium Dearei is in flower, growing in a temperature of 65°. Mr. Bockett leaves this place in March, when most likely it will be built upon.—J. DOUGLAS.

GLAZED POTS.

MR. THOMSON'S remarks (p. 13) on the use of these are in accord with conclusions I had come to a good many years ago, both as to glazed pots and the mistake generally existent in supposing that soft, porous pots are more conducive to the health of plants than such as are hard burnt. One of the first, and, as impressed upon me, most important things in connection with the culture of plants in pots was to see that I never by any means put a plant into a pot that was hard burnt, unless I wanted to kill it. Such were the terms in which the injunction was conveyed. If one ventured to ask for what reason should the pots be of a porous character, the usual answer was to extract superabundant moisture from the soil, and also to admit the drying influence of the air to act on the soil and roots. When living in a part of the country where almost every cottager's window was occupied by plants growing in a way that left no doubts about their being quite satisfied with the pots in which their roots were confined, I observed they were of every conceivable description, from teapots that had lost part of their spouts to mugs devoid of handles. Shaping my course in accordance with this view, I ceased to use pots of the comparatively lighter burnt character, and frequently took what had been rejected by others, provided they were not unshapely, and in ordering any to be especially made, as, in large sizes, I often had a necessity for doing, I always afterwards stipulated for their being thoroughly well burnt, as well as thicker than usual. To still further satisfy myself in the matter, I got the manufacturer with whom I dealt to make me a few ordinary shaped pots of several sizes, and to glaze them on the outside. They were of a moderately light brown colour, and had a very nice appearance. I tried different plants in them, both hard and soft-wooded, such as Azaleas, Epacrises, Ixoras, Gardenias, Pelargoniums, Fuchsias, and others, with just the result I had expected, viz., that the plants in them grew as freely as they did in the pots which I had in general use. It is now over twenty years since I had these glazed pots, and should undoubtedly have adopted them altogether had it not been for their price, which in my case was much more than Mr. Thomson speaks of, and the difficulty of getting what was needed made exceptionally in this way.

The idea about pots that are made in such a manner as to leave the material of which they are composed in an open condition, so that it will absorb a maximum amount of water from the soil which they contain, or permit of air reaching or acting upon the roots, is visionary in the extreme. If there is not sufficient egress for the superabundant water which is given in the ordinary way, or that reaches the soil by rain when in the open air, woe betide the plants whose roots are so placed; and the same holds good about the action of air upon the roots through the sides of the pots. One objection to pots capable of absorbing so much moisture is their greater disposition to get coated with green mould, that not only makes them look unsightly, but which frequently has a tendency to spread over the surface of the soil within them, where its presence does much harm. There is a considerable difference in the character of the clay used in the construction of pots, as to its greater or less ability to become affected in this way, but more is owing to the manner in which the pots are made. When I lived in a part where extra finished pots were made, I always used these; the process they undergo is, that after being turned into shape and subjected to the usual drying before being set in the kiln to burn, when only partially dried they are again put on the tables and re-turned; this operation solidifies them and leaves the surface quite smooth, and much less inclined to the production of mould than when rough, and when it does affect them it is a great deal easier to wash off. In the matter of colour the ordinary red garden pot has little to recommend it. The glazing could be done in a good many different shades, all preferable to red. A conservatory with the plants in pots of a partridge-brown shade would look very different from the red now used. T. B.

GARDEN FLORA.

PLATE 423.

BESSERA ELEGANS.

ONE of the most satisfactory results of the great improvement that has been recently brought about in the style of outdoor gardening is the large share of attention that is now devoted to the smallest of plants that are likely subjects for the rock garden or the herbaceous border. We have happily now got over the stage at which gaudy display and mere size were supposed to be the acme of perfection in gardening, and have arrived at that in which beauty in any form is admissible. The pretty little plant, of which the annexed is a representation, belongs to the class of lost and recovered plants. Over forty years ago that greatest of bulb cultivators, Dean Herbert, expressed his delight at possessing plants of it, and Lindley looked up information on the cultural requirements of what was to him a beautiful little plant, but apparently then difficult to keep for any length of time. We know the secret of its cultivation now, and the plate is sufficient to show its beauty, so that we need not fear again losing the plant from our collections. Mr. Horsman has proved that at Colchester it is perfectly hardy, and that it grows and flowers freely in an open border along with its companion Milla biflora, also a native of the hills of Mexico. He says, "In pots this Bessera shows signs of becoming drawn. I am inclined to think that the open border is the most suitable position for it. It is worthy of note that the bulbs in the open border are more advanced in growth than those potted and kept in a cool vinery." A light, rich, stony soil, in a sheltered position, where during winter too much rain cannot interfere with its rest, seems to be essential to the welfare of this plant out-of-doors; while if pot culture is preferred, a cold frame, loamy soil, and rest during winter are all that are required. Deep planting, in an open, sweet, well-drained soil, with a southern aspect, and, if possible, a wall against which the bulbs can nestle for warmth in winter, are conditions under which most of the hardier bulbs will thrive. The system of taking them up and drying them during winter is, so far as bulbs are concerned, a questionable practice, which happily is becoming one of the past Many of our most successful bulbgrowers are in favour of the let-alone plan for all bulbs planted out-of-doors, and protected from excessive cold and wet. We have, however, still much to learn on the cultural requirements of many choice bulbous plants.

Bessera elegans is apparently a somewhat variable plant, some of the specimens seen being much longer in the tube and thinner in the flower-stalk and pedicels than others. The representation of it in the *Botanical Register* has been made from an unusually robust variety, the umbel being larger, pedicels thicker, and flowers shorter and less graceful than those from which the plate

* Drawn in Mr. Ware's Nursery, Tottenham, July 20, 1883.

here was made. The flower-spikes developed in September last were much stronger than those seen in July, some of the former having as many as fifteen flowers in an umbel, most of which were open at the same time. The flowering period for this plant appears to extend from July to November, so that a large patch of it would be gay with flowers for two or three months, should the weather be favourable. On strong plants the leaves are 2 feet in length, very narrow, and furrowed on the upper side. Each bulb bears a pair of leaves and a flower-scape about 2 feet long, bearing an umbel of from six to fifteen flowers, which are bright red on the outside and paler inside, with the margin and midrib of each segment of the same colour as the outside. The stamens are exserted some distance beyond the tube, and are united by their anthers, which are blue when the flower first opens, becoming yellow with age. Pharium fistulosum (figured in the *Botanical Register*) is but a variety of Bessera elegans. In Paxton's "Dictionary" I find the name B. Herberti, but I am unable to find any record of the plant to which this name has been given; it is most likely a garden name for the plant under notice. Bessera elegans is the only species of the genus known, and is, as has just been stated, a native of Mexico, whence it has been imported in quantity by several nurserymen. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

An effective arrangement may be made with the following subjects to be had now, selecting as the receptacle for them a moderate-sized trumpet vase. Cut three or more of the showy heads of Poinsettia and five or six spikes or Calanthe vestita rosea; intersperse freely with the former fronds of Maiden-hair Fern; then let the spikes of the Calanthe be inserted sufficiently long in the stem to stand well above the showy bracts of the Poinsettia. To an arrangement of this kind we once added a few blooms of a bright scarlet seedling perpetual Carnation, and perchance a single one (even these are not to be despised), and one bloom only of the Amazonian Lily, and a pleasing change for the dull days of winter was the result. Neither the Poinsettia nor the Calanthe would have lasted much longer on the plants; therefore advantage was taken to make the most of them. For another rather small vase of the same form we selected developed trusses of Early Roman and Paper-white Narcissi, and three or four spikes of the white Roman Hyacinth, each with their own foliage, taking care to have a good length of stem, so that when arranged they should not look crowded. This gave another distinct grouping. In a somewhat shallow vase or bowl a few trusses of the single forms of Chinese Primrose will look well, using two or three distinct colours and their own foliage. A vernal tinge to this may be given if desired by adding a few Snowdrops or Violets. In our opinion, the single forms of Chinese Primula are far better and more effective in a cut state than the double ones. The latter, however, may perhaps be a trifle more durable, which in packing flowers to send a distance is certainly a consideration. For specimen glasses for the dinner-table, Camellias will now be extremely useful. We generally contrive to cut these with sufficient stem to hold them safely in the glass. In this way they last a good time. Sometimes they are disposed to drop from the stem; when this is the case, a little gum arabic in solution will hold them together. This is preferable to wire, which soon leaves a deposit on the glass. When from any cause glass vases happen to become discoloured or furred, a weak solution of hydrochloric acid will easily remove the stain, a better plan than undue rubbing, thereby endangering the glass.

FLOWER GARDEN.

High-keeping is certainly most desirable at this dull season of the year; therefore lawns should be kept clear of leaves and worm-casts by frequent rolling and sweeping; walks should be cleared of Moss and weeds by turning, and, where necessary, re-gravelling. The best of all walk preservers is the roller; when this is used freely, weeds and Moss have a hard time of it, and firm walks are the result. In the event of frosty weather setting in, plenty of work may be found in carting out soils and manures to spots where required, throwing together leaf heaps, and burning up prunings or other rubbish, the ashes of which form a valuable manure for any crop. From shrubberies clear all leaves likely to blow about and cause untidiness. Where possible, without injuring the roots, preference is given to forking them in, but before doing this the plants are regulated as to space, either by thinning out and replanting them in other positions, or else by cutting out straggling growths, so as to keep each plant from injuring its neighbour. The margins of turf are then cut, and any vacant ground in front furnished either with hardy bulbs or spring flowering plants, such as Wallflowers, Forget-me-nots, Polyanthuses, Primroses, and similar plants. In forming new beds for shrub planting the ground should be trenched as deeply as the nature of the soil will allow; plenty of decayed manure should be worked into it, and for those beds that are intended for what are generally termed American plants, *i.e.*, Azaleas, Rhododendrons, Kalmias, &c., peat soil is desirable, but by no means essential, as they do almost equally well in pure loam, provided it is not too heavy and is free from chalk, which seems to be rank poison to American shrubs and Conifers, and their growth should never be attempted in soil of this character. See that the plants are not buried deeper than they were previous to removal, and also that the soil is well worked in and consolidated about the roots. These precautions may seem of little moment, but they make all the difference between the bad or well-doing of the plants.

INDOOR PLANTS.

Forced shrubs.—There is much difference in the result which follows the forcing of hardy shrubs consequent on the more or less matured condition of the preceding season's growth, and in this a good deal depends on the soil and position in which the plants to be forced have been grown. Where much of this kind of stock is required, it is well to select a place wherein to grow them that is best calculated to insure the requisite conditions, and if the natural soil is not of a character such as to suit them, soil should be prepared. Heavy, tenacious ground, where the roots of plants grown in it are usually deficient in quantity and of a long, straggling description, is not well adapted for the preparation of shrubs for forcing, as they take up badly; whereas if the soil is moderately light and free, most of the roots can be preserved, and in addition the plants in soil of this character are generally much more compact and better furnished with bloom-buds than those in stiff ground. In most gardens suitable material for the purpose can be found in the old potting soil; this ordinarily consists of a mixture of loam, peat and vegetable mould with sufficient sand, and if an open position facing the south exposed to full sunshine is available, a stock of such things as Viburnums, Azalea mollis, A. amœna, double-flowered Plums, Lilacs, Deutzias, Andromedas, Laurustinus, Rhododendrons, and Kalmia latifolia may be grown. In parts of the kingdom where this last-named shrub flowers it is one of the most beautiful of all hardy plants. Where a sufficiently large piece of ground devoted to this purpose exists so that the plants can be prepared by frequent transplanting, the effect of which is to induce a close compact habit with a disposition to form plenty of bloom, it will be found to be a great assistance in providing a continuous supply of forced flowers through the winter and spring.

Gardenias.—There are few, if any, flowers held in greater estimation or that are more difficult to produce during the depth of winter than Gardenias, for even where there is a large stock that have been especially prepared for blooming at this season, and with plenty of heat at command, they open very slowly without sun. The best means in order to have these flowers in winter is to get the crop of buds well forward in autumn, to keep the plants with their heads close up to the glass in a light house where there is a good supply of heat at command, being careful not to give too much water at the roots, or to keep over much moisture in the atmosphere, and not to use bottom-heat, as any of these conditions are sure to cause the buds to fall off a little before they should open. G. citriodora deserves a place wherever delicately-scented flowers are liked; small and in appearance unlike others of the family, it is much easier to have it in bloom through the winter months where there is sufficient heat to induce the flowers to open; it takes up very little room and is a profuse bloomer.

Bougainvillea glabra.—This, the freest flowering and most easily managed of the Bougainvilleas, can be had in bloom early if plants with well ripened wood are at hand. Where they have been dried off so as to cause the leaves to a great measure to fall, the plants may be cut in, removing the small shoots that are too weak to produce flowering growths, and shortening to a convenient length the strongest. After this, if the ball of earth is very dry, it will be best to soak it for several hours in a vessel of tepid water large enough to admit of the ball being covered. This Bougainvillea requires plenty of root room; if too much confined, the quantity of flowers will be proportionately limited; consequently, if larger pots are needed, they should be given before the plants are started, but in this case there must not be any disturbance of the roots. Where no potting is required manure water should be given as soon as growth has fairly commenced. A brisk heat is necessary to get it to move freely at this early season, but with 65° in the night and a rise by day proportionate with the weather it will be in flower in about ten weeks, and when started at this time and kept going in a temperature as above indicated, it will bloom three times before the season for again resting it will have arrived.

Allamandas.—The earliest rested of these may now be started. It is best to cut them well in, removing all the shoots that have not been fully ripened up. In the case of young examples in comparatively small pots they should have more room at once, seeing that the balls are thoroughly soaked through beforehand; otherwise difficulty will be found in getting the soil moistened afterwards; if the specimens are old and the soil in the pots is exhausted, they should be half shaken out and potted in good loam well enriched with rotten manure; at the same time the plants ought to be cut well in, and if they are to be grown on trellises these should be fastened to the pots at once and the plants trained to them.

Cyperus alternifolius. — The variegated form of this plant is usually liked the best, but the green kind is also worth growing, although not so showy. Both are most useful when in small pots—6 inches or 7 inches in diameter. The present is a good time for dividing any that have got too large, turning them out of the pots, separating them so as to leave two or three crowns to each. The variegated sort generally keeps its colour best when grown in loam. The plants, as soon as they begin to grow, should be kept well up to the light, as this also tends to preserve the variegation and keeps them stouter.

Amaryllids.—Where a sufficient stock of these is cultivated, and their growth was completed early so as to admit of their being put to rest in good time, a portion may now be started, as by regulating the period of growth and rest, they may be had in at almost any time. They will bear a brisk heat, and if the bulbs are strong they will seldom fail to flower. Give the soil a good soak-

ing. This is earlier than it would be advisable to start the main stock, but if a few be put in heat at a time they will give a succession, and the earliest flowered portion will come in when flowers are not too plentiful.

ORCHIDS.

East Indian house.—Let the ventilators in this house be closed early on sunny days so as to diminish the amount of fire-heat and thus benefit the plants. In all Orchid houses it is well to have ventilators in the walls just opposite the hot-water pipes, and these should be open every night in mild weather, and even on frosty nights if the air is calm. The air gets heated as it passes over the pipes, and thus circulates amongst the plants night and day. If the temperature is up to 65° at daybreak in the morning, the top ventilators should be opened at once if the weather is mild, but only to the smallest extent; so much as to cause the temperature to fall would be too much. If there is a sharp frost, better not admit air until the sun rises sufficiently to raise the temperature a few degrees. No time should now be lost in getting all the repotting of Saccolabiums, Angræcums, and other plants of that character done. The pots should be half full of drainage, and the potting material should be clean Sphagnum. We use well dried material, mixing it with crocks and charcoal and finishing off the tops with live, clean Sphagnum cut up with a knife. The small growing Angræcums succeed better in pans or baskets than in pots. All the large growing species, such as A. eburneum and A. sesquipedale, succeed best in pots, and large plants of them form noble ornaments to this house in winter. The first named is not so much grown as it ought to be, but large specimens in bloom cannot fail to please. The pretty little A. citratum is most floriferous when suspended from the rafters, and cultivated either in shallow pans or baskets, as are also A. Ellisi and the form of it called A. articulatum. These do best suspended in quite the warmest part of the house. With the exception of A. falcatum, all of them require plenty of heat. We do not put any water in the evaporating troughs until a month or six weeks later than this; we rather depend for moisture from water sprinkled on paths or stages. The evaporating troughs filled with water form an important aid to culture when the plants are in full growth.

Cattleya house.—As regards the best time to repot certain occupants of this house, a very successful Orchid grower stated the other day that his plan was to begin as soon as he could after the new year with the East India house, and that he was usually forward enough to pot the plants in the Cattleya house in February. Some Aerides in this house as well as Vandas are now beginning to make new roots, and that being the case no time should be lost in repotting them if they need it. All the Vanda tricolor section require to be potted now, and Aerides Fieldingi, A. Lindleyanum, A. crispum, &c., require similar treatment. We do not pot any of these annually unless it is seen that the potting material about the roots is rotten and requires removing. In repotting take care not to injure the roots. In arranging the plants see that those that have a tendency to be shy bloomers are placed in the lightest part of the house and as near the glass as possible. Some are better in the warmest end; others prefer a cool position. We would place Cattleya gigas, Dowiana, labata, &c., at the warmest end and near the glass, while such plants as Lælia majalis, acuminata, autumnalis, &c., should be placed in the coolest parts—the first named near the glass and well exposed to the sun. Dendrobiums of the tall-growing type, such as D. Dalhousianum, nobile, thyrsiflorum, &c., and also Vandas and Anguloas, may be further from the glass; the smaller-growing Dendrobiums may be suspended in baskets or in pans from the roof; D. crassinode, Wardianum, and all the pendulous growing species succeed best and look best in that way, while the dwarf growing upright section, of which D. Bensoniæ, Parishi, albo-sanguineum, and others are examples, make the best and most sturdy growths in that position. Of course, when in flower they may be arranged on the stage nearer the eye, and there, too, the flowers last longer than near the glass. One of the best of Mexican Orchids is the charming Odontoglossum citrosmum; this should still be kept as dry as possible at the roots, so much so as to cause the back bulbs to shrivel. Thus treated, it makes strong, healthy growth next season. On the other hand, O. Phalænopsis must not be allowed to become so dry; plants of this are now making their growth, and must not suffer from want of water at the roots. Watch carefully now for slugs, &c., as the spikes of many Orchids are showing, and a stray marauder may blight the best prospects of a twelvemonth's labour and anxiety. They seem to have a preference for Odontoglossum hastilabium, Oncidium crispum, and O. Marshallianum.

Cool houses.—It may not be out of place to make a few remarks on the construction of a cool Orchid house, as the culture of these beautiful flowers seems to increase more and more, and a house may be constructed for them in a position where the other sections of Orchids would not succeed. Some of the best grown plants ever seen were in a lean-to facing the north. A house in the form of a lean-to, say from 9 feet to 12 feet wide, against a north wall, and high enough to allow a tall man to walk down the centre of it with comfort, will answer as well as any other form. Span-roofed houses, too, seem equally well adapted for them, judging by results; the plants not only grow well in them, but their flowers last long in good condition after they open. The advantages possessed by a lean-to against a north wall are, first, the least cost in construction compared with a span-roofed house, less cost for fuel, and very much less attention as to watering, shading, and ventilating. In all cases there should be ventilation in the front walls, and in the case of lean-to houses also in the back wall near the top, in order to secure ventilation in wet weather. The stages should also be built so that some material, such as gravel, spar, or fine coal, may be used on which to stand the plants. They ought not to be so wide that the plants cannot be searched every night for slugs and snails. We have required very little artificial heat in our house this winter. The temperature has seldom fallen below 50° without any heat in the pipes.

FRUIT.

Orchard house.—If the roots of the early trees were in a satisfactory condition when forcing was commenced, the blossom-buds will now be swelling fast, and the earliest kinds will be ready to expand. When this stage has been attained fumigate the house to destroy any green fly which the gentle warmth may have brought into existence, otherwise it will prove extremely troublesome, and do serious mischief to the crop before the later kinds have set their fruit. Pay particular attention to watering and syringing with tepid water until the blossoms begin to expand, and avoid wetting the trees during the time they are in flower, but on no account allow the roots to suffer from want of water. Allow the temperature to range from 50° to 55° on mild nights, with a little air, to 60° or 65° on fine days, with an increased circulation, and impregnate the flowers with a camel's-hair pencil about noon, when the house has reached the maximum and the atmosphere is dry.

Later houses.—Where the trees have been removed to the open air to make room for other subjects, preparations must now be made for replacing them under glass, as, owing to the mildness of the season, the buds on many of the Peaches, Plums, and Cherries are now getting forward, and unless they are protected with nets or carefully watched small birds in wooded districts will soon destroy the most prominent and of course the most valuable flowers. If cleansing and painting has been delayed, get it done at once; examine each tree as it is drawn out of the plunging material, wash the shoots with strong soapy water to free them from scale, scrub the pots, and see that the drainage is satisfactory. If space is limited, Pears may be left out till next month. In the final arrangement of the trees, Peaches, Nectarines, and Figs should occupy the warmest part of the house, Plums, Cherries, and Pears the coldest; but choice kinds of the latter will be improved by removal to a warm, airy situation when the fruit is swelling and ripening. If pot Strawberries are grown in orchard houses, they should be placed on shelves near the glass, where they can be well syringed and have the full benefit of light and solar heat.

Cherries.—Where only one house is devoted to Cherries the end of the old year or the beginning of January is a good time to begin forcing, if forcing it can be called, as owing to the excitable nature of the trees, the great art of growing house Cherries successfully consists in the maintenance of a low temperature, ranging a few degrees higher than the external air when the weather is temperate, and as low as 40° at night when very severe. Like all stone fruit trees which are liable to be affected by aphis, cleanliness is very important, and no trouble should be spared in preparing for a good start. When this has been done, soft-wooded plants, like Geraniums, Cinerarias, or other subjects liable to carry green fly should be excluded, and the everlasting pot Strawberry should be dipped in a strong insecticide before it is allowed to have a place. Assuming that the borders are inside, see that they are well mulched with manure and watered with water at a temperature of 70° to 80°. Syringe daily, warm the pipes every morning with air, ventilate freely at 55°, and shut off fire-heat when the house is closed on mild afternoons. Early houses started at the end of November will be getting well advanced, and the blossoms on some of the trees will soon be open. When this charming picture begins to unfold, syringing must be discontinued, otherwise the petals of the flowers will damp before the fruit is properly set. Keep up a circulation of air unless the weather becomes very severe. Let the temperature range from 45° at night to 50° by day when fire-heat is needed, and a few degrees higher under gleams of sunshine. Fumigate before the blossoms open, and fertilise with a brush when the pollen becomes free.

Melons.—Where early Melons are required and a light, efficiently heated pit is at command, a few seeds of some free-bearing early kind may be sown at once in small pots and plunged in a bottom heat of 80°, which can be kept up by the aid of hot-water pipes running beneath the bed. The great drawback to Melons at this early season is want of light, a difficulty which may be met by keeping the young plants close to the glass, which must be clean, and by covering with bell-glasses in preference to mats on severe nights. Immediately after the seeds are sown, set about the preparation of suitable materials for making up the plunging bed in which the plants are to grow and ripen their fruit. For this purpose well-worked tan gives least trouble, but in wooded districts sound Oak leaves produce better results, as the moist heat from decaying vegetable matter is more favourable to a clean healthy growth of vine and foliage. Another important item in successful Melon culture is a good supply of strong loam from an old pasture, which should be cut some months before it is wanted for use, and stacked in an open airy shed or in long narrow ridges out-of-doors, with some kind of covering for throwing off heavy rain and snow. If this is not at hand, lose no time in securing enough for the season, and expose it to the atmosphere, as wet crude soil is sure to lead to disappointment if not to complete failure.

Pines.—With the exception of plants which are swelling off fruit, and the early batch of Queens recently plunged in strong bottom-heat, the general stock of Pines may be kept very quiet until the end of the month, when with increasing length of days and brighter weather they will soon start into vigorous growth, and make better

plants than if kept in a state of excitement through the dead months of December and January. Queens, Rothschilds, and Cayennes rest and winter well in a bottom-heat of 70° to 75°; but in the event of the old material in which the Queens are plunged sinking much below the above figures, it will be advisable to open the valves for a short time, and water the bed with hot water at a temperature of 90°, care being taken that it does not pass over the sides of the pots to excite a portion of the roots before the proper time arrives for starting them into fruit. Keep a close watch upon plants now about starting and increase the supply of stimulating liquid to the roots as soon as the fruits can be seen, also atmospheric moisture by damping all available spaces between and around the plants, but avoid wetting the fruit till well above the foliage and the flowering period is over.

Successions.—Examine these once a week, and see that the plants in small pots, placed in near proximity to the bottom-heat pipes, do not want for water. Where this danger does not exist but little water will be needed for the present. Give a little air on fine days to prevent the plants from becoming drawn, and cover up at night to economise fire-heat. Prepare crocks, pots, and soil for use next month. If the latter, good turfy loam, is not in suitable condition, break it up with the hand and expose it to the atmosphere, where it will become dry and warm before the time arrives for potting.

Hardy fruit.—The mild damp weather which has been so favourable for pruning and nailing will have held out inducements to many to postpone such work as top-dressing and mulching until walks and borders are in a better state for wheeling manure and compost. But so important an operation must not be longer neglected, as the timely application of a good covering to newly planted or root-pruned trees cannot be overrated. Where Pears are grown on the Quince stock and the roots have not been disturbed, the annual top-dressing of good rich manure may be wheeled out on frosty mornings as soon as the nailing is finished. It is well known that the successful culture of Pears on the Quince stock greatly depends upon rich top-dressings: and as the borders in course of time become too high, old top-dressing and exhausted soil may be forked off and placed on the vegetable quarters to make room for the new. After a few years, heavy cropping puts an end to extension; blossom buds only are formed, and as many people are quite incompetent to thin their own fruit, the annual removal of old spurs at pruning time should not be neglected. If on wet, adhesive soils the planting of trees has not been completed, it will be better to allow them to remain "laid in" on a dry border and well protected with litter than to attempt to plant while the ground is saturated with cold water. Push on the pruning and cleaning of all kinds of fruit trees, as the time may be at hand when it will be cruel to force men to stand for hours at a stretch against cold brick walls. Unfortunately, the winter dressing of hardy trees is much neglected; many troublesome insects are allowed to rest in the bark and walls, from which they almost precede the unfolding of the earliest buds in spring.

KITCHEN GARDEN.

Surely no new year ever dawned upon us with the same brightness as that of 1884. The charming sunny days, the glorious sunsets, and the slight frosts added together make the performances of garden operations enjoyable. We are just now busily employed loosening the soil in the Cabbage quarter, which, thanks to the charming weather, is like a bed of coal ashes. Young Cabbages are now (Jan. 12) very much larger than we have ever seen them before at the same date. Young Lettuces, of which we have now some thousands, occupy the spaces between rows of Strawberries; these we are cultivating and freshening up for the spring. Growing Lettuces in this manner does the Strawberries no harm, and adds something to the exchequer. The varieties grown for the winter are Tennis-ball, Covent Garden Green Cos, and Black-seeded Brown Cos. Cabbage Lettuces are fast coming to the front for salad purposes; they come in early in spring, are beautifully white, and blanch themselves, while the open-hearted Cos varieties require tying up, which is not only a tedious operation, but, unless tied up quite dry, the hearts rot. We have this day planted the first range of pits, consisting of twelve lights, with early Potatoes. The sets of all of them have been grown in boxes, and are now about 2 inches long, planted in light, sandy soil at the top of a bed of leaves. Leaves, when we can get enough of them in the pit—say 3 feet—make the best of all hotbeds, their heat being mild and lasting. Another range of pits is nearly ready for Cauliflower, Snow's Broccoli, and spring Radishes. The variety of Cauliflower which we grow for first crop is Snowball. Seeds of these are sown the first week in February, when Early Horn Carrots and a host of small seeds are sown at the same time. Notwithstanding the mild weather which we have had during the whole of the winter months, gardeners must not be caught napping, for we are almost certain to have sharp weather yet. All Peas should, therefore, be staked, and a fringe of bracken stuck down each side of the row. It is a mistake to suppose that frost alone kills young Peas; it is simply the dry, harsh winds which cut them to pieces when not protected. If any vacant quarters are still undug, get them done at once, so that when spring comes upon us all may be ready for planting.

KITCHEN GARDEN.

TALL V. DWARF PEAS.

The relative value of tall and dwarf Peas is a question that can only be satisfactorily decided according to circumstances. No one at all conversant with the bearing capacity of tall Peas, as compared with dwarf ones, will, I should think, refuse to grant that when circumstances are favourable to their growth they are much more profitable to grow than dwarf ones. But, as I have said, there are circumstances in each case which will influence opinion to a great extent. For instance, in many small gardens tall Peas are not admissable, and in other cases suitable sticks for supporting them are difficult to obtain. There is, therefore, no choice in such cases but to select dwarf growers. Towards these, however, I am not favourably disposed, except it be for the very earliest crops. They are, in many cases, inferior in flavour, and the duration of the crop is so short that the yield is much less than that of tall Peas. I do not wish to condemn the flavour of Veitch's Perfection and one or two other dwarf-growing sorts, as they are all that can be desired. But the number of good-flavoured dwarf Peas may be counted on the fingers of one hand, and as regards their bearing capacity it will be generally acknowledged that one row of Champion of England, British Queen, or Ne Plus Ultra will produce as many Peas as three rows of any dwarf variety. Therefore in point of space there is nothing gained by being able to grow the rows of dwarf Peas closer together. In fact, it becomes a question whether dwarf Peas do not incur a direct loss, as there must be more labour attached to three rows than one, and there must necessarily be a greater exhaustion of the soil. Owing to restricted space, I have been for several years experimenting with these two sections of Peas, and the result is decidedly in favour of tall growers except for early crops. In the matter of

Selecting the best sorts in each section, we may expect opinions to differ, but I have no hesitation in saying that a little white Pea, known as Early May thirty years ago, is not yet surpassed in any one particular. Under the most favourable circumstances Peas are not picked earlier now than they were then; nor are they in any other way superior. For the earliest crop I cannot find one to beat Ringlead, and for the second William 1st. This last is a very valuable addition to the early kinds. I make a sowing of this on a south border about the middle of December, when I sow the earliest. I make another sowing at the same time in the open quarters, and this forms a succession to those on the border. For the next crop I select Champion of England, which with us is most reliable. It is not often attacked by mildew; it is most productive, and as regards a table Pea it is unsurpassed. The Champion is our sheet anchor for the summer, during which we make three or four different sowings of it, and it never disappoints us. For autumn supply I sow Ne Plus Ultra about the 20th of May, and again between the 8th and 12th of June, which for the west of England answers very well. Sometimes we sow a row of British Queen early in June, just to have two strings to our bow; the quality of this sort and its productiveness are two well known to need comment. My selection of

Dwarf sorts would be, for the earliest crop, American Wonder. This scarcely exceeds 15 inches in height, and for so dwarf a kind is exceedingly productive, and of fair average flavour when cooked. Laxton's Alpha is not so early as the round white Peas, but follows them very closely. It grows about 2 feet high, is fairly productive, and very good in flavour. Dr. Maclean and Laxton's Best of All are two excellent varieties to come in succession, but for a mid-season sort in soils that suit it Veitch's Perfection is unsurpassed for productiveness and superior flavour. My experience of this Pea is rather singular. Twelve years ago and more I could grow excellent crops of it, but now it does not pay for the sticks that support it. For the latest crop Omega is undoubtedly the best in cultivation. We grew this sort for several years, and had no reason to find fault with it in any respect.

Protection from birds.—We find that tomtits are very destructive to late Peas, and as we have to provide a wooden frame and nets to protect Raspberries from the depredations of the larger birds, the frame and nets do well for the Peas. They just cover two rows of Raspberries. We sow our latest crops of Peas at the same distance apart as the Raspberries, and as soon as the fruit is all gathered, the frame and nets are placed over the Peas. The frame consists of a few upright stakes 6 feet out of the ground; some rough battens are nailed longways on the top of the stakes, and thus we have a substantial frame to support the nets, which are stretched over it, and reach the ground on all sides. We have therefore only to lift up the net at one end and walk in under it to pick the fruit or the Peas. All our other crops of tall Peas we distribute about the garden as much as we can in isolated rows, as we find the produce greatest where there is plenty of room; even dwarf sorts bear better when so distributed than where crowded. In every case it may be taken for granted that it is a direct loss to crowd Peas, either by sowing the seed too thickly in the rows, or by placing the rows too closely together. J. C. C.

EFFECT OF THE ELECTRIC LIGHT ON VEGETATION.

More than a year ago, on observing in different journals notices relating to the growth of plants by means of the electric light, I resolved to investigate the matter, as I doubted the statements which had been recorded on the subject. Our first experiment was made with some good-sized Potatoes. A few of these were placed in a position where they were exposed to the full glare of an electric light during the whole of the night, though in the daytime the place which they occupied was kept quite dark. The remaining portion of the Potatoes was laid down in a continually dark place, but enjoyed a similar amount of space for air circulation and exactly the same temperature as those on which the electric light flared.

When the Potatoes had pushed growths about 5 inches in length they were removed and examined in broad daylight. The growths of both lots, which were equal in length, bore the same general appearance, and resembled the growths of

Potatoes which had lain for some time in a dark cellar or in the bottom of a stowed-away barrel. I examined with great care those which had vegetated under the influence of the electric light, to see if the growths possessed any green colouring matter. But not the faintest tinge of this could be seen, so that the great principle which either directly or indirectly builds up, nourishes, and develops all the higher forms of plants and trees, and ripens and colours fruits and seed-pods was found to be absent.

Chemists may analyse and identify the electric light with the rays of the sun in whatever way they please, but it is quite evident that the latter are something altogether different from the light in question, I venture to assert that the electric light, even if perfected to a far higher degree than it at present is, will not be found to influence in the most remote way the development even of any of the lowest forms of vegetation. The opinion, therefore, which has been expressed of its value in accelerating and assisting the growth of plants and ripening of fruits is simply a delusion. Any one can satisfy himself in regard to this matter by making a trial, such as I have done. Large, rapid-growing seeds, planted in loam and watered, will answer the purpose just as well as Potatoes, only the latter can be laid about anywhere and demand no special attention. Robert Cross.

Cranmond.

EARLY LETTUCES.

Up to the present there have been no losses from frosts among autumn-sown Lettuce plants, but it is almost impossible to preserve them from slugs. The long continued wet and unseasonably mild weather has been very favourable to their movements, and has also induced an undesirable early growth among Lettuces and other plants. Those who have not sown some Lettuce seed in a frame late in autumn may find that they have an insufficiency of plants, especially should we yet experience severe and, to the exposed and now delicate Lettuces, probably destructive frosts. We find plants reared thinly and wintered in frames and kept freely ventilated—and therefore sturdy and hardy—to be of the greatest value for filling up blanks among autumn-planted Lettuces on exposed borders as well as at the foot of sunny walls. They are also serviceable for planting in the open among rows of young Strawberry plants, dwarf early Peas, or in a quarter devoted to Lettuces. In either case they will form a good succession to those in more sheltered spots, being usually fit for use before the earliest, with one exception, of those raised in spring. The exception is the Early Paris Market Cabbage Lettuce, a variety which, in addition to being extremely quick-growing, also hearts in splendidly, and is in quality first-rate.

Preparing a seed bed.—Now is a good time to sow seed of this sort, and also of the black-seeded Brown Cos, or, if preferred, of any good variety of Paris White Cos. A slight hot-bed should be formed, consisting of a well-prepared mixture of leaves and stable manure; or, if the former cannot be had, of manure alone. On this place a single or two-light frame, and this bed may also be utilised for rearing a few early Cauliflowers, Brussels Sprouts, and Cabbage plants. In order to bring the seedlings as near the glass as possible, the frame should be half filled with some of the shortest of the heating material; on this place about 4 inches of good and not very rough soil, and finish off with another 2 inches of finer sifted light soil.

Sowing.—When the soil is warmed through and the trial stick can be borne comfortably in the hand, sow the seed thinly in properly divided patches and cover with a sprinkling of sifted soil. If the soil is moist, which it should be, no water will be required, neither then nor later on, till the seedlings are past the critical damping period. Weather permitting, give air directly the seedlings are up and pull the lights off on warm bright days, leaving a little air on during warm nights, the aim being to keep the plants as sturdy as possible. Protect the frame during frosty nights. In the meantime another slight hotbed should have been prepared, on this being stood one or more frames according to circumstances, filling these somewhat similarly to the seed frames, only the soil should be rather richer and less fine soil be placed on the surface. On these beds, rows of the Paris Market Lettuce may be pricked out about 3 inches apart each way, every alternate row and every other plant in the reserved rows being subsequently lifted with a good ball of soil attached to the roots and transplanted to the foot of any sheltered wall or on a warm border, and disposing them about 6 inches apart each way. The holes made by lifting these plants to be filled up with a little good soil, and the frames then kept rather close and well attended to in the shape of waterings when required. Under such circumstances they grow at a rapid rate, and with us result in some of the best Lettuces we taste during the season. They are appreciated by all who try them, and are especially good in salads. Those at the foot of the walls, if properly protected from slugs, will be fit for use in time to maintain an unbroken succession, and before many of the autumn-sown Lettuces are really fit for the salad bowl. I ought, perhaps, to have stated that we keep the seedlings rather close after being pricked and watered, but subsequently harden them off well, and choose mild weather for planting them out. It is also advisable to protect from late frosts or cutting winds with branches of evergreens.

Substitute for a frame.—Where fewer are grown and frames not plentiful, a good number of Paris Market Lettuce plants may be raised in an ordinary Pelargonium box, taking care to remove them from a house or warm frame before they become drawn or spoilt. Rows of plants may be dibbled among the rows of other early vegetables in frames, such as dwarf Peas, Kidney Beans, or in the fronts of successional and late Peach houses and orchard houses, or in boxes of good soil, placed in vineries, and any other somewhat similar positions that may suggest themselves. They will stand gentle forcing, providing a light position be assigned them. Many plants might also be dibbled among the rows of pricked-out, spring-raised plants of Cauliflowers, Sprouts, &c., in frames, all the latter being eventually transplanted to the open borders and the frames given up to the Lettuces for a short time.

W. I. M.

MUSHROOM SPAWN.

During some eight years I was employed in a large garden containing one of the largest Mushroom houses in the kingdom, and the spawn was always received from one source near London, where it was made, and during the whole of the time it proved good, always producing fine crops. After I left there and came here I continued to procure my spawn from the same quarter, and with equally good results, till a few years ago, when I was prevailed upon to give somebody else's a trial, and from that time for several years afterwards I tried spawn from various seedsmen—in all cases with far less successful results in the shape of crops than previously. This led to enquiries on my part and explanations on the part of the seedsmen, and I was not a little surprised to learn that these seedsmen actually bought their stock of spawn from the same party near London, who manufactured the bricks, and whom I had originally dealt with myself. One noted provincial seedsman imagined, I daresay, he had fixed me when he first told me this; but knowing how much spawn was affected by the conditions under which it was stored, I determined to try a further experiment, and so procured some spawn from my old source, and some from the seedsman, and spawned one half of the same bed with the one, and the other half with the other, with the result that the seedsman's end was a failure, while the other end produced one of the finest crops I ever had; and the other beds from the good spawn all did well too. At present, we have grand crops from the same spawn, and I need not say I have returned to the old source of my supply and get spawn from no other.

As to what caused the difference in the two articles—originally from the same place—I can only surmise; but I noticed that the bricks from the makers were comparatively soft and brittle, and those from the seedsman as hard as a board. Hardness is not a fault, however, except in so far as it indicates exposure, and this, I have a strong conviction, was what killed the retailer's spawn; for, on going into his shop one day, I saw his store of cakes piled up behind the counter without protection of any kind, and exposed to all the vicissitudes of temperature of a cold shop in the winter time. It is treatment of this kind which destroys Mushroom spawn. It does not matter how old spawn may be, provided it is kept dark, dry, and warm. When perfectly dry, it remains *in statu quo*, but moisture and heat both set it running, and it soon gets past the thread stage, when it becomes useless for spawning beds. A correspondent asked the other week what was the reason his Mushrooms went off as soon as they appeared above the surface. He may guess it is something in the top treatment that is the cause, and I think if the temperature of the air in his Mushroom house is often at 70°—which figure he gives as the maximum—I do not wonder at them going off, and they would do the same in a too low and damp temperature. He should moisten the bed where dry only under such circumstances, and keep the temperature of the bed down to about 60°, and that of the air of the house a little lower still. The Mushroom cannot endure a high temperature while growing.

J. S. W.

Early Border Potato.—Those who prefer a nearly round variety to the Ashleafs may with advantage grow Early Border; it is of quick growth, and, considering the very small amount of haulm made, the tubers are surprisingly large; they are very clean, and handsome, too, and the quality is all that could be desired. It is well adapted for pot and frame culture, and, in my opinion, is one of the most distinct Potatoes of recent introduction.—I.

Adlrondack and Triumph Potatoes.—Both of these American sorts do well with us, cropping heavily, not being much diseased, and cooking satisfactorily. The former makes most top growth, and is the heaviest cropper; yet I prefer Triumph, as this has short, sturdy haulm, and perfects a good early crop. When lifted, the two sorts rather resemble each other; but, on the whole, I prefer the smaller tubers of Triumph, and this variety will be grown, as usual, to succeed the Ashleaf sorts, while the Adirondack when all used will not be grown again. Adirondack may, in short, be described as a coarse form of Triumph, which I have long considered to be one of the best of the American Potatoes, and one which will not be superseded by Adirondack.—I.

Root cuttinge of Seakale *v.* seede.—The great demand for Seakale roots strong enough for forcing renders the work of propagating this highly-prized vegetable of great importance; for, although some few still adhere to the old plan of forcing the plants in permanent beds by means of fermenting manure and leaves placed over forcing pots, by far the greater portion of Seakale roots is lifted and placed in artificial heat elsewhere. In lifting the crowns, therefore, every piece of the fleshy roots should be carefully extracted from the ground, for if left they prove troublesome, and the best way of turning these extracted pieces to good account is to cut them into lengths of 5 inches or 6 inches, and place them in boxes of light soil in a cool house or shed, where they will form crowns by the middle of March. They may then be planted out in rows 2 feet apart and 1 foot from plant to plant. Young healthy roots, even though not larger than a quill, make better plants than old decayed ones that frequently rot altogether after they have made some little progress. Seed makes the healthiest plants for forming permanent plantations, and if sown early on good soil will furnish good crowns

for producing late crops the first year after sowing, but I find that seedlings do not ripen off their growth so early in autumn as cuttings, and are therefore not so suitable for very early crops. Where a large demand exists both methods should be practised, for even the smallest plants raised from seed will, if transplanted and set at good wide intervals apart in open sunny positions, make fine crowns for forcing after a second year's growth, as the earlier good leaves can be got, the earlier will the plants ripen their growth in the autumn.—J. G., *Hants.*

Scotch Champion Potato. — Mr. Gilbert considers this the best Potato grown, and who shall say he is not right in his estimate? On our heavy, clayey loam it crops heavily, and the tubers, though sometimes large and hollow, are yet invariably of first-class quality. For my own use I prefer Magnum Bonum, but it has to be planted on lighter soil, or it is too close in texture. In some seasons the Scotch Champion is not good with us long after Christmas, but this season it has been good from the time of lifting till now, that is to say, better than usual.—I.

5127.—**Mushroom failure.**—As "W. B." (p. 10) fails with his Mushrooms after they come through the soil, it is evident that something must be wrong with the atmosphere of the house, which probably is not damp enough, and if above 55° is too hot, as when the temperature gets above that point it is too high for Mushrooms, which, if they grow at all, draw up with long attenuated stems and small heads that have little or no juice in them. The air of a Mushroom house, to be perfect, should be uniformly moist and close, and never vary beyond a few degrees in heat either way from the point just mentioned, and if so kept there will be no difficulty in growing Mushrooms well.—S. D.

Vegetables worth growing. — That Mr. Muir's list of vegetables worth growing (p. 20) includes all the best varieties, there can be no doubt; but in his list of Broad Beans he has left out a variety which all should grow, viz., Beck's Green Gem. This I can recommend. It is a very free bearer, good in flavour, and keeps a long time before it gets dry. As regards Early Mazagan being the earliest of all the Broad Beans, Mr. Muir surely cannot have tried any other for early crops. As a proof that it is not the earliest, I may state that I planted last spring a row about 40 yards long, half with Early Mazagan and half with Seville Longpod. The latter came into use fully a week before the former. It was, I believe, tried at Chiswick and found to be much earlier than Early Mazagan. As to Tomatoes, I do not think we can do very well without Hathaway's Excelsior, it being a sure cropper and everything that can be desired, both in flavour and colour.—J. P. B

Chou de Burghley.—If this will withstand sharp frosts without becoming damaged or deteriorated thereby, it is sure to be largely grown, as it comes in at a season when it is most valuable, and affords variety with Brussels Sprouts, with which I consider it equal in quality. I am only sorry that I did not sow and plant more of it, and especially that I did not provide a second batch of it in order that we might be cutting it from this time onwards, so as to fill up the void till the early Broccoli makes its appearance. I shall not make the same mistake this year, and I would advise others to divide their seed and sow part about the middle of March and the remainder a couple of months later, as then they may expect to cut this Cabbage from early autumn till the spring is far advanced.—J. Sheppard.

Snow's Winter White Broccoli. — Thanks to the prevalence of mild weather, an uninterrupted supply of Broccoli has been procurable from open fields during the whole of the winter; no sooner was Autumn Giant exhausted than the early winter kinds of Broccoli began to come in, and lately Snow's Winter White, nearly a foot in diameter, and firm as cricket balls, has been plentiful. The system of culture in open fields is to allow plenty of room both in the seed bed and between the roots—treatment under which the plants become dwarf and stocky. The seed is sown broadcast in March thinly; therefore to keep down weeds little hoes can be worked amongst the young seedlings. These soon form robust plants, and in May or June they are planted out a yard apart on deeply-ploughed land that has been cleared of other crops, or between every second row of Potatoes, and beyond keeping them clean very little in the way of cultivation is needed until the heads are fit for cutting. Broccoli grown in this way is decidedly superior to that grown in close-walled gardens, where it invariably gets drawn up lanky and tall, while the size of the heads depends more on the size of the stems than on the length and abundance of the leaves. Although mid-winter Broccoli is a precarious crop, owing to sudden visitations of severe frost, a good selection of Snow's Winter White is a valuable vegetable for either market or private use. When it comes in too fast at this time of the year, it may be kept back for a considerable time if laid in by the heels and covered with litter if sharp frost sets in.—James Groom.

BARBERRY BLIGHT.

The annexed illustrations show the foster plants, whereon the spores or seed of the fungus (Puccinia graminis) settle themselves and take root in the spring of the year. The spores would quickly

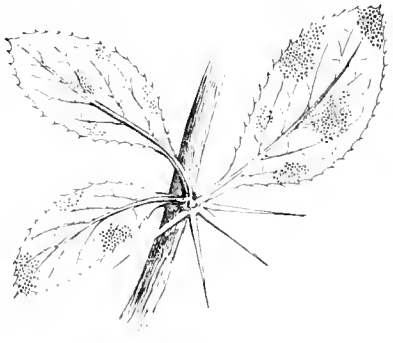


Fig. 1. *(Blighted leaves of the common Barberry.)*

begin to germinate on almost any moist leaf in a humid season; but no other leaf yet discovered offers the required advantages for the minute spores to engraft themselves, except that of the common Barberry, and no other fruit than that of the Aquifolium. In spring, when the spores

Fig. 2. *(Fruit of B. Aquifolium.)*

issue in myriads from old straw, thatch, and even half-decomposed manure heaps, they no sooner fall upon the surface of the above-mentioned plant than the small roots take hold of, or rather engraft themselves into, the leaf and fruit. Being nursed there, in a short period, say from fourteen to twenty-eight days, they become matured, throwing off spores as numberless as the sand upon the seashore. Such of these spores as by chance fall upon softer strawed Wheat plants, favoured by a moist atmosphere, quickly reproduce abundantly other spores of a slightly different character, such as will germinate and mature upon other Wheat plants, and thus they continue to vastly multiply until the summer is far advanced, always, however, requiring moisture to aid their germinating powers.

Fig 3 *(Blighted blade of Wheat.)*

Now when autumn arrives, the most interesting process in the reproducing powers of the fungus takes place; for did the mildew on the wheat plant continue to dispose of the same kind of spores only at the expiration of the summer, as it had hitherto done, they would surely die in the winter season, totally unable to withstand the ungenial temperature of an ordinary English winter. But all this is beautifully provided for by Nature, for a different spore or seed is now produced, called by botanists the "resting spore," and this will remain upon the Wheat straw throughout the most severe winter, clothed, as it were, in a warm raiment proof against the most severe frosts. Upon the advent of the following spring they grow out countless numbers of seed, many of which may perhaps alight upon the young blades of growing Wheat, but in vain, for they cannot mature there. Such, however, as settle, as I have before observed, upon the leaf of the common Barberry (fig. 1), or upon the fruit of B. Aquifolium that abounds in our shrubberries (fig. 2), quickly grow, and reproduce a multiplicity of seed. Some of this floats away on the air to our Wheat crops, develops itself upon the blades of Wheat (fig. 3), and continues to pass through the same routine from year to year, causing incalculable loss, not to the husbandman alone, but to the country generally.

J. W. R., in *Farm and Home.*

FRUIT GARDEN.

GOOD APPLES.

Mr. Douglas gives (p. 1) some useful advice to intending planters of Apples for profit, which I am desirous of supplementing with a few facts that have come under my notice, as to the best sorts to plant for certainty of cropping, and for commanding a ready sale in the market. Exaggerated statements, such as that of Blenheim Oranges realising £1 per bushel, are only calculated to mislead. If people only gave a second thought as to the price at which really good Apples have been selling during the last three or four months, they would be convinced that such prices were unattainable. The wholesale price of English-grown Apples has been from 4s. to 5s. per sieve., and only good samples realised these prices. This statement need not, however, damp the ardour of intending planters, for that Apple culture is a profitable industry at these figures I am thoroughly convinced. I have sent many hundreds of sieves of Apples to London markets in seasons of scarcity, and also in seasons of plenty, and by reference to my salesman's returns I find that 5s. per sieve is a fair average price for good Apples; indeed, by far the largest portion of our home-grown crop is sold for less than that. Out of the hundreds of sorts of Apples in cultivation

the only ones that are known to purchasers may be counted on the fingers. Ribstons, Blenheims, and Golden Pippins, with Codlins or Wellingtons for cooking, exhaust the list of English sorts that are inquired after, and any sorts that bear the slightest resemblance to one or other of these well-known kinds are passed off as such. This is done, too, in some instances without detriment to the purchaser, for that varieties but seldom heard of by name are more than equal to those so eagerly sought after for every purpose for which Apples are grown must be patent to all who take the trouble to enquire. It will be found that some kinds very largely grown and highly esteemed in one part of the kingdom are not kuown even by name in another, and during the last few years many kinds that were quite in the background have worked their way to the front by reason of their certainty of cropping and general excellence, while those termed first-class are only grown in limited quantities. The reason is not far to seek. Not many years ago, anyone who intended to plant an orchard either took the names of the sorts to be planted from fruits shown at exhibitions, or consulted some work on fruit where Apples are classified mostly as regards flavour. Thus, Ribston Pippin, Margil, or the Cornish Gilliflower, Ashmead's Kernel, Golden Pippin, and other first-rate sorts were planted in positions both suitable and unsuitable. In sheltered walled gardens, if they produced a light crop for the use of a private family all well and good; but for the rough-and-ready system of growing fruit in quantity for market, where varieties are valued according to what they produce, a very different standard of excellence has to be set up. Instead of wasting efforts upon sorts that one would like to grow, cultivators go in for planting what they can grow. A good crop at a price which the general public can afford to pay is of more importance than fancy prices obtained for special kinds that require the shelter of glass to bring them to perfection. Although the Ribston Pippin still commands the top price in the market, I shonld not advise it to be planted largely in orchards, except in very favourable positions, for, taking the average of several years, I find that varieties far down in the list are much more remunerative. As regards the

Various systems of growing Apples for market, there can be no question that tall standards on Grass at good wide distances apart are well adapted for farmers who can utilise the Grass for stock feeding, and thereby keep their trees manured and fruitful for many years. Probably this system would rapidly spread if farmers cultivated their own land, or were recompensed for improvements made on the land which they rent. It is a landlord's question more than a tenant's, and must be taken up by landlords if we are to supply our markets with home-grown fruit. Then there is the mixed system of planting with tall standards at wide intervals apart and rows of dwarf bush trees between them. In Kent, where this system is largely practised, I have seen enormons crops of Codlins that, even at from 2s. to 3s. per sieve, realised a large sum per acre. In this locality I have seen very fine crops on trees planted at wide intervals and cropped between with vegetables, and now that bush trees grafted on dwarfing stocks are becoming so popular, we shall probably find this system very largely practised, as the demand for fresh vegetables grows as fast as that for home-grown fruit. In close proximity to large towns, where a ready sale can be obtained for all kinds of market-garden crops, I feel certain that Apples grown in quantity will prove to be one of the safest investments for either the farmer or market gardener. Dwarf bush trees grafted on dwarfing stocks planted in lines wide enough apart to allow of intermediate cropping is the system which I should adopt, as they need but very little pruning and no training, and, being surface rooters, they continue healthy in shallow soils not suited for the deeper-rooting crab stocks. If the soil is cultivated and manured annually for intermediate crops, the Apples will continue fruitful for many years. There is no need for waiting weary years looking for fruit if good trees are planted. Out of several dozens that I planted twelve months ago not one has failed to carry some fine fruits, and many of them have had quite a full crop. The reason is obvious; these dwarfing stocks throw out a mass of fibrous roots; therefore the trees stand removal without feeling the check, and in planting a quantity during the past week that had been temporarily laid in by the heels, I was surprised to find new roots not only pushing freely from all the older ones, but pushing out in all directions from the stems as far up as the soil had covered them. Early planting should therefore be the rule, as, although no outward growth is visible, the roots are at work and the trees will give ample proof the following season of the wisdom of getting these moved directly the leaf drops. As regards the best

Intermediate crops to grow, there can be no question that bush fruits, Gooseberries, Currants, and Raspberries, are not only certain croppers, but always command a ready sale. No matter how heavy the crops may be, they are all cleared off by the jam manufacturers. Then there is Asparagus, which makes a capital intermediate crop, and if hundreds of acres of it were planted, it would prove a remunerative crop to the cultivator, and a boon to the public. In the light, warm soil of the southern counties it could be grown as a field crop and sold at a profit at a price within the reach of all. This is one of the crops that need shelter from wind, and cross rows of Apple bushes acting like hedges would do this. Many other crops are equally benefited by shelter, or if bush trees were planted thick enough to occupy all the ground, or say from 10 feet to 12 feet apart, they would not only do this but also shelter one another, and the crops that an acre of such bushes would produce when in full bearing is surprising.

Of varieties I should recommend the following as sure to give satisfaction, viz:—

Kitchen Apples.	*Desert Apples.*
Keswick Codlin	Mr. Gladstone
Manks Codlin	Red Juneating
Lord Suffield	Irish Peach
Cox's Pomona	Red Quarrenden
Loddington Seedling	Worcester Pearmain
Echlinville	King of Pippins
Stirling Castle	Cox's Orange Pippin
New Hawthornden	Wyken Pippin
Wellington	Reinette de Canada
Warner's King	Redleaf Russet
Winter Queening	Summer Golden Pippin
Dutch Mignonne	Golden Knob
Northern Greening	Sturmer Pippin

A good number of bushes of each kind should be planted, for in planting for market one hundred trees of one or two kinds will in nearly every case be found more remunerative than if one hundred trees of fifty kinds were planted.

Gosport. James Groom.

INSIDE V. OUTSIDE VINE BORDERS.

This is an important question, made still more so when coupled with the instructive details in the matter of water, given by "J. C. C." (p. 8). But I think "J. C. C." is in error in estimating the extent to which borders wholly confined inside are approved of by the majority of those who have to deal with Vines. A belief that the roots of Vines will not stop in an inside border if they can get out is a fixed notion held by, I believe, the majority of gardeners; but, as I have before tried to show when this question has cropped up, where the roots of Vines leave the inside border for the outside, it is through their not getting fair treatment inside, either by the soil getting too poor to suit them, or its not having enough water applied—the latter much the more frequent cause of their absence inside. Vine culture, as carried out under glass in this country, cannot be reckoned a new pursuit, but it is tolerably clear that it is only beginning to be fully understood how much water the roots must have to satisfy them. And before going further, I venture to suggest that it is well to give merit where it is due; and Mr. Hunter's practice at Lambton, I think, may fairly be set down as the eye-opener as to the vast quantities of water Vines will not only bear, but require. The old cry about Vines getting too much water, so far as the growing season is concerned, is a huge mistake, provided always that it can pass freely away. I have had Vines with all their roots inside, through there being no chance of making any outside border, and found them improved by much more water than is generally supposed ample, but I did not take means to show reliably the quantity I gave, as "J. C. C." has done by his important and valuable calculation, which is evidence of the immense quantity of moisture Vines will bear. I think it may be safely said that in the case of Vines with their roots wholly confined to inside borders, that there are more that do not get half the water they should have than that receive enough. And in the case of the far greater numbers that have both inside and outside borders, the proportion that get enough to keep their inside roots plentiful and active bears but small comparison to those that go very much short. Yet although, with reasonable attention to the wants of the roots, there is no difficulty in keeping Vines healthy and fruitful for a long period in inside borders, still I think it is a mistake to altogether so confine them, unless where there is no opportunity of giving them more or less outside space in addition, especially in the case of late sorts that are wanted to hang on the Vines up to the end of the year, for with such, when wholly dependent for moisture on the roots so confined, it is no unnsual thing to see the

Berries shrivel, unless there is more moisture present in the soil than most growers care to have, with a view to prevent the berries moulding. I have seen this occur several times by the middle of November, and with growers who stand well to the front. When this mishap takes places there is no remedy; no amount of water given after the berries begin to shrivel will cause their plumping up again, Dear ground compels many of the London market growers to cover the whole space they possess with glass, except just enough for path-room to move on, and under such circumstances I have seen in a house several tons of Grapes that had to be at once sold, making a shilling or two a pound less than they would if they could have been kept longer. Some of the growers who have the roots of their Vines all inside in this way take the precaution of giving a good soaking soon after the late crops are ripe, covering the border over with 6 inches of clean, dry straw to help to keep down the moisture. Where there is even only a limited extent of outside root space, not more than 6 feet or 8 feet in width, it is sufficient to prevent shrivelling in the way I have described, without having recourse to watering the inside border at a time when it is better for the Grapes to have the atmosphere dry. The 3 inches of drainage which "J. C. C." speaks of is, no doubt, as effective as double or treble the amount would be, so long as it keeps from getting clogged at all—a condition that depends a good deal upon how it was secured when the border was made. A layer of good tough turf, such as is generally used for the purpose, if carefully laid on the drainage material, will usually keep the soil from getting down so as to prevent its acting. But with such repeated drenchings as needful, and that "J. C. C." gives, there is a chance of the soil getting down amongst the drainage, which I should have liked better had it been 6 inches or 8 inches deep, especially with the depth of border named, and which few who have had much to do with Vines will look on as too deep. Presuming that "J. C. C." has correctly calculated the

Quantity of water he has given, it is an instructive lesson, as the amount applied is equal to considerably over half a million gallons per acre per annum. I should not suppose that there is one inside Vine border in ten throughout the country that gets more than a tenth of what "J. C. C." has given; neither are they likely to get anything near as much, unless there is the means of running it on by hose.

There are a good many things in gardening where a course that seems theoretically reasonable

is not borne out in practice, one of which may be named—the objection to the roots of Vines occupying both outside and inside borders. I have never experienced any ill effects from the different conditions they are thus placed under, and some of the oldest and still vigorous and fruitful Vines I know have their roots so located.

T. Baines.

BLENHEIM ORANGE APPLE.

"J. C. B." states (p. 32) that this Apple realises 6s. per sieve. Who is willing to give that price for it? In the same paper Mr. Frankum asserts that he received but 3s. per bushel for fine Blenheims, a statement which I can well believe, as I was told by one of our best growers, living within twenty miles of London, that he sent up a fine sample of picked Blenheims, and that the price which he received for them in Covent Garden was half-a-crown a bushel net. Nobody ought to pay 3s. per dozen for American Apples while the best Blenheims realise less than that for a bushel. Indeed, my friend told me that rather than sell them at that price he would give them away, or use them himself. Our market farmers are told to plant Apples and other fruits; and peradventure they read of great prices being made; but when it comes to a question of calculations, based on the amounts actually received by the growers, there is very little chance of a farmer succeeding in districts where fruit is not grown. I write from experience, because a farmer in my own neighbourhood seriously mooted the question to me a few weeks ago; and after we had talked it over it was deemed impracticable. Suppose he planted a few acres with Apple trees, the portion planted would have to be fenced in, as all the market farms in this part of Essex are practically fenceless. It would have to be a good fence to prevent the orchard from becoming the happy hunting ground of all the boys of the parish, and they are both numerous and formidable. Then how long would a farmer have to wait before his Apple trees were large enough to pay for the fence and the price of the trees? The late Mr. Green, of Ilford, or his employer, the late Mr. Thompson, could have answered the question.

Some eighteen years ago the late Mr. Thomas Rivers, of Sawbridgeworth, and some others proposed to form a company to grow fruit and vegetables on the Clement's estate at Ilford. Owing to the want of support, the scheme fell through. However, the want of funds did not prevent Mr. Thompson trying what could be done on a greatly modified scale. Actiog on the advice of Mr. Rivers, several acres of very fine soil were planted principally with Apple trees. I am quoting from memory, but I fancy Mr. Green told me they planted 600 Orange Pippin trees, as many Wellingtons; while Blenheims, Lord Suffields, Reinette de Canadas, Cox's Pomonas, Poston Russets, and other sorts were planted in quantity. Much smaller numbers of Pear trees were planted, the sorts being principally Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré d'Amanlis, and a few other varieties, of which Doyenné du Comice and Beurré Superfin were thought to be the best. Between the rows of trees Strawberries and vegetables of various sorts were planted. The trees stood 6 feet apart at first, and when they became crowded every alternate row was taken out, leaving them 6 feet by 12 feet. Subsequently, every alternate tree was taken out of the rows, leaving them 12 feet by 12 feet. The ground was Mr. Thompson's own, and even with no rent to pay the experiment up to his death, which took place about fourteen years after the trees were planted, resulted in a considerable loss.

I visited the orchard in question several times during the season, and frequently heard Mr. Green express his opinion upon it. If a tenant farmer had tried such an experiment, we would have had an illustration of the old adage, "While the Grass grew the horse starved," verified. Some one may fancy that in this case the trees were badly managed, but I am in a position to assert that they were under good management; and Mr. Green, who had the supervision of them, was a most enthusiastic cultivator. The varieties were such as have usually brought the highest price in the market. I may also say that the thinnings of the orchard were all planted to increase its extent. Therefore there must have been ultimately about a dozen acres. The trees might probably have borne paying crops after the first fourteen years; but on the death of Mr. Thompson the ground was sold for building purposes, and thus the experiment ended. When this experiment was tried much was said about the great profits that might be made by growing fruit. So many trees a yard apart (4840) would plant an acre. In one, two, or three years each tree would bear so many Apples, which would sell for so much. Say a peck from each tree, 4840 pecks, or 1210 bushels, at 5s. per bushel, £302 10s. per acre; even at half-a-crown a bushel £150 would be a tempting figure; these are drawing-room fancies. Plain matter of fact in the form of practical experience dissolves them into thin air.

J. Douglas.

VINE BORDERS WITHOUT SOIL.

I have been reading in more than one paper lately of Vines at Wilton House, that are said to be growing "without soil," and I have also heard of them from other sources as well. It will be remembered that some time ago Vine growers were startled by the same idea from another quarter, but in that case the Vines grew in a border composed solely of cow manure and rotten leaves, and great things were anticipated from the experiment, but it was allowed to drop out of sight, we believe, because it did not answer expectations. The experiment at Wilton House, however, is of a much more intelligent and suggestive description, and opens up two or three aspects of Vine border treatment that have been much discussed already. Everyone acquainted with Vine literature knows that in mostly all authoritative receipts for a border, bones, lime rubbish, charcoal, and broken bricks figure rather prominently. At a large garden where I was once Vine borders were always being made and unmade every year, and many composts were experimented with, but in all of them the above four ingredients entered to the extent of a third or a fourth of the total bulk, at least, and it used sometimes to be said, half in a joke and half in earnest, that if such large quantities of lime, bricks, bones, and charcoal were required it might be as well to form the border of these alone. This, we learn, has now been done. Mr. Challis, of Wilton, planted, I read, a set of Vines in a border composed of these in about equal parts, and with the result that the Vines in that border "have for years afforded fruit superior in quality to all others in the garden."

These Vines are grown alternately with others growing in a border of soil of the ordinary description, "but the rods are the finest and hardest, and the Grapes invariably the best that are grown in the soilless border." Now, if this be correct, it is an important discovery. For myself, I do not doubt that Vines will grow in a compost of pounded brick, charcoal, lime, and bones, for many kinds of plants will thrive for a considerable time in any of the three first alone. It is a common thing to find forest trees growing almost exclusively among rocks, the roots having penetrated the fissures to a great depth, where no soil, in the common acceptation of the word, is to be found. I have seen many such examples, and I think we are indebted to Sir Walter Scott for the discovery, for he was the first to draw attention to the fact in the line in which he describes an oak that had "cast anchor in the rifted rock." It is extraordinary the kind of rooting medium that trees will thrive in. About here many heaps of pure shale (a kind of inferior coal) has accumulated in the neighbourhood of old disused coal shafts. These heaps (hills they are called locally) are many feet deep, and have been planted with Larch and other trees, which grow quite freely, and now, but for the peculiarly artificial-looking shape of the mounds, no one would suspect them, from the appearance of the trees, to consist of anything but soil, of which they contain none. I am quite prepared, therefore, to believe that Vines may grow and do well in a compost of materials that contain in abundance all the elements of Vine food, and which are at the same time harmless when mixed in the right proportions. But a main question is, what about water? Growers now vie with each other in boasting of the thousands of gallons of water they apply to their Vine borders, but how is a border constituted on the principle of a sieve to be kept at the saturation point. True charcoal and brick have a great capacity for moisture, and if they are only ground down finely enough they might answer well enough, but we want further information on that point. We need to know more about Mr. Challis' border and about the Vines—their age, growth, and weight of crop, and other matters. I do not like the way of conveying an idea of anything to the public by saying such and such a thing is better than something else, of neither of which the public have any precise information. This is just where we are fast in regard to the experiment at Wilton House, and one's misgivings are not relieved by reading at the end of the report of the experiment and of its successful issue that it is to "be remembered that success of the kind indicated can only be achieved by masters in the art of Grape culture, and amateurs and lovers of change generally would not act wisely by rushing headlong into a similar method of culture. If they have good results in the good old way let them be content to travel in it; it is only on a small scale, and experimentally, that these innovations can be wisely indulged, however well the above-named practice has answered at Wilton."

It will appear to the general reader that if any gardener succeeds better by one plan than another there is no reason why others should succeed in the same way. For my part I can get charcoal and lime rubbish, &c., more easily than good turf. I would want proportionally less of it, and I might put the practice to the test if it was not for the last few sentences I have quoted. I thought nothing of cow manure and leaves at the beginning, and said so, because it involved irrational principles, but Mr. Challis' borders do not, for although they are extremely artificial, they are based upon a more reasonable foundation.

J. S. W.

Pear Beurre Rance.—We are now, second week in January, sending a few very nice fruits of this Pear to table for desert. They are of fair average size, and not so gritty as in some years; the flavour, too, is very good indeed for a late Pear. We always get a good crop of this Pear on a west wall, but some years it does not ripen sufficiently well to send to table; when such is the case it is valuable for culinary purposes.—J. C. C.

Lord Derby Apple.—We find this to be one of the most profitable of kitchen Apples, but if we have the true variety it does not at all resemble the Hawthornden, and is past its best long before Christmas. The trees rarely fail to bear, and the majority of the fruits are very large, conical in shape, and much ribbed. The colour is deep green when first gathered, and this, as the fruit ripens, changes to a rich orange-yellow. It is a first-rate Apple, and ought to be included in every collection.—I.

5122.—**Apple trees and Strawberries.**—"G. H." (p. 10) asks which are the best Apple trees for gardens, bush or espalier, to which I would reply that much depends on the extent of the ground. If the garden is large and roomy, bushes are preferable, as they require no training or support, and, owing to their having a greater spread of branch and more leafage, they bear the most fruit. To keep them dwarf and restrict their growth, they ought to be on the paradise stock, which causes most sorts of Apples to form plenty of buds at an early stage and makes them prolific. For a garden of circumscribed space espaliers are desirable, as they require but little room and may be planted so as to form a background or boundary to borders or quarters, and thus define and give character to the ground. The sorts of Strawberries that are the most serviceable

to grow are Keen's Seedling and Vicomtesse Hericart de Thury for first gathering, then President, Sir J. Paxton, and British Queen, to be succeeded by Elton, which is the latest of all, and very fine for preserving.—S. D.

FIXING BLOWING SANDS.

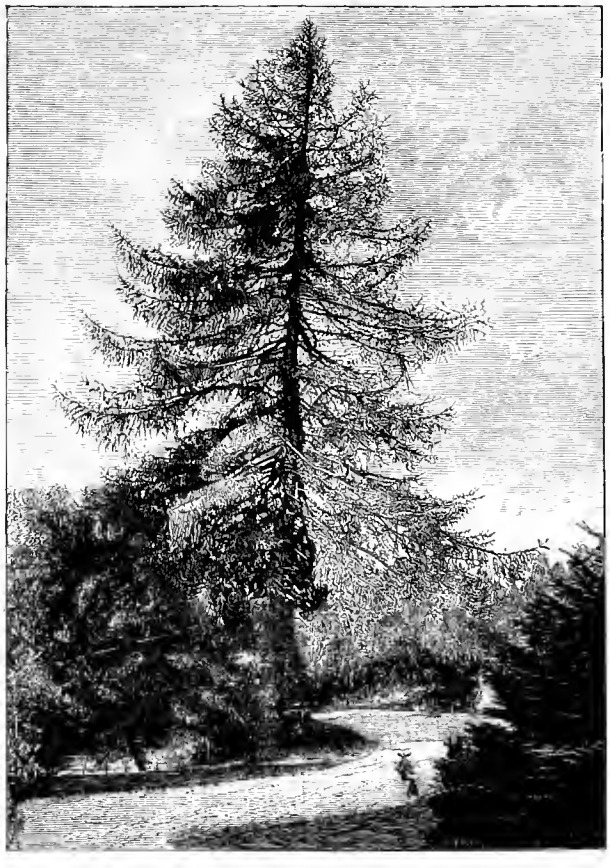
In parts of the country where the land borders the sea large quantities of sand are often blown up by the wind. This, in some instances, may not go far inland, but may form hills or ridges on or near the part on which it was first deposited. More particularly is this the case when the coast is mountainous; but where level or nearly so, the sand gets distributed over a large extent of surface and the land becomes ruined thereby for all useful purposes. Where the soil is good and fertile, as it often is near the sea, the loss on some estates from this cause alone is very great; sometimes during a gale many acres will be covered in one night. A seaward wind will at times blow a good deal of it back, but, speaking from observation of rather a large tract of sand, I must say that I never saw this happen to any great extent. I am acquainted with a good many acres of land which have been covered with sand in recent years, but I do not know of one acre which has been entirely or permanently cleared by wind blowing the sand back into the sea. It may be shifted about here and there, and this shifting tendency makes sea sandhills very difficult to deal with, as a piece planted or sown to-day may have 3 feet or 4 feet of sand blown over it to-morrow, or one's work for weeks may be destroyed by sudden squalls. The question of dealing with this

Land destroyer is an important one; but where large tracts have been covered, little or no hopes need be entertained of clearing them. The only chance is to endeavour to convert the sandy deposit into useful vegetable ground. Many modes of doing this have been from time to time proposed and tried, but the numbers of sterile sandhills still to be seen on various coasts indicate that any attempts made to clothe them must have been unsuccessful. Those acquainted with the history of sea sandhills know that Brémontier fixed 200,000 acres of sand on the shores of the Gulf of Gascony by means of Pine trees, but many years ago Mr. C. R. Mansel Talbot, the owner of the Margam estate, tried the same plan, and the result was a failure. Probably the climate of the south-west of France was more congenial to the growth of such trees than that of the Welsh coast, but, be this as it may, there are plenty of sandhills here on which to experiment, and this Mr. Talbot has been doing for some considerable time back. His

Field of experiments extends along the coast from Morfa Colliery to the farm of Morfa-Bach, a distance of from 2 miles to 3 miles, and in extent the sandhills occupy over 1200 acres. On the land side of this sand fences of upright boards, wattled hurdles, and rows of brushwood have been tried, but one and all of these only acted as temporary impediments to the sand, collecting it in ridges until the top was reached, when it blew on as before. Seed-sowing was then tried. Many bushels of Broom seed were sown, but no plants made their appearance. Many kinds of hardy Grasses recommended for the purpose by seed firms and others were also tried, but the few which managed to germinate and spring into life soon perished. Weeds, which are said to luxuriate where nothing else will exist, did not do so in this case. Sackfuls of seed of Nettle, Dock, Thistle, &c., were collected in the byeways and sown as carefully in the sands as if they had been pedigree wheat, but without result; very little of the seed was allowed to remain quiet long enough to germinate. At that time accounts reached us of the wonderful crops of Prickly Comfrey which were said to be secured from waste places. It was stated to do well where nothing else would grow, and we therefore thought the sandhills would just be the place for it. Only a limited quantity was planted, but the plants never increased in size, and after existing for a time disappeared. At last Mr. Talbot suggested transferring some of the

Grass which grows here and there on the mounds to the bare spaces, and this has been done now for three years with success. This Grass is commonly known as Bent, and botanically as Calamagrostis arenaria (syn., Ammophila arenaria), and is very hardy. It grows in the pure sandhills with the greatest luxuriance, and the greatest degree of heat or drought or the severest cold does not affect it in the least. In hot summer weather, when the sand is so warm that one can hardly bear it, this Grass remains healthy and green, a result doubtless due to its roots running down many feet in depth. On many of the mounds this Grass grows in close masses, and from these the young plants are taken for fresh plantations. They are dug up with a spade and with a few roots attached to them. At the same time holes are made about 3 feet apart all over the bare surface of the sand with an iron-pointed dibble. This implement is about as thick as one's arm, and makes a hole from 1 ft. to 18 inches deep. There is a projecting piece of iron at this distance from the point, by which it is driven down with the foot—no difficult matter—into the loose sand. Into each hole a handful of the Grass is inserted with the roots as far down as they can be got, and then the hole is closed by the heel of the planter. During the last three years over 500 acres have been thus planted here at a cost of about 7s. per acre. That planted three years ago on the most sterile and unsettled surfaces is now a verdant mass which no wind or storm can effect. The planting is done between September and April; we have frequently planted patches of four acres and five acres without losing a single plant, and it is only a small corner here and there which we have ever had to plant a second time. Altogether, this plan of dealing with sandhills is superior and cheaper than any we have ever seen tried or read of, and its success is unquestionable. J. Muir.

Margam Park, Taibach, Glamorganshire.



The "Stewart" Larch at Bonskeid. Height, 97 feet; girth, 12 feet at 1 foot from the ground.

Books.

WOODS, FORESTS, AND ESTATES OF PERTHSHIRE.*

If the woods, forests, and estates of every county in the British Isles were dealt with in the same thorough manner as Mr. Hunter has in this work done those of Perthshire, we should be in possession of such an array of facts concerning arboriculture as would be invaluable to the present and future generations of tree planters. It is evident that the country at large is becoming more and more alive to the importance of tree planting and reafforesting, and the production of this useful volume corroborates the fact. It has a special interest not only for those who are immediately concerned in tree culture and the management of estates, but being popular in character, it may be read with interest by such of the general public as care at all for sylvan beauty. Every page of the book, and they number upwards of 500, is replete with interesting and valuable information respecting tree growth, and bears evidence of the large amount of labour and research which Mr.

* "Woods, Forests, and Estates of Perthshire, with Sketches of the Principal Families in the County." By Thomas Hunter, Editor *Perthshire Constitutional*. Illustrated. Perth: Henderson, Robertson, & Hunter; Edinburgh: Wm. Brown; Glasgow: Thos. Murray & Son.

Hunter has brought to bear on his work. He has gleaned quite a store of facts concerning woods and forests and their management from experienced foresters and others with whom his research has brought him in contact; consequently the book embodies a variety of opinions as to the methods of carrying out forestry operations.

In selecting the great midland county of Scotland as the basis of his work, Mr. Hunter was probably aware that it was the most important from an arboricultural standpoint. It was the landlords of Perthshire—notably the Athole and Breadalbane families and Mr. Menzies, of Culdares, who introduced the Larch—who were the first to carry into practice the principles of modern forestry, and to show to their brother landlords the importance of planting waste lands upon an extensive scale. It was in Perthshire, too, where the most promising of our newer coniferous trees first found a home, and it is there that the best specimens in Scotland are, as a whole, to be found. In tracing the work of these planters, therefore, Mr. Hunter is virtually tracing the history of Scottish forestry generally, and presenting us with a picture showing the vast changes which have been effected on the face of the country during the past one hundred years.

Not the least interesting and important chapters in the book are those devoted to the history of the county families of Perthshire and their estates. These properties include those of Athole, Blair Drummond, Monteith, Drummond Castle, Castle Menzies, Dupplin, Scone, Moncrieffe, Keir, and Taymouth, all of which are graphically described by the author. There are altogether nearly one hundred properties described more or less minutely, and as the work is the result of personal visits, some idea may be formed of its extent and the labour it must have entailed. In describing the places mentioned, Mr. Hunter has enumerated the most remarkable examples of fine tree growth connected with them, and generally he gives the present dimensions of the specimens, and the dates at which they were planted. The introductory chapter points out the solemnising influence of woods, their effect on the landscape, their climatic influence, and commercial importance. And after recounting the destruction of the woods during feudal times, Mr. Hunter proceeds to note the efforts at improvement, and refers to various Acts of Parliament by which planting was at one time made compulsory, concluding this interesting chapter with a statement of the acreage at present under wood, and the pecuniary value of the woods in Perthshire, which he estimates, at a low valuation, as nearly three and a half millions.

The book is illustrated by copious engravings of old or notable places of interest in the county. For the annexed illustration of the famous "Stewart Larch" at Bonskeid, planted by Dr. Stewart more than 100 years ago, and which we introduce here, we are indebted to Mr. Hunter. This fine tree was also illustrated by Mr. Michie, in his treatise on the Larch. Its dimensions are as follows: At 1 foot from the ground its girth is 12 feet, at 5 feet its girth is 9 feet, and at 12 feet it girths 8 feet 9 inches, while the height is 97 feet, and contains 190 cubic feet of timber. There is a useful index given to the old and notable trees mentioned in the work. This interesting volume forms a welcome addition to works on forestry.

BOOKS RECEIVED.

The Botanic Stand, by Thomas Twining. David Bogue.
Hardy Perennials, by J. Wood. *Bazaar* Office, 170, Strand.
Report of the Smithsonian Institution. Washington, 1883.
Variations in Nature, by Thomas Meehan. Salem Press, Salem, Mass.
Wright's Book of Poultry (popular edition). Cassell & Co.
Illustrated Book of the Dog, by Vero Shaw. Cassell & Co
Notes on the Genus Macrozamia, by C. Moore, F L.S Sydney.
Paxton's Flower Garden, vol ii., by Thomas Baines. Cassell & Co., London.
Bulbs and Bulb Culture, part 5, by D. T. Fish. L. Upcott Gill, 170, Strand.

NARCISSUS FARMING.

THERE may be, or there may not be, a great future for the British farmer in the production of jam; but beyond doubt the agriculturist must make the most of every market he can find a profit in. Possibly a hint may be taken from what is being done in the Scilly Islands. So well are these isles guarded from chilling winds, that only once in ten years or so are they covered with a mantle of snow, and then only for a short time. The problem the Scillonian agriculturists had to face was more particularly the limited land area available for the plough. True, there were 150 isles and rocks, but the cultivable soil only amounted to some 2000 acres. The farms were very small, and if they were to supply their tenants with the wherewithal to live as civilised man prefers to live nowadays, they must be made to pay to the full extent of their capability. New Potatoes were grown, and that with success; but if a frost did come to destroy the tender shoots that had boldly emerged from the black soil, it was all over with the year's agricultural prospects. One cold night was sufficient to install black care as an unwelcome yet undeniable guest in a score of homesteads.

Several years ago it occurred to the late Mr. Augustus Smith, whose intelligent interest in horticulture is well known and has left a permanent monument of itself in the Abbey gardens at Tresco, to test the capacity of the island soil for producing the Narcissus. The plant was introduced and grown more or less widely, scarcely with hope of profit at first. It is probably not more than six years ago when the first consignment of Lilies from the Cassiterides found their way to Covent Garden. Now some of the large growers at Scilly have as many as 200,000 bulbs, each supporting on a long stem the beautiful flower so much valued for house and church decoration. What this may mean in the way of prosperity can be roughly estimated when we learn that the Narcissus has sold for 1s. 6d. per bunch of a dozen in the closing days of December. Also it is to be noted that the bulbs multiply rapidly; they double, treble, and even at times quintuple in one year. As a climax to all this good portion, there is no reason to suppose that Scilly need fear competition of a dangerous sort.

Holland devotes thousands of acres to the cultivation of Narcissus bulbs, and is, of course, to be approached only with trembling in the matter of Tulips; but Holland is not ready to send flowers to London so early in the year, and for a long time to come must, perforce, turn a deaf ear to the pecuniary allurements of Covent Garden. The Riviera di Ponente and the gardens of Mentone might alarm the Cassiterides; but then the supply from the region of the Esterelles is stopped, tapped, and even exhausted at Paris, where flower prices are high; and even if any Soleil d'Ors or Paper-whites get through to London, they are surpassed in beauty and in favour with "the trade" by the Gulf Stream Narcissus. Guernsey grows Lilies; but the Channel island, although it is well ahead with its Radishes, does not come up to time with Scilly in its consignments of this flower. Consequently, for the early Narcissus, Scilly has practically no rivals in the field.

The Narcissus farm at Rocky Hill is well worth a visit. The land devoted to the flower is fenced with deep, thick, dark green hedges of Pyracantha, all trimly cut, which form also a pleasant contrast to the bright tender green of the Narcissus leaf. Here the plant grows luxuriantly in long rows of beds, and where the shelter is most complete the stalks are sometimes a yard in length. Nothing is much pleasanter for those who care for flower gathering than to spend an hour or two plucking the fresh crisp stalks. They are set side by side in deep, round, gathering baskets. Thus collected, they are conveyed to the farmhouse, sorted, and tied in bunches. A dozen stalks go to a bunch, and some little experience is necessary to attain perfection in the art of tying them up satisfactorily. Fifty or sixty or seventy bunches make up each basket, which is then ready for forwarding to Covent Garden.

A prettier farming industry it would be hard to imagine. An additional charm lies in the fact that all these fair flowers are blooming when the days are shortest and dreariest. Then there is something of a charm in the reflection that so much floral beauty flourishes within a stone's throw of the Atlantic when in its wildest and stormiest moods. The hill-side nooks in the Cassiterides were always delightful; but they are more so now that every yard of favouring soil is jealously guarded as the home of a flower hardly anywhere excelled in simple grace and loveliness. The Narcissus has brought brighter days to the Scillonian farmer; and if the farmers of the larger island keep their eyes open, jam, or something else, may do for them what the Narcissus is doing for Scilly.—*St James' Gazette.*

QUESTIONS.

5129.—**Apple trees**.—What is the best treatment for canker in Apple trees?—G. H.

5130.—**Strawberries**.—Should I dig between the rows of Strawberries, or should I leave them alone?—G. H.

5131.—**Zenobia speciosa pulverulenta**.—Will you kindly inform me where I can obtain a plant of this shrub, as figured by you on December 29?—W. F. J.

5132.—**Wall climber under trees**.—Will someone kindly give me the name of a wall climber that would thrive under trees? I wish to clothe a wall and would like a quick grower.—A. M.

5133.—**Scale on Peaches**.—Can any of your readers tell me the best way to get rid of brown scale on Peach trees? I have tried different sorts of insecticides, but without success.—YOUNG GARDENER.

5134.—**York and Lancaster Rose**.—Would anyone kindly inform me as to how many varieties there are of this old historic Rose, and where their descriptions may be had, not having been able to find any notice of them in any catalogue?—J. H. SHARPE, 21, *Herriet Street, P.S. Glasgow.*

5135.—**Insects in soil**.—Is there any process by which the soil in which very small seeds are sown can be cleared of insects? If there is a remedy, a knowledge of it would be invaluable. The insects keep burrowing in the soil disturbing the seeds and covering them to a greater depth than is needed.—PRACTICAL GARDENER.

5136.—**Sophronitis grandiflora**.—Will any successful grower of this kindly tell me its proper treatment? I have two pans of it potted in lumpy fibrous peat. Sphagnum, and charcoal raised well up above the rims. At present they are in a temperature of from 60° to 65° by day, with 5° or so less by night, and kept rather dry, treatment under which they annually make good growths, but fail to flower. They are now commencing to grow.—Y. G.

5137.—**Iron tanks**.—Does water from iron tanks injure Cape Heaths and New Holland plants? My employer had two, holding about 1000 gallons, sunk in the ground to receive the water from the houses. They were covered over with planks two years ago. I have an idea that this water is injurious to the plants. The tanks were previously used as boilers. I shall feel greatly obliged to any of your correspondents who will kindly give me their opinions on the subject.—W. L.

5138.—**Fermenting material in Peach houses**.—I am deficient in the way of heat in the early forcing Peach house. I propose increasing it with short stable manure, just throwing it in a heap in the house, so as to maintain a temperature of about 55° in the day time and 40° at night. Is there any danger of injuring the trees by this method of forcing? They are not yet in bloom. Also would the hot manure injure the bloom at the time of setting?—T. S.

5139.—**Ferns**.—Will any of your correspondents kindly give me information on the following points? I have bought two plants of Todea superba. I think they require repotting; how often should they be repotted? What soil do they require? Should the pots be well drained? In potting should the mass of roots which now covers the heap of soil be covered with the fresh material or not? Any other information respecting the culture of this fine Fern will be acceptable.—A LOVER OF FILMY FERNS.

5140.—**Bud-dropping in Peaches**.—Will any reader of THE GARDEN kindly say why a Peach tree which I have is dropping its buds? It bore no fruit last season, but made a vigorous growth. It is planted inside on the front of the house on a good roomy border. It was liberally supplied with water and well syringed, owing to its being infested with red spider. At the fall of the leaves, which fell rather green, I turned on a slight bit of heat to try and ripen the wood, but the latter has not ripened well. The house during the whole time was given all the air possible, but no roof sashes were taken off. During the frost some heat was allowed in the house, there being boxes of cuttings and other plants in it. A tree planted in the same house on the back wall looks all right. I find nests of red spider here and there in the old tyings; and I would also like to know if I can wash the tree over with a solution of Fir tree oil; if so, what proportion of it may be allowed to the gallon of water, or what is the best dressing I can give in order to get rid of the spider without injury to the tree?—INQUIRER.

ORCHIDS IN FLOWER.

Lælia anceps (*J. Speed*).—A very good form, almost identical with that named Barkeri, which is considered to be the darkest coloured variety.

Phalænopsis Schilleriana.—We have open just now a beautiful plant of this Phalænopsis. One branched spike carries over 70 expanded blooms. We had also in bloom some days ago Odontoglossum syringoglossum and the most beautiful Lycaste Skinneri alba (true), with a very large pure white flower.—Vervaet et Cie, *Ghent.*

White Cattleya Trianæ.—A flower of this choice Orchid has been sent to us by Mr. Elliott, of Selly Oak, together with a very fine variety of Cattleya Percivaliana—further evidence of its worth and beauty. It is somewhat singular that out of the thousands of Cattleya Trianæ plants that are imported and flowered in this country so few white ones crop up.

Dendrobium aureum.—No Dendrobe can vie with this one as regards perfume, which is simply delicious, sweeter even and more powerful than that of Violets. The Orchid house at Kew is just now filled with its fragrance. Its quiet primrose-yellow flowers, with tawny lips, are not so attractive as those of other Dendrobes, but the plant is indispensable in every garden where the cream of winter-flowering plants is sought for. Its other name is D. heterocarpum.

Cattleya Warscewiczi delicata.—A three-flowered spike of this exquisitely beautiful variety has been sent us by Messrs. Thomson and Son, Tweedside Vineyard, Clovenfords. We call this form Warscewiczi delicata, as it comes nearest to the Cattleya known under that name as far as colour is concerned, but the flowers are larger and the sepals and lips broader, the former being 2½ inches across, and the whole flower measures just upon 6 inches in diameter. The colour is the most delicate mauve, with the labellum washed with golden yellow in the throat.

Dendrobium Findleyanum.—This is a veritable gem amongst Dendrobes, and one that should be highly prized by those who possess it, especially as it is by no means a common plant. The delicate tones of the flowers are distinct from those of any other Dendrobe. The sepals and petals are waxy white, flushed with delicate pink; while the broad, shell-like labellum is yolk-of-egg colour, margined with white. In growth, too, it is unmistakeable, the stems, or rather pseudo-bulbs, being distinctly separated into nodes. It is a dwarf and free grower, and an abundant flowerer. Some fine blossoms of it have been sent to us by Mr. Macdonald, Woodlands House, Perth, together with blossoms of the superb hybrid D. Ainsworthi and early blooms of D. Wardianum.

Sale of Orchids.—On the 11th inst. a large sale of Orchids, numbering about 800 lots, from Messrs. Sander & Co., St. Albans, took place at Messrs. Protheroe & Morris' rooms, Cheapside. Some unusually high prices were obtained for a few of the lots, the most noteworthy being 100 guineas for an enormous mass of Cattleya Percivaliana, said to be a very fine variety. Two fine plants of the new Saccolabium illustre, a fine variety of S. giganteum, fetched 21 guineas and fifteen guineas respectively, and a mass containing 100 bulbs of the new Cattleya Gaskelliana fetched 16 guineas. All the plants were in excellent condition, and realised good prices.

Orchids from Perth.—Amongst a beautiful gathering of seasonable Orchids sent us by Mr. Macdonald from his choice collection at Woodlands House, Perth, the following are the most noteworthy, viz.: Phalænopsis Stuartiana, a fine branching spike, representing a variety remarkable for the profusion of spots on the sepals, and with flowers almost as large as those of the nobilis variety; Cypripedium Haynaldianum, a near neighbour of the commoner C. Lowi; Oncidium excavatum, a showy Oncid, and one well worth growing on account of its distinctness; Masdevallia ignea, undoubtedly the most useful of all the species for winter flowering, being so bright and persistent and a free grower; Cypripedium barbatum nigrum, the finest of the several varieties of this well-known Lady's Slipper, the pouch of the flower being about twice the ordinary size and of a shining purplish black; Lælia autumnalis atrorubens, an uncommonly deeply coloured form; Odontoglossum Rossi majus, a fine cluster of large beautifully-colonred blooms; Lælia harpophylla, an indispensable Orchid where variety of colour is desired, the brilliant orange-vermillion tint of its blossoms being so unusual amongst Orchids; and the same may be said of Sophronitis grandiflora, which Mr. Macdonald appears to grow admirably.

New Cattleya.—The following is a description of a very fine Cattleya just flowering with me the first time; the petals are fully 3 inches wide and the sepals are 1¼ inches. These are of the purest white; the back sepal stands erect, thus making the outline of the flower almost a circle; the lip is 2 inches either way, and is slightly shaded with amethyst throughout its entire length, with a large yellow blotch in the throat. Altogether it is a most superb Cattleya.—H. James, *Castle Nursery, Lower Norwood.*

New Lælia.—At Wednesday's sale in Stevens's Rooms there was a marvellously fine new Lælia put up for sale from Messrs Backhouse & Sons, York. The flowers are of surpassing beauty, and may be best described as a magnified form of L. autumnalis, though some regard it as a hybrid between L. furfuracea and autumnalis. The flower is twice the size of the ordinary forms of either these species, the sepals and petals being very broad and flat, of waxy texture, white, heavily flushed with crimson-lake. It has been named, L. autumnalis grandiflora, an appropriate name, though in the catalogue it was stated that the plant was worthy of a more distinctive name, such as L. intermedia. The plant was a fine one, possessing four leading growths. We understand that it was not sold.

Sale of flowering Orchids.—On Wednesday an important sale of Orchids in flower took place at Stevens's Rooms, Covent Garden. There were about 370 lots in the sale, which included some choice things, such as the white Lycaste Skinneri, which fetched £12 12s.; Phalænopsis Dayana, £6 6s.; P. intermedia (small plant), £3 10s; Odontoglossum Edwardi, a fine plant with tall, branching spike, £7; O. Andersoni, a fine form, £9 9s.; Cypripedium villosum, well grown and profusely flowered, £9 9s. There was also a singularly fine Oncidium, which bore a long branching spike, carrying numbers of large olive-brown flowers; no one seemed to know what species it was; therefore, it is either new or very rare; it fetched £7 7s. Messrs. Backhouse, of York, sent a fine collection, consisting chiefly of Lælia autumnalis atrorubens, which they grow so admirably. Some fine masses, carrying a dozen or more spikes, were the centre of attraction, though the largest only fetched £6 16s. 6d.

NOTES OF THE WEEK.

National Chrysanthemum Society.—Such is the title by which the Borough of Hackney and Stoke Newington Chrysanthemum Societies will henceforward be known. From a circular sent to us by the secretary, we learn that it has long been considered desirable that the Chrysanthemum should have some central organisation as regards exhibitions of this flower, and it has, therefore, been decided to found a society under the above name which would embrace the Borough of Hackney Society and expand its sphere of operations so as to justify the term "national." It is to be hoped that with the formation of this National Society, the much-needed reform in Chrysanthemum exhibiting will receive attention, and also that the plants will be grown in a more natural way than they hitherto have been.

Early Tulips.—In a paper on the Tulip, read the other evening by Mr. F. Robinson, before the Manchester Horticultural Improvement Society, he said, "that an approximate estimate of the numbers of early Tulips sent from Holland annually of a few of the leading sorts would be about as follows: Scarlet Duc Van Thol, 800,000; White Pottebakker, 300,000; Golden Prince, 500,000; White Queen Victoria, 500,000; and Thomas Moore, 100,000. The total number of flowering bulbs of the Tulip yearly exported by Dutch florists amounts to over 5,000,000 bulbs. The commercial value for a flower at the present day of a new variety of early Tulip, if of unusually fine quality, would be about £1, being only about one-tenth the value of a new Hyacinth. The reason for this difference is that it would take fifty years to get up a stock large enough to send out; while with a Hyacinth, which multiplies rapidly, the same result could be produced in ten years.

English flowers in Borneo.—The following is from a paper read by Dr. Houghton the other evening before the members of the Horticultural Club, in Henrietta Street, Covent Garden: "The flowers I have grown are of Roses the Tea sorts, including Maréchal Niel, Gloire de Dijon, and many others, all of which did well and flowered in great profusion. The soil, however being sandy, had to be strengthened with burnt earth and cow manure for the better sorts; but there are many beautiful kinds growing almost wild which attain a great size both of flower and tree, and whole hedges may be seen covered with a profusion of flowers scenting the air with their perfume. I have also grown from English seeds or bulbs plants of Portulaca, which does splendidly, Phlox, Lobelia, Petunia, Pelargonium, Gladiolus, Begonia, Gloxinia, Eucharis, Coleus, Bougainvillea, Balsam, &c., besides native flowers innumerable, the names of which it would take too long to enumerate, and others imported from India and elsewhere. The Pitcher Plant or Monkey Cup grows in great variety and to a large size, some of the flowers holding as much as a pint. The Caladium also grows well, and Coleus and Begonia are found growing wild on some of the mountains. Ferns I need not say grow in immense variety and to perfection, while Orchids of every kind and hue flourish in abundance, having found there a natural home.

Birds and berries.—It is very certain that birds do not always choose severe weather for their attacks on berries, for in a few days they completely cleared our trees of an abundant crop. This was especially so in the case of hips on the Sweet Brier and berries on the Cotoneaster microphylla and on C. Simonsi. Even sparrows and chaffinches attacked these with vigour, leaving the refuse on the ground for us to clear up, and the clearing was done so quickly that I was hardly prepared to see the trees bare so soon. Holly berries, though not abundant, have not as yet been disturbed. In Apple orchards birds had a grand feast this season. As the Apples laid in heaps, the latter were often quite black with blackbirds eating them.—J. C. C.

Will Messrs. Dammann & Co. kindly send us their full address?

Violets (*F. E. C.*)—Try Mr. Ware, Hale Farm Nursery, Tottenham, London.

Lattice Leaf plant.—Enclosed is a leaf of Ouvirandra fenestralis. The plant I have bears about 60 leaves on it; some of the leaves are 4 inches longer than the one I send. It is growing in a pan 10 inches across and 5 inches deep.—E. Thornhill, *Heaton Nursery, near Manchester.*

*** A very fine leaf, about 1 foot in length and well developed. Perhaps our correspondent will describe his mode of treatment.—Ed.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*H. H. Wood.*—Senecio Petasites. We cannot name the shrub from the twig alone. It appears to be Lonicera Standishi.——*Mrs. C. R.* (*Osborne*).—Linum trigynum.——*Constant Reader.*—No. 4 (sent last week) is Epacris exserta, native of Tasmania.——*T. W. T.*—Acacia Farnesiana.——*W. H. M.*—1, Bignonia Pandoræ (Bot. Mag., 865); 2, Eryophyllum calycinum.——*Mrs. Kelly.*—Epimedium pinnatum (with root). Send Azalea when in flower.——Plants in deal box (no name)—1, Lælia anceps; 2, apparently Dracæna gracilis; 3, Phlebodium aureum; 4, Cypripedium insigne.——*T. S. Moss.*—A species of Lycaste, probably Schilleriana.

No. 636. SATURDAY, Jan. 26, 1884. Vol XXV.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WINTER FLOWERS ON THE RIVIERA.

ON entering Italy, by the Goeschenen-Airolo tunnel on the St. Gothard line, it is strange to find how brown, dry, and withered up by frost and drought are the southern slopes of the Alps this winter, when all to the north is moist and green. Still more welcome, then, is the warmth and verdure that greet one on reaching the shores of the Mediterranean, where no stormy blast or withering frost has as yet (mid-January) touched any tender plant in the more sheltered bays.

Feasting one's eyes on the blaze of colour, so welcome to English eyes wearied of greys and greens, the mass of crimson monthly Roses is glorious, and the abundance of other Roses is decidedly greater than usual; the individual blooms of such sorts as Maréchal Niel, Gloire de Dijon, Safrano, Souvenir d'un Ami, Rêve d'Or, all exceed in size and beauty the winter standard. Habrothamnus Newelli and fasciculatus are rich, glowing bushes of red and scarlet. Datura arborea hangs its great white trumpets in profusion, singularly free from any bruise or stain. Salvias, Echeverias, Anthemis, Iberis, and a host of other well-known flowers deck the borders, and what surprised and pleased me most, a large bush of Clerodendron fragrans, fully 3 feet through, is well covered with its fragrant heads of flower and fresh green leaves, showing clearly that all who stew this plant in close stoves in England are doing it a great injustice, and robbing themselves of a great pleasure. Beds of Polyanthus Narcissus, edged with the pale grey Vinca acutiloba spraying over into the bed among the upright leaves and white and gold flower-heads, give a very charming effect worthy of imitation at home; and this Vinca, it should be noted, flowers more abundantly than the larger common form of V. major. On sunny walls Bougainvillea spectabilis already shows its purple bracts, and Heliotropes scent the air in every garden. Marie Louise and Parma Violets this year are in much greater beauty than the various varieties of the purple Violet that enjoy a little more moisture and less sun, and Camellias also seem as if a respite from a cloudless sun would be welcome. The effects of last spring's severe snowstorm and frost have been outgrown incredibly; it is only by examining closely that any trace can now be found. Even such tender trees as Ficus elastica and F. australis have reclothed themselves thickly with fresh leaves and shoots, and now look all the better for the severe check they received. Owing to the absence of any rain this winter, Anemones and many other wild flowers are so far conspicuous by their absence, but I shall hope to report more fully hereafter. E. H. WOODALL.

Plants in bloom near Dublin.—Newspapers of all kinds are and have been teeming with instances of the mildness of the season, and at the risk of increasing a perhaps already too large collection of examples of that fact I submit the following: On this day week (16th inst.) I saw a Laburnum in almost full flower near Dundrum, County Dublin. The bunches were very small, but so numerous as to impart quite a yellow tint to the whole tree. This morning I cut a nice bud of Madame Falcot Rose from an open wall; while yellow Crocuses are opening fast, and Violets are in unusual abundance. Anemone fulgens is showing bloom here, and a friend living in the outskirts of Dublin has it fully in blossom. We have had no frost since December 23, and the lowest shade temperature since the beginning of the year was 38½°; while we have had almost a fortnight without rain—a most unusual circumstance for frost and rain to be both absent for any considerable period in winter. To-day a change seems impending, as the wind is blowing, and we have heavy showers of rain and hail, with barometer and thermometer both falling rapidly.—GREENWOOD PIM, *Monkstown.*

TOO MUCH PROTECTION.

THOSE who have fruit trees, like Apples, Pears, Cherries, and especially Peaches and Nectarines, in cool houses and screens, will do well to remember at this season of the year that the value of such structures consists in a large degree in using them solely for protective purposes in spring, and not for pushing the trees into flower too early in the season. I am speaking of unheated houses. It is needless to disguise the fact that these have proved a failure in many instances when they have not been well managed, and have defeated the very object they were intended to effect, inasmuch as, by not being sufficiently ventilated, or being kept too close and warm early in the season, the trees, always ready to start after the new year, are forced into flower too early, and severe frosts, that a glass roof was not sufficient to exclude, has killed the embryo crop. I could name many instances in which this has occurred, and also others in which crops have never been missed, because the houses were kept open and cool, and the trees retarded till so late in the spring that the glass roof was sufficient protection against any frost that might be expected. It cannot be too fully realised that a very few degrees of frost during one night only will completely destroy the bloom of nearly all kinds of fruit trees; secondly, that blossom produced under glass is always more sensitive than that produced outdoors; and, thirdly, that a glass roof alone is not equal to excluding more than four or five degrees of frost, particularly after a cold dull day. In our own Peach houses, thoroughly closed in, but not heated except when the trees are in bloom, two or three degrees of frost are registered when 6° are recorded by the thermometer behind the wall outside; and in severer frosts Strawberries in pots are hard frozen. These facts suggest the course to pursue—viz., not to force the trees in the least, but keep them back from flowering as late as possible—till April at the earliest. 10°, 12°, and 15° of frost are often experienced in March and April in this country, and the trees may at any time be caught in these months if too forward. At this season "retard" should be the watchword. Let fruit trees be as late as they like in flowering and setting; there is always plenty of time to ripen the crop under glass, and people do not plant early crops in unheated houses. As a rule, the main difficulty seems to be to keep the crop late enough, even with late varieties; and earlier fruit can always be secured by planting early sorts. For these reasons, Peach screens and the like should be amply ventilated. One we know, in which crops are produced from old trees covered in the most regular way, owing to the trees never being pushed, has continuous front lights 3 feet deep, and top lights of the same dimensions, worked by a rod and lever; hence the trees can be exposed as freely as if they were on the open wall, and at other times kept as warm as desired in fine weather.

The protection of open walls is quite another matter. I will not say that too much protection can be afforded by textile material only—the only means, as a rule, of sheltering trees on walls and in the open. Much discretion must, however, be exercised in the use of protections consisting of frigi domo and hexagon netting, and the like. The hairy frigi domo affords the best protection of any kind of cloth covering yet invented, but it is thick and dark, and cannot be endured long at a time. It blanches the blossom and the leaves. Like all other fabrics, however, of cotton, wool, or other materials, its non-conducting power is greatly lessened, if not destroyed, by wet and frosty rime, and it is then difficult to roll up and down, or take off and put on. The perfection of a covering of this kind would be a semi-transparent material, waterproof outside, and lined with hair or wool inside. A frigi domo glazed outside would meet this end. I remember seeing once gummed linen, nearly as clear as ground glass, for protecting fruit trees, but its non-conducting power was weak, and no better than tarpaulin, which, though excluding wet, is but a poor protection against frost, a dry woollen material surpassing all other fabrics in that respect. Peaches and other fruits outdoors suffer while in flower from other evils than frost, namely, hail, sleet, and piercing winds. There is but a poor chance of a crop of fruit if the trees are exposed to these evils when in flower, and it is an excellent plan to keep hexagon netting down at such times. Under such circumstances the temperature is usually low, and, there being little or no growth, the trees do not suffer by being covered up day and night till the storm abates.

One fertile source of injury must never be overlooked in the case of trees actually frozen when in flower, and that is, sudden exposure to sunshine and a sudden thaw. A frost that might effect no serious injury to the blossoms will be fatal if the trees catch the sunshine fairly while the frost is on them. Hence on walls protected by material which the frost has penetrated, it should never be removed till the trees are thoroughly thawed, and the crop may often be saved in such cases by syringing the trees freely with perfectly cold water from an outdoor tank as soon as the thermometer on the fruit wall rises to 33° or 34°, or just above the freezing point. It is useless applying the moisture sooner, as it will only freeze and make matters worse. It is necessary that the tree should be kept shaded from the sun till quite thawed. J. S. W.

New Zealand Veronicas.—These attain on the south coast the dimensions of large shrubs, and are very useful for supplying cut flowers in September, but they may be turned to good account as pot plants for indoor decoration in autumn and winter; for this purpose young plants, propagated from cuttings the preceding autumn and planted out in spring, like Chrysanthemums, make very fine bushy little plants covered with flowering shoots. They should be lifted in September, potted in just sufficiently large pots to hold the roots, and kept shaded and moist until well rooted. Under the shade of vines will suit them well until they begin to grow freely, when they may be transferred to a cool, airy house, and will flower freely in the temperature of a conservatory.—J. G. H.

Plants for warm moist walls.—In glass structures kept at a stove temperature there are several plants that readily adhere to damp surfaces and cover them with foliage. A couple very suitable for such a purpose are Marcgraavia paradoxa and Pothos celatocaulis, which to a certain extent resemble each other from the peculiarity their leaves have of lying perfectly flat against the surface of the wall to which the plant is attached. The Marcgraavia has been longest grown in gardens; but, as commonly seen, represents but its juvenile stage, in which the leaves are roundish, unequally sided, and about 4 inches or 5 inches in diameter, with but a little distance between each. That the adult form is altogether different was proved in my case by a plant which had reached a height of about 10 feet, and then pushed out large divided leaves somewhat like those of Monstera deliciosa. It was curious to watch the gradual increase in the stem from about the thickness of pack-thread at the bottom to the size of one's thumb at the top. Though in this particular case the adult leaves were produced from the upper portion, it does not appear to be of common occurrence, as I have seen a large space

covered without any signs of alteration, so that for practical purposes the smaller entire leaves may be regarded as the only ones which the plant produces. Pothos celatocaulis holds firmly to the wall in just the same manner, but the leaves are oblong in shape and have an upward tendency, besides being somewhat larger. They are also generally so close together as to overlap at the base, while in the case of the Marcgraavia the points tend downwards, and, where close enough, overlap there instead of at the bottom. Where, as is often the case in hot structures, the wall is saturated with moisture, these two plants are just at home, growing rapidly and pushing out roots from all parts of the stem.—H. P.

PLANTS IN FLOWER.

Primroses of all hues and in beautiful condition come to us from Newry, and no gathering in April could possibly be finer. Besides Primroses, there are gold-laced and self Polyanthuses, presumably from beds of seedlings, thus showing how carefully Messrs. Rodger, McClelland select and save their seeds of these flowers.

Open-air flowers.—The following were brought me in bloom from the country this morning, viz.: Rose buds, Primroses, Polyanthuses, Mignonette, Wallflowers, Chrysanthemums, Snowdrops, Candytufts, white Stocks, Laurustinus, and London Pride. These, I think, will speak for themselves as to the extreme mildness of the season.—T. PERCY TAYLOR, *Colchester*.

Czar Violets.—From Normanby Hall, Cleveland, Mr. W. G Carson has sent us some very fine blooms of this Violet, which he says he has just gathered in the open, as a proof of the mildness of the season in that part of Yorkshire. The same plants, he adds, have furnished a picking twice a week since the middle of October, and even now are sending up a perfect forest of flower-buds.

Anemones in flower. — From plants raised from seed sown in May last in an open border we have, during the first part of the new year, been cutting an abundant supply of flowers, which are most acceptable at this dull season. Seeing how little trouble it is to raise Anemones from seed, it does seem strange that they are not more generally grown in quantity than they are. Young plants, I notice, always flower more freely and strongly all through the autumn and winter than old ones.—J. C. C.

Forced Saxifrages.—The well-known Saxifraga (Megasea) lignlata submits willingly to being forced into flower early, and its flowers are useful in a cut state at this dull season. In the Horticultural Society's garden at Chiswick it is successfully treated in this way, and a group of well-flowered plants enliven one of the houses. It is a plant, however, that dislikes too much heat; in fact, it merely requires glass protection to bring it into bloom several weeks before it usually flowers outside; for early bloomiog, plants require to be lifted from the open border and potted in autumn before frosts set in.

The first Daffodil we have had sent to us this year comes from Messrs Rodger, McClelland's nursery; it is one of the Pseudo-Narcissi, not, however, the Tenby Daffodil (obvallaris), which usually is the first to bloom, but a tall, self-coloured form, either major or maximus. The flowers necessarily are not quite in character, though they are fully developed, and the stalks are as much as 18 inches high. Mr. Smith does not say whether they are *bona fide* open-air flowers or not. To have large golden Daffodils on our table in the third week of January is to us an unusual occurrence.

Odontoglossum adspersum.—This is the name given to a most remarkable Orchid which has cropped up in Messrs. Sander & Co.'s nursery at St. Albans. It is presumably a natural hybrid between O. Rossi majus and O. maculatum, inasmuch as it partakes of the characters of both these species. The bulb most resembles that of maculatum, as it is flattish and thin edged, and the foliage, too, is a good deal like that of maculatum. The flower, however, more resembles that of Rossi majus, though it is distinct in form, and possesses a strange, though charming combination of colours. The sepals are mottled much in the same way as in Rossi majus, but the lateral petals are half blotched with chocolate on a pale ground and half of a beautiful soft canary-yellow, while the labellum, which is more heart-shaped than that of typical Rossi majus, is pure white, a striking combination of colours, such as we have seen in no other Orchid except that of the new variety of Vanda insignis named Schroederiana. This novelty is quite unique, and probably will always remain so, and we learn that Mr. W. Lee, of Downside, Leatherhead, is the fortunate possessor of it.

The white Lycaste Skinneri.—A flower of the best form of this rare and chastely beautiful Orchid has been sent to us by Mr. R. Grosset from Mr. Buchanan's collection, Oswald Road, Edinburgh. The flower in question measures fully 6 inches across, and the sepals are over 1½ inches in width. The lemon-tinted labellum is the only colour the flower possesses. It is not to be wondered at that such a chaste flower is so much sought after and fetches such a high price. This white form cropped up among a few imported plants. With this flower also comes a spike of a superb variety of Odontoglossum Rossi majus with large and heavily-spotted blooms.

Cut door flowers in January.—The following flowers are now in full bloom here in the open air, viz.:—

Abutilon	Oxlips
Agathæa cœlestis	Periwinkles
Aponogeton distachyon	Primroses (single and double)
Carnations	Polyanthuses
Cowslips	Pansies
Crocuses	Pyrus japonica (red and white)
Daphne indica	Ragged Robin
Calendula Meteor	Roses
Double Daisies	Schizostylis coccinea
Eucalyptus globulus	Snowdrops
Forget-me-nots	Sweet Coltsfoot
Heaths	Wallflowers
Hepaticas	Violets
Jasmines	Veronicas
Laurustinuses	Geraniums
Magnolia grandiflora	Laurels
Narcissi	

These serve to indicate the mildness of this sheltered spot. I do not think people can show many more in the Riviera.—JOHN WORTHINGTON, *Glyn-y-mel, Fishguard, South Wales*.

Crown Anemones in the middle of January are indeed a luxury, and calculated to make us believe that spring is nearer than it really is. Mr. T. Smith has sent us not only these, but quantities of other flowers as well from Messrs. Rodger, McClelland's nursery at Newry. Beautiful as all are, however, the Crown Anemones are the most remarkable on account of their large size and brilliant and varied colouring. It is astonishing to see Anemone coronaria blooming so freely in midwinter; but only those who have gardens in favoured localities can hope to have it in such strikingly good condition. There is a knack in getting fine Crown Anemones at this season, and we wish Mr. Smith or Mr. Burbidge, who also grows them so finely in Dublin, would divulge the secret of their success, if indeed secret there be in the matter. Many of our readers who live on the south and west coasts could have winter Anemones in perfection if they chose. What they require is some information with regard to the particular time to sow, and the ultimate treatment which the plants need. It is not too much to say that the richest collection of hothouse exotics could not produce such a brilliant bouquet at this season as that which Mr. Smith has sent us.

Melville's Snowdrops.—In the Royal Horticultural Society's garden at Chiswick there is a full set of Mr. Melville's seedling Snowdrops, planted near the rock garden. These Snowdrops seem to differ from others chiefly in their time of flowering, the interval between the flowering of the earliest forms to that of the latest extending over many weeks. At present the variety named præcox, the earliest of all, is in full bloom, and very pretty a good sized mass of it looks. The next earliest is just showing its flower-spathes above the leaves, while the foliage of the latest variety of all has scarcely yet peeped out of the ground. Hence these varieties are valuable, inasmuch as they prolong the Snowdrop season. Last year we noticed that one or two of Mr. Melville's varieties had blooms decidedly superior in size, whiteness, and substance to those of the common Snowdrop.

New Hellebores.—A gathering of new varieties of Hellebores has been sent to us from Messrs. Rodger, M'Clelland's nursery at Newry. Among them are two of the most beautiful we have yet seen. One named Commissioner Benary, a variety of H. guttatus, has cup-shaped blooms with pure white sepals of rounded outline and of firm texture. These are profusely spotted on their inner surfaces with deep purple, which renders them highly attractive, and the tender green of the young foliage enhances their beauty. The next best form is named Frau Irene Heinneman, and seems to be a cross between H. guttatus and atrorubens, inasmuch as the flowers have deep rose-purple sepals copiously spotted as in guttatus. It is a most distinct and handsome Hellebore, and certainly the best of this particular group. The pure white H. olympicus is likewise sent; also one called Willie Schmidt, but which does not appear to differ at all from typical H. olympicus. Among the other Hellebores sent are the coppery H. purpurascens (true) and some very finely developed stems of H. atrorubens, the brightest in colour of all the Hellebores.

Crocus Imperati.—This beautiful autumn and winter flowering Crocus has been uncommonly fine this year, doubtless on account of the bulbs having been thoroughly well ripened during the hot and dry August which we had last year. In the neighbourhood of London it is still enlivening many gardens. A few days ago we saw a fine mass of it on the rock garden at Chiswick, where, on a fully exposed knoll, it thrives to perfection. Some fine blooms of it have reached us from Mr. Smith, of Newry, among other beautiful open-air flowers. No other Crocus can vie with this one in beauty, and, indeed, few other flowers possess such a peculiar combination of colour. The fawn tint of the exterior of the petals, feathered with black, affords a strange, though beautiful, contrast to the bright violet-purple of the interior.

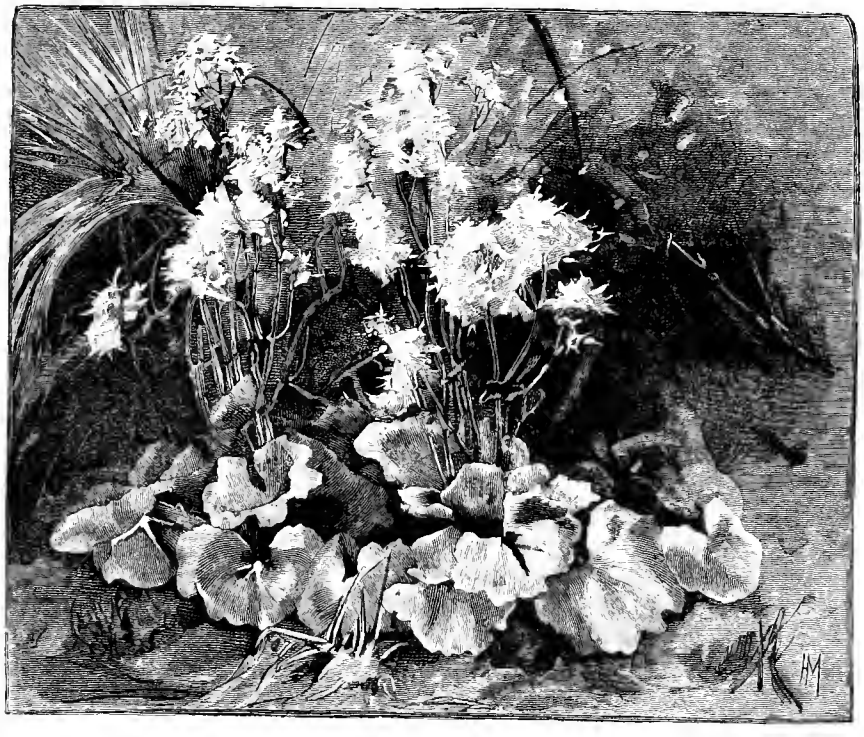
Cattleya Trianæ.—A three-flowered spike of a splendid variety of this Cattleya has been sent to us by Dr. Paterson, Fernfield, Bridge of Allan. The flowers measure upwards of 6 inches across the outspread petals, which are 2¼ inches in width and of a delicate mauve. The lip is extremely rich in colour, being of an intensely deep amethyst shaded with violet. It is large and shallow and stands out prominently. This spike, Dr. Paterson says, was cut from a large healthy plant bearing twenty bulbs, four of which have produced flower-spikes this season, and for the past two or three weeks have been the admiration of everyone. This plant was but a small seedling fifteen years ago. With this Cattleya came a large six-flowered spike of a fine form of Odontoglossum Rossi majus—a fine example of good growth.

Sisyrinchium grandiflorum. — Judging by a fine handful of blooms of this plant from Messrs. Rodger, McClelland's nursery, even milder weather is being experienced at Newry than we have in London, for we have seen no signs of bloom of the Satin Flower yet; as the flowering season of this pretty little plant comes round we cannot refrain from extolling its delicate beauty. No occupant of the stove or greenhouse is so fragile, yet for all that it is capable of braving wintry winds and rains, and does not succumb even to frosts provided it is not too damp at the roots. Than flowers of the typical form, which are bell-like and of a deep carmine-purple shining with a satiny lustre, more charming subjects for a vase could not be found, the slender stems, carrying their flowers on thread-like stalks, being extremely graceful. As soon as one flower withers, too, another succeeds it, and this succession goes on for several days after the flowers have been cut and placed in water. A collection of hardy plants without this bright little Californian would be incomplete, and it is only in the coldest districts that it fails to flourish, and there even, if afforded a little protection, it will come to perfection. A short time ago a coloured plate of it was given in THE GARDEN together with its white variety.

INDOOR GARDEN.

FORTUNE'S SAXIFRAGE.

DURING a few weeks in the latter part of autumn there are not many plants that flower so prettily as Saxifraga Fortunei, an old plant in botanic gardens, though one comparatively little known in a general way. It is one of those plants that cannot be strictly called hardy, yet it is not really tender. In some localities in the southern counties it may be grown successfully with other hardy perennials, and in light soils, even if is killed by frost, it will shoot up again in the spring. As a general rule, however, it is best to treat it as a pot plant, more particularly as it flowers on the verge of winter when rains and winds are apt to spoil the beanty of its delicate spikes of flowers. It is a handsome plant even when out of flower, the foliage being large for a Saxifrage, of thick fleshy texture and of a very deep green, which shows off to the best advantage the myriads of white flowers which it bears. Well-grown pot plants bear spikes as much as 18 inches in height, but out-of-doors it does not usually exceed half that height. The reddish bracts with which the flower-stems are furnished add to the attractiveness of the plant at flowering time. Its culture in the open air is a simple matter, as it merely requires to be planted in light, rich, and well drained soil, such as may be found on all well-made rockeries. It is partial to shade and delights in plenty of moisture while in active growtb. Pot plants need more attention; they may be either raised from seeds or propagated by division of the rootstock. Seedlings make the best plants. The seed should be sown in spring, and as soon as the plants are large enough to handle they should be pricked off in pans in much the same way as such plants as tuberous Begonias are treated. From this stage they require to be constantly shifted into pots larger and larger until they reach the flowering stage, which will be by the autumn, when they should be in either 4½-inch or 6-inch pots. A quantity of plants of this size would be found invaluable to those who require showy plants for conservatory and room adornment, and for vases and jardinières they are particularly suitable. The annexed illustration was sketched in Mr. Ware's nursery, at Tottenham, in the third week in October. The plant, one of the finest we have ever seen in the open air, was growing in a snug nook in the rock garden. It nestled beneath the shelter of a bush with rocks on either side of it, so that it was completely protected from the weather. If grown out of doors such a place as this is just what the plant requires. G.



Saxifraga Fortunei. Drawn in the Hale Farm Nursery, Tottenham, October 20, 1883.

Flower of Saxifraga Fortunei.

DESMODIUM GYRANS (MOVING PLANT).

THIS belongs to a family of plants most of which possess little beauty; neither can it be said that this species has anything in its flowers that are effective; the interest attached to it lies in its leaves, which are constantly moving with the regularity of the pendulum of a clock, only much slower and in an opposite direction, the motion being alternately in an upward and downward direction. What it is that produces this continuous motion has caused a good deal of speculation amongst those interested in vegetable physiology; its motion is not nearly so quick as that of the Sensitive plants—Mimosa sensitiva, M. pudica, and others of that genus. True it is that this and other plants possessing singularity of habit rarely have flowers with fine colours, yet it is well that they should not be lost sight of by cultivators; of this there is some danger through the disposition that too often exists to give exclusive attention to things that are only noticeable for their highly coloured flowers.

THE CULTIVATION of this Desmodium is extremely simple, as all it requires is a brisk heat and ordinary attention in the matters of soil, water, and air, and a little shade in bright weather. It strikes freely from cuttings of the half ripened wood taken off at any time of the year when obtainable. Supposing its propagation is undertaken in the spring, cuttings consisting of points of the shoots a few inches in length cut to a joint, put singly in 3-inch pots in sandy soil, the surface all sand, placed in a temperature of 70°, covered with a propagating glass, and kept moist and well shaded, will soon make roots, after which dispense with the glass, standing the plants in a fairly light place; as soon as the small pots are filled with roots give them a couple of sizes more room, using ordinary loam, to which add a little sand and rotten manure; pinch out the leading shoots to cause them to break side branches, and give them ordinary stove treatment as to heat, light, water, and air, shading slightly when the weather is sunny. The plants soon begin to show the natural peculiarity of their leaves, and keep on moving regularly, the base of the stalk acting just like a hinge. All further that is required is an increase of pot room when the soil gets full of roots. The plant attains a height of about 3 feet, and does not need a great deal of room. It deserves a place in the gardens of those who are fond of singularities in the way of plants. It comes from India, and therefore likes a considerable amount of heat at all times.

INSECTS.—Aphides and red spider, as well as others of the worst description of insects that prey on stove plants, will sometimes attack this Desmodium; the daily use of the syringe during the growing season will generally suffice to keep the smaller ones in check. Should scale or bug affect the plants, sponge with tepid water.

T. BAINES.

LILIES FOR GREENHOUSES.

THERE are a few Lilies which can be readily grown in pots and employed for greenhouse or conservatory decoration during their flowering season, and that, too, not among the rare or high-priced kinds, but those that are readily obtainable and cheap. One of the earliest is L. longiflorum, that is if it is grown with the intention of blooming it early in the season, but if treated as the others—*i.e.*, potted and just protected from frosts—it does not flower till the summer A useful class are the varieties of L. elegans or Thunbergianum, all of which are of dwarf growth and have comparatively large, erect blossoms. A few distinct varieties are: alutaceum, rich apricot; atro-sanguineum, deep crimson; Van Houttei, bright red; venustum, deep orange; marmoratum, crimson marked with orange; and Prince of Orange, yellowish buff. L. davuricum, or umbellatum as it is sometimes called, and its varieties are, like the last named, an early blooming class, producing erect heads of flowers, bnt as a rule taller in growth than L. elegans. Three good distinct forms easily obtainable are grandiflorum, orange-red; fulgidum or Sappho, bright crimson; and incomparabile, intensely dark crimson. L. pulchellum and tenuifolium are two pretty little early flowering Lilies; the first has erect flowers of a glowing red colour, and the second bears drooping blossoms of the Turk's-cap type, bnt bright crimson. This Lily has been lately largely imported and sold by auction. Some of its bulbs have been very large, and fine blooms may be expected from them. L. pomponium flowers pretty well in pots, but cannot be depended upon with so much certainty as the preceding, which in general character it much resembles, but it is in all respects larger. L. Krameri is a very pretty Lily, and one quite distinct from the others; its flowers are borne on slender stalks, frequently solitary; they are funnel-shaped, and as much as 6 inches or 7 inches long. Their colour varies from almost white to a sort of pale rosy lilac

It is seldom of much use the second year, but it is now imported from Japan every season in such numbers that during the spring months it is comparatively cheap. To a later section belong auratum, speciosum or lancifolium, and tigrinum, all of which flower well in pots. L. auratum is too well known to need description. Of L. speciosum the most distinct varieties are Schrymakersi, an improved form of roseum; Krætzeri, white with greenish stripe down the centre of the petals; punctatum, white with rose-coloured spots; and cruentum, of a deeper colour than roseum or rubrum. Of the Tiger Lilies the most effective is the old tigrinum, which must, however, not be allowed to get too dry, otherwise a number of the leaves will be lost. The double-flowered variety is also distinct and pretty.

The above constitute a good selection for growing in pots. L. longiflorum is most useful for general purposes when three bulbs are placed in a 6-inch pot, though, if desired, large masses of it can be made up. The varieties of L. elegans, davuricum, and tigrinum we also grow in the same way. L. auratum and speciosum are potted singly in 6-inch pots, except a few for forming large masses in pots 1 foot in diameter. Our practice is to pot the bulbs as soon as received; they are then placed in a cold frame just to protect them from frosts and heavy rains, and the lights are kept off whenever possible, in order to ensure a sturdy growth. By the middle of April they are all plunged out of doors, with the exception of a few of the early kinds, which are kept indoors to flower early. L. longiflorum will thrive in a warm greenhouse provided it has plenty of light and air, but none of the others here mentioned should be forced in this way; otherwise, they will run up thin and many flowers will go blind, while those that open will be deficient in colour. We never allow the blossoms to expand out of doors, as the wet there soon spoils them; when the buds are in an advanced state we move the plants under glass. L. auratum and tigrinum sometimes lose their bottom leaves, *i.e.*, if not well and regularly supplied with water. The Tiger Lily and the varieties of L. speciosum are very useful for conservatory decoration at a time when summer flowers are beginning to get scarce.

ALPHA.

HIBISCUSES AND THEIR CULTURE.

Those most suitable for growing in pots are the rosa sinensis section, but as they come from India and the South Sea Islands, they require a good deal of warmth. They are evergreen, and attain considerable height, but their free blooming disposition, flowering as they do when not more than a few inches high in small pots, renders them desirable plants for indoor cultivation, especially as they are easily propagated by means of cuttings. They also bear pruning well, breaking readily when freely cut back, and in this way they may be kept for some time within a reasonably limited sized pot. The individual flowers of the single as well as the double, or, more properly speaking, semi-double varieties are very effective; in shape they are not unlike those of a Carnation, but much larger. The time of flowering differs considerably according to the manner in which they are treated, but they usually bloom through the summer and autumn months.

Propagation is effected by means of cuttings, which, as I have said, strike readily in sufficient heat at any time when bits of half-ripened wood can be obtained. The most suitable shoots for rooting quickly can be got from plants that have been cut back about the close of the year, and afterwards kept in a temperature of 65° by night, and correspondingly warmer in the daytime. Thus treated they break freely. When the shoots are about 4 inches long they should be taken off with a heel and placed singly in small pots, drained, and half filled with sandy soil, the upper portion consisting wholly of sand. They should then be placed in a frame or under propagating glasses, where they can be kept close and moderately moist, conditions under which they will root in a few weeks. As soon as they are well furnished with roots, move them into 4-inch or 6-inch pots; they will succeed in either peat or loam, but, as with most free-growing subjects of a similar character, I prefer loam where it can be had of a good, turfy character, as in it strong-growing plants almost invariably evince a disposition to produce flowers more freely with less wood growth than when cultivated in peat. Increase the heat of the house or pit in which they are placed as the days lengthen, giving them plenty of light with air in proportion to the temperature and state of the weather, using a little shade in the middle of the day and syringing freely overhead in the afternoons. When the young plants have fairly started into growth, pinch out the points to induce them to break back. Through the season they require nothing different from the general occupants of a warm stove. Even this first season many of them may be expected to produce flowers, and when standing as they ought to be on the front stages of the stove, they form conspicuous objects.

After blooming is over shorten them back a little, and as soon as they have broken, shift them into pots 3 inches or 4 inches larger than those they have been in, using soil similar to that just named, with sufficient sand added to keep it in a healthy open condition. Through the autumn months subject them to drier treatment, both as regards the atmosphere and soil; winter in a temperature of 60° by night, or even a few degrees higher will suit them better. Their management during the ensuing spring and summer will require to be such as that recommended for the preceding year, except that no stopping should be attempted unless with the view of inducing a portion of the plants to bloom later. After they have again flowered, the shoots should be shortened back more or less, according to the size to which the plants are to be grown; but there is no state in which they are more useful than when confined to small pots. A sufficient stock should be propagated yearly, and the plants may be discarded after their third season's blooming. Where it is desirable to grow them on longer after they have fairly broken, they should be turned out of their pots, as much of the surface soil should be removed as can be done without disturbing the roots in a way likely to injure the foliage, and they should be repotted in soil similar to that in which they have been grown, being guided as to the size of pot by the size to which the plants are desired to attain. They are free-rooters, and will bear a shift of 8 inches or 10 inches without any danger of the soil becoming sour. The larger the plants the greater quantity of flowers will they produce; and in this way, with additional root-room, they may be increased in size for several years. Where space is limited, they can be kept in a healthy condition with their roots somewhat restricted, making up for this by the frequent use of manure water during the growing season.

Species and varieties.—There are numbers of species and varieties known to cultivators. The following are a selection of the most noteworthy Amongst them are several of the H. rosa sinensis varieties, which are the most effective for ordinary cultivation: H. rosa sinensis brilliantissimus, has large-sized reddish scarlet flowers, deeper coloured towards the lower part of the petals. H. rosa sinensis Colleri.—A particularly free-blooming sort, with yellow or buff flowers, the lower portion of the petals red. From the South Sea Islands. H. rosa sinensis Dennisoni.—A close, dense growing kind, with creamy-white flowers of large size. A fine sort. H. rosa sinensis miniatus semi-plenus.—This plant has handsome stout foliage and bears freely its large semi-double flowers, which are vermillion-scarlet in colour; the petals are elegantly waved in their outer edge, not unlike a double Petunia; the stamens, which protrude between the petals, enhance the appearance of the flowers. South Sea Islands. H. rosa sinensis zebrinus.—The individual flowers of this sort are smaller than most of the other kinds; they are quite double, and the back petals are red, edged with yellow. A distinct and handsome sort. H. rosa sinensis schizopetalus is a most singular and distinct-looking plant from Tropical Africa. The flowers are drooping, suspended on long stalks; the petals, few in number, are deeply pinnatifid; the flowers are red. It has a most elegant effect when in bloom. H. marmoratus.—A small-flowered species. The flowers are white, spotted with rose. A native of Mexico. H. Cameroni.—This is a shrubby habited plant from Madagascar; it is a tall grower. The flowers are straw coloured, with purple spots at the lower extremity.

Insects.—Like most plants that require a high temperature, Hibiscuses are subject to the attacks of insects; the leaves especially, if the plants are allowed to want for water either at the root or overhead, are liable to suffer from red spider, but if the syringe is regularly used and sufficient care taken that the water effectually reaches the undersides of the foliage, this troublesome little parasite cannot get a footing. Where it happens to exist, I have found the best remedy to be a weak solution of Fowler's insecticide, which the plants should be either dipped in or syringed with, so that every portion is reached by the mixture. Green fly sometimes makes its appearance on the young shoots, for which either dip in Tobacco water or fumigate. Should they become affected with scale or mealy bug, sponging must be resorted to, as, except when the plants have been cut back and are denuded of their tender foliage, the leaves will scarcely bear any dressing strong enough to kill the insects.

T. Baines.

SELECT ARALIAS.

Amongst Aralias much difference exists, both as regards size and form; they are hard-wooded evergreen plants of comparatively free growth and mostly erect in habit. They have little disposition to branch out, a property which befits them for associating with plants of bushy growth. They are increased both by cuttings and grafts, using for stocks such of the commoner species as are plentiful. The stocks should be prepared in the usual manner, that is, struck from eyes or cuttings, and grown on in small pots until they have attained the thickness of an ordinary pencil, when they should be headed down to a little above the base. The scions should be then inserted in any of the several ways by which plants of a similar nature succeed. I have found none better than the cleft and wedge method, keeping them warm enough and a little close until the grafts are united. But in the case of Aralias, as with most other things of a like character,

Propagation, by cuttings and eyes, is the method by which ordinary cultivators usually increase them. Plants that get naked and bare of leaves should have their heads cut off in the spring, making cuttings from such of the upper portion as is only half ripened and of the extreme top as well; the matured part of the stem may be cut into bits and put in as eyes like the cuttings in a brisk heat, keeping them close and sufficiently moist until enough roots are formed; then remove the propagating glasses and pot off singly; peat is most suitable for the weaker-growing kinds, loam being best for the strong ones. They will thrive in the warmth usually kept up for hot stove plants, say 65° in the night in spring, with a rise of 10° or 15° by day, and proportionately more as the season advances. Air must be given regularly through the growing season, with shade when the sun is powerful. These plants will bear the soil in a moderately moist state and they should be syringed daily in the summer. Nothing more is necessary than to increase the pot room, as the roots require it. Old stools of most of the species when headed down will push several shoots; these if taken off with a heel when about 6 inches long will root readily and make plants in little time.

Species.—The undermentioned are the most desirable, viz.: A. Veitchi:—A plant with a tall, slender stem and dark green digitate leaflets, narrow and undulated in the edges, so as to produce a distinct and handsome appearance. It comes from New Caledonia. A. gracillima forms slen-

der, graceful, erect stems, thickly clothed with deep green leaves, Fern-like in their appearance, mid-rib white. A native of the South Sea Islands. A. elegantissima.—This is from New Caledonia, and has an erect, slender stem; the leaves are digitate and on long stalks. A handsome plant. A. Osyana is from the South Sea Islands. Another erect grower, bearing digitate leaves, the leaflets bilobed A. leptophylla.—Stem erect and slender, leaves palmate and borne on long leaf-stalks. A. filicifolia.—A South Sea Island plant, having a purple stem spotted with white; the leaves are elegant, Fern-like, and deeply divided. A. Guilfoylei.—Another South Sea Island species with an erect stem and shrubby habit; the leaflets are 2 or 3 inches in length and margined evenly with white. A. quinquefolia.—This is an elegant-habited species, very distinct; it grows to a larger size than the smaller leaved section. A. monstrosa.—A new and very distinct kind, with pendent leaves, the leaflets margined with white. From the South Sea Islands. A. Chabrieri.—A new species of small and elegant habit. One of the best of the small kinds. A. ternata —An elegant habited sort; the leaves are serrated and opposite, pale green in colour. New Britain. A. Kerchoviana.—A pretty kind, with larger leaves than A. elegantissima.

INSECTS.—Thrips will sometimes attack the young leaves, but these and red spider are easily kept down by the use of the syringe. Brown scale is their worst enemy, and where it exists should be got rid of by frequent spooging, as the leaves will not bear dressing with anything strong enough to kill the scale. T. BAINES.

GLAZED POTS.

THIS subject was discussed in more than one of the papers—THE GARDEN being one of them, I think—some seven or eight years ago, and originated in a discussion on the subject of "Dirty *v.* Clean Pots." It was then proved that glazed pots answered admirably, and were in use in some gardens, where they are still, I believe; but thirty years ago or more Lindley wrote that "experiment has settled the question by showing that plants will grow in glass, in slate, in glazed earthenware, just as well as in soft burned pots; and it is now admitted on all hands that if plants are ill-grown it is the fault of the gardener, and not that of the pot." The cottager was, however, the real original discoverer, for he grew his plants in pots glazed within and without long before even Lindley wrote. One of the earliest examples I was familiar with was a fine Fuchsia that grew in a black teapot for many a year. About forty years ago Charles McIntosh put the whole of his Camellias into slate tubs, which are as impervious to moisture as glazed earthenware, and I was familiar with these plants and tubs many years afterwards. The fact of the matter is, common flower-pots were not originally made of porous earthenware on account of the plants, but because they were cheaper made in that way when the labour of manufacture was greater than it is now. Cultivators only jumped to the conclusion that the porous pot was best, but for no good reason I have ever yet seen stated. The common flower-pot is, except when plunged in the ground up to the rim, the worst receptacle for a plant that could be devised, because it constantly exposes an active evaporating surface to the air, and an evaporating surface is always a chilly surface. How the roots of a plant are affected inside such a pot any person may learn for himself by wearing a wet coat next his skin in the open air. In short, a plant in a porous pot upon an airy greenhouse stage may be said to be placed under about as adverse conditions as it well could be. A glazed pot is no better than a porous one while it remains moist on the outside, but then it soon dries; whereas the porous pot is always moist and giving off moisture.—J. S. W.

—— That porous pots, glazed on the outside, are far better for growing plants than ordinary ones is a reasonable proposition. Cold at the roots checks, while warmth in the shape of bottom-heat promotes growth. All are familiar with the method of making water almost ice-cold in summer by placing it in a porous vessel and exposing it to a draught. The roots of a plant in a porous pot are, when recently watered, under the same conditions as the above-mentioned water, and are made equally cold; it follows that plants are subjected to a serious check each time they are watered; this effect is sometimes avoided by plunging the pots; it is well known how much more freely plants grow when plunged. It is probable that the mischievous effects attributed to draughts do not result from their direct action on plants, but indirectly from the cold at the roots produced by the rapid evaporation caused by such pots. Glazed pots would not only prevent surface evaporation, but render watering less frequently necessary, thereby saving labour and preserving the fertilising properties of the soil for a longer time.—EDMUND TONKS, *Knowle*.

AFTER TREATMENT OF FORCED PLANTS.

IT is no uncommon occurrence to see plants that have been forced prematurely into bloom exposed as soon as the flowering season is over to the same temperature as would have been accorded them had they never been in heated structures at all, with the result that the foliage is often spoiled and the plants ruined in health. Let us take the case of bulbs which are forced every year. Immediately they have fulfilled their purpose they are turned out of doors and exposed to all weathers, the result being that most of the tender foliage is destroyed and the bulbs greatly weakened; whereas if hardened off gradually and planted out in spring in spots where they can remain undisturbed, they will soon recruit their strength, and serve to beautify the places in which they have been planted. In this way Tulips, Hyacinths, Scillas, Crocuses, and other things might be much better employed than by being consigned to the rubbish heap when their beauty is over. In the case of bulbs forced into bloom by Christmas or thereabouts, when done with they should be placed in a frame and protected from frost, but at the same time get as much light as possible, in order that the foliage may become well ripened.

Another class often treated in a very unceremonious fashion are the different hardy shrubs, which as soon as the bloom is over are turned out of doors because they are hardy, forgetting that under the treatment they have received the buds are just bursting, or the young leaves even expanded, which latter from their delicate nature at once fall a prey to frost. When shrubs are forced early they should receive a certain amount of protection for a time, the most important being, if possible, kept under glass till severe frost is over, and the others placed in a sheltered spot. By this means the strain on the plants is not nearly so great as when they are thrust outside at once, and as a matter of course they sooner recover from the forcing which they have undergone. When the evergreen Indian Azaleas are forced early and placed perhaps in a cold part of the greenhouse as soon as the bloom is over, the foliage often turns rusty, and when it gets into that condition it is by no means easy to restore the plant to its original tint. With Azaleas it is better to encourage the plants to make their growth as quickly as possible by keeping them in a growing temperature; if this is done, they can be had in bloom earlier the following season than those that have not been prepared in that way.

One thing to be borne in mind with regard to forced plants of this description is that cuttings of the young shoots produced in heat strike root much more readily than those grown in a lower temperature later in the season. In Azaleas this is especially noticeable, but the same remark holds good in regard to most plants. We propagate Deutzia gracilis to a large extent in that way; thus, as soon as the flowers are over, the young shoots, which generally spring up from the base of the plant, are removed and made into cuttings. No jointing is necessary, as they readily root from all parts of the stem; when put into pots they are kept close in the propagating house till rooted, which, as it is kept at an intermediate house temperature, does not take more than a fortnight. As soon as sufficiently rooted they are potted off into small pots, which they fill with roots by May, when they are planted in a well-prepared bed in the open ground and make good growth the first season. ALPHA.

SPRING MIGNONETTE.

NOW is a good time to sow Mignonette in pots for spring bloom. In a general way 4½-inch pots are quite large enough, being more manageable than larger ones. Free growing as this fragrant annual is, the fact remains that a well-grown sample of it is more the exception than the rule. The difficulty which so many seem to experience is in furnishing their plants with green, luxuriant foliage down to the rim of the pot. Poverty and crowding are the main causes of this; if the plants get room enough and never suffer from want of water, getting weak liquid manure frequently as soon as the pots begin to fill with roots, they will never become bare; on the contrary, the leaves will assume a rich shade of green, and will be of great substance. The pots need not be drained so much as is necessary for many things, one large crock and some fibrous material being ample, but great care should be exercised in the choice of soil, as the roots of Mignonette do not appear to possess the power of working freely in that which is in any way retentive or inclined to become close after watering. There is nothing, I think, to equal manure which, through age, has become mould. This well sweetened requires no admixture of any kind, and I know of no other compost in which fibrous roots are so quickly and freely made. In English gardens, however, this description of potting material does not frequently exist, and the best substitute is probably fibrous loam two parts and leaf-mould one part. Make the soil moderately firm, and fill the pots to within half an inch of the rim, watering moderately before sowing, so that little or no water will be required until the young plants appear. When up, thin them out to six in a pot, and let them have as light a position as it is possible to accord them. Here, however, I would observe that many failures occur through the plants being subjected to currents of dry air and overmuch aridity generally, and this is frequently the case when the pots are set on a dry stage near the hot-water pipes. Mignonette appears to delight in a more or less constantly moist atmosphere, and never does so well as when the pots are plunged in tan or leaves. The equable conditions there enjoyed are scarcely obtainable in any other way, and those who have this convenience should not fail to take advantage of it.

J. CORNHILL.

STORING TUBEROUS BEGONIAS.

SOME recommend that these be stored in dry material, but from what I have observed, I am inclined to the belief that by so doing we subject them to some loss of vitality. I have noticed that when kept just moist through the winter they start more readily and stronger than when dried off as soon as the foliage decays. If I could do so conveniently, I would keep them in the pots in which they bloomed, watering them several times very moderately in the course of the winter if the soil should be seen to become quite dry; but I should much prefer a close shed or a cellar for keeping them in, as if stored away with the soil in a moist condition it would retain enough moisture through the winter to preserve the tubers fresh and plump without having recourse to watering. Brought out about the middle of March and carefully watered, they break away quickly into strong growth, and when they have shoots some 2 inches long they can be shaken out and repotted without experiencing any material check. It stands to reason that when no loss of roots is experienced during the resting period the tubers must start

stronger and more readily into growth than when a complete set of feeders has again to be formed in spring. Even when the tubers remain in a moist condition through the winter, so that they are in a fresh, plump state when started again into growth, there must be some loss of time, and one would think a diminution, however slight, in strength; but the difference is very marked when the tubers have been stored quite dry. Then they require more time and careful treatment, or they are liable to decay or make a weakly, as well as a tardy, leaf development. I noticed this very particularly in the case of some tubers which I received through the post; they were quite a fortnight later in starting than those which had been stored moist, and were further still behind such as had been kept in pots and which had not been allowed to become dust-dry. The best plants, I think, for bedding are such as have been grown one season from seed, coming into 2½-inch pots by the summer, and in which they are wintered. Such plants I have found to start away very quickly and strongly. J. C. B.

DOUBLE-SPATHED CALLAS.

MR. CASE (p. 19) directs attention to some abnormal forms of Calla (Richardia æthiopica). Such forms occur frequently with those who grow this plant very strongly. Four years ago I was engaged in working up a stock of these plants, and, in order to raise the required number from the few plants which we then possessed, all the suckers as they appeared were taken off and rooted in small pots. This operation was commenced as early in the season as possible, the young plants being grown on in an early Peach house. By the middle of June they were gradually hardened, and planted outside in a trench prepared similar to what we use for Celery. Many of the plants when placed out of doors were strong and well established in 7-inch pots, and the smaller ones in 5-inch ones. In planting, abundance of manure was placed about the roots, and good soakings of water given when the weather proved dry. In September they were lifted and placed in 12-inch pots, as we could not get the mass of roots they possessed into smaller sizes, using for a compost rich loam and a seventh of decayed manure. After lifting, the plants were placed behind a north wall and kept well soaked with water and syringed until they were again established. On the first appearance of frost, they were housed and kept cool until Christmas, by which time they commenced throwing up their spathes, which were very large in size and set on stems fully 6 feet high from the surface soil of the pots. Towards the end of January and all through the following month more than half the plants produced abnormal spathes. This was attributed to their remarkable strength and the liberal feeding which they received. They did not only produce a solitary double spathe or two, but many in succession during the whole of the season. The same thing has occurred with our strongest Callas every year since, but the same plants when not grown strongly only produce single spathes. This season our plants are not strong enough to produce them double, being very much weaker than usual, owing, no doubt, to their extra strength having become exhausted. We never attempted to secure double spathes, whether the plants are weak or strong, because we think them less beautiful than single spathes. MANIFESTO.

5135.—**Insects in soil.**—The inquiry as to the best means of getting rid of insects in soil refers, I presume, to small quantities for seed sowing and other delicate operations, and not to that of the open garden. I used to be frequently troubled in the same way as your correspondent, not only by insects, but also by a kind of mossy growth which overran the seed pots, and which was especially destructive to Fern spores, as the humid atmosphere necessary for the Ferns encouraged the growth of the Moss. To remedy this I subjected the soil to a temperature high enough to kill any animal or vegetable substance that might be in it and with, I am pleased to say, perfectly satisfactory results. I had an unusually good opportunity for thus heating it, as owing to the way in which one of our boilers was set there was left above it sufficient space for 3 or 4 bushels of soil to be baked at once, but anywhere without much trouble enough for seed sowing could, I should think, be so treated.—H. P.

Varieties of Poinsettia pulcherrima.—It is not generally known that there are two forms of this Poinsettia extensively cultivated. They differ in the shade of colour, the floral leaves of one being of a richer and brighter scarlet than those of the other, and in addition it is at least three weeks later. The dullest-coloured form is the most short-jointed of the two, and besides being the earliest is, I consider, the most easily grown. It also forms a better-shaped whorl, and the floral leaves, too, are rather broader than those of the brighter-coloured late variety. We grow them in equal quantities.—W. I.

Gloxinias in winter.—There is no difficulty in getting these into blossom by the middle or end of January. Our earliest lot are just showing buds. It is only a question of allowing the plants to ripen early, and this naturally follows exhaustion from flowering at all seasons. I do not like the system of permitting the tubers to get dust-dry, even when at rest. Some may pass through this unnatural drying harmlessly, but it is the cause of a good many deaths among weakly plants.—E. H.

Coccocypselum discolor.—Grown in suspended pots or baskets, this just now is very pretty in the stove, and will continue so for some time to come. It is a creeping plant of soft texture, the shoots of which hang for some distance over the edges of the pot or basket in which they are growing. These shoots are now studded with very deep blue berries, a colour, to a great extent, wanting among stove plants. It is of the easiest possible culture, and produces berries freely without any special attention.—ALPHA.

Clethra arborea.—When planted out in the bed of a conservatory, and allowed to assume its natural shape, this Clethra, when in flower, is very handsome; the foliage, too, at all times is bright and cheerful. It is a native of Madeira, and in general characters more resembles an Arbutus than it does other species of Clethra (the white Alders of the United States), which are all slender growing deciduous shrubs, with spikes of white flowers borne during July and August. Clethra alnifolia is the best known of this section, the members of which are all much alike. Clethra arborea, on the other hand, flowers late in autumn and early winter, besides which it is evergreen, and not deciduous, as the others are. Its flowers are arranged in upright spikes after the manner of those of the Lily of the Valley, which the blooms individually resemble. In colour they are white, sometimes slightly suffused with pink.—H. P.

SHORT NOTES.—INDOOR.

Daphne indica.—This highly fragrant Daphne grows more freely when grafted on the common Spurge Laurel (Daphne Laureola) than when struck from cuttings. Plants of it are now generally obtained by grafting.—ALPHA.

Luculia gratissima.—In striking cuttings of this flowering shrub, put them in as soon as possible after they are severed from the parent plant, as if allowed to flag cuttings of it often refuse to root. Half-ripened shoots of it succeed best; they require a stove temperature.—T

Thunbergia Harrisi.—We prepare this climber especially for winter blooming, and are rewarded with a display of the most lovely pale blue flowers imaginable. Long continued sunless weather was beginning to affect the succession, but a few hours of sunshine has quickly recovered it, and we now have abundance of bloom. It is a general favourite, the colour being particularly attractive.—I

Allamanda Hendersoni.—There are not many plants that bloom continuously from May to February without becoming unsightly, but we have had this variety in bloom all that time, and no one appears to be tired of it. We use its blooms extensively on the dining table, one bloom with a frond of Maiden-hair Fern being placed in each specimen glass, or better still a tiny fish-globe. Allamandas do well either in pots or planted out.—I. M.

5137.—**Iron tanks.**—Whether the water held in iron tanks is in a condition to injure plants generally, and more especially such things as Heaths and New Holland plants, depends on the character of the iron, and also of the water. I have found that there are some iron tanks that will rust and corrode with any kind of water, either soft or hard, whilst some will not rust with rain water, such as that caught from the roof, in the way "W. L." (p. 51) speaks of. Where there is no corrosion I do not think there is likely to be any harm done by using water held in iron tanks; but where the reverse exists I should not like to use it, especially for such plants as your correspondent names. Where water is only required to be held in limited quantities, there is nothing equal to slate tanks; where to be stored in large quantities, concrete tanks made of clean shingle, sand, and cement are the cheapest and best, as they are not nearly so subject to leaks as where bricks are used, even if the precaution is taken of laying them in cement in addition to lining the inside with the same material. But in all cases where cement is used, the tanks when new should be filled with soft water, which, after being allowed to stand for a week or ten days, should be thrown away, repeating this a second time before using any, as the new cement makes the water as hard and unsuitable for the roots as if strongly impregnated with lime.—T. B.

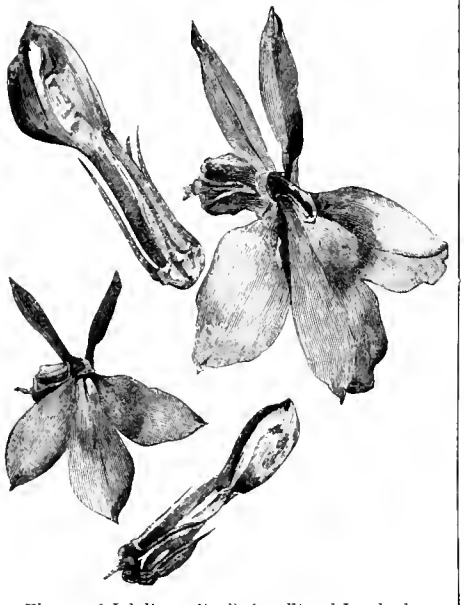
FLOWER GARDEN.

NORTH AMERICAN LOBELIAS.

GREAT numbers of Lobelias are found widely spread over the American continent, even in the tropical parts. Few of them are, however, cultivated, and, from what I can learn, the finer species are not only confined to a comparatively small latitude, but are very few in number, a remark which applies to the perennial and tall growing kinds. Some of the species from the hotter parts are well described by Kunth and other authorities, but if we may judge from L. Tupa, they would be of little use in our climate; whilst L. fulgens, L. splendens, and L. cardinalis are from the more temperate habitats in Carolina, Virginia, and Mexico. After all, though it would never do to shut the door against new comers, we are comparatively independent of kinds that, although good, are yet unsuited for our use by reason of their tender nature, as we not only have in L. syphilitica and the kinds just named the two primary colours in their most brilliant hues, but they are found to cross freely of themselves, and thus to afford great variety.

The following are a few of the most distinctly coloured species belonging to the more northern districts—viz.: L. syphilitica, a border plant much admired for its rich blue flowers, which are abundantly produced in August and September; height from 1 foot to 2 feet. It is a native of Virginia and thrives in a drier soil than the scarlet sorts; moreover, it is also more hardy. Its flowers are numerous and the leafy calyx distinctly serrated. The segments of the angular corolla have their edges ciliated; the flowers are 1½ inches long and form bold racemes. In Dr. Woodville's "Botany," p. 177, there is a good engraving of this plant, and some interesting particulars are furnished respecting its early cultivation in this country, as well as the importance attached to it in its wild state by the North American Indians as a medicine. L. s. maculata is a variety of it with brownish spots on the leaves, but to attempt to notice the different kinds in which the blood of this species is traceable would be like entering a maze. L. colorata (Sweet), though brought from America, is said to be a hybrid between syphilitica and cardinalis, also between Nuttall's L. cœlestis and Graham's L. crispa, if, indeed, they are not identical. These are fine kinds with deep azure-blue flowers, that make their appearance in summer. A white form, too, under the name alba is offered by the trade. Two years ago I raised from a batch of seed the following colours: blues of many shades, rose, scar-

let, and two plants having white flowers; all nearly showed the features of syphilitica, and some were a reproduction of it, pure and simple. With the exception of two scarlets, one with a remarkably fiery or metallic lustre, I considered the seedlings useless, the white ones most so, for they were scarcely more showy than a white Dead Nettle. Of the qualities of alba I cannot speak, having neither grown nor seen it. L. cardinalis (the Cardinal Flower) is a very common plant in Mexico, Carolina, Virginia, and other States. The two or three scarlet-coloured species mostly grown have come to be considered to be pretty nearly one and the same thing, or at most but varieties. Such is not, however, the case. L. splendens and L fulgens, two old and well-known species, are both distinct from and superior to cardinalis. In L. fulgens the leaves are slightly rolled at the edges; they, together with the stems, are rather downy. The rich scarlet flowers have more substance, and the divisions of the corolla are more acute than in L splendens, which has to some extent the features of both of the above, but may be known by its purple leaves, which are not rolled like those of fulgens, nor downy. There are varieties of



Flowers of Lobelia cardinalis (small) and L. splendens (large); both natural size.

it, or, more strictly speaking, there are other varieties, notably a grand one called Queen Victoria From the results already seen in crosses of these scarlet kinds with L. syphilitica, of which Sweet's grand purple L. speciosa is an instance, these Lobelias are worth some attention from raisers. When grown in bold clumps they are princely objects in the latter part of the summer They vary in height from 18 inches to 4 feet. The hardiness of these plants is not such that they may be set in any garden and left to take care of themselves in the same way as tall Campanulas. There may be exceptions to this statement, but they will be found to be few. Still, the care needed to keep up a healthy stock is so small, that those who have seen the dazzling masses of bloom which they produce in autumn surely cannot begrudge it. With timely protection, roots otherwise suitably planted may be kept in the open ground year after year. But in Yorkshire we have another difficulty, perhaps not encountered by our southern friends. Notwithstanding that the base shoots make a very early start, the flowers are often too late to be fully enjoyed, and they get cut by early frosts. So far as my experience goes, the double object of preserving stock and getting the flowers a little sooner is best gained by potting strong crowns early in the autumn obtained either by division or cuttings rooted early in summer. In a cold frame these will probably go on making new roots all winter, and if put out in April in deeply tilled quarters, such as those for Dahlias, they make a grand and early display.

All the roots may be preserved in the open ground if desired by placing coal ashes several inches thick over them. These have been said to be of little use, but they will be found to be otherwise if used early enough. The base crowns become very proud even in autumn, and by the time frosts arrive they have well-developed foliage; therefore to cast a weight of ashes on these crowns at such a stage cannot be helpful They should go on as soon as there is the least sign of sprouts on the surface, when they will not only give protection, but give it at the most fitting stage of next season's growth, and will, moreover, act as a beneficial check. Neither do I like to cut the old stems from off such plants of doubtful hardiness. The ampleness of these will afford some shelter, and I have fancied that the weather let in by the cut, hollow stalks has something to do with root decay. It is a mistake to plant these Lobelias in damp, sunless quarters. They certainly need moisture in summer, but deep tilth is a desideratum.

JOHN WOOD.

Kirkstall.

PENTSTEMONS AND THEIR CULTURE.

THE beauty and effectiveness of Pentstemons entitle them to a foremost position amongst garden flowers, yet a good display of them is but seldom seen. This is probably in a great measure owing to the fact of the Pentstemons being by many regarded as a truly hardy perennial; whereas it is only in very favourable soils and situations that it flourishes. In many places, especially where the natural soil is heavy and moisture-holding, Pentstemons generally either die completely away, or become so enfeebled the second year as to be of but little value. In severe winters they are apt to be entirely destroyed, even when in the enjoyment of all the lusty vigour of youth. In such cases there must be annual propagation of some kind, so that a stock of young plants may be always ready to take the place of those which thus suffer or perish. None, indeed, need mind the trouble which this involves, for the Pentstemon will when well cared for yield as large an amount of satisfaction as any of those tender plants which are so popular in open-air gardens during the summer season.

CUTTINGS — I have never found any difficulty in propagating Pentstemons when I could get the right kind of cuttings. Young succulent shoots, such as spring from the rootstock, strike freely, but they are not always obtainable at the time when the great bulk of bedding plants is increased. It frequently happens, too, that a period of hot, dry weather exercises such an exhaustive effect on plants which have bloomed or are blooming freely as to render the wood hard and sapless, and when such is the case, propagation is uncertain and difficult, for even if cuttings made from such unsuitable material strike, they never make good, vigorous plants. In order to keep up a stock of Pentstemons, cuttings should be taken now and then from early summer onwards. In June and July there are sure to be some succulent shoots, one or two of which may be taken from a good blooming plant without much detracting from its decorative value. Struck at that time they make good plants by autumn, and planted out the following March they form grand flowering specimens that year. The cuttings should be inserted round the edge of a 48-inch pot in very sandy soil and placed in a cold frame, if possible, in a north aspect. When rooted, harden off and eventually pot off singly, keeping them fully exposed to sun and air all through the summer and autumn. Winter them in a cold frame, never taking off air unless very hard weather should occur, and giving just enough water to keep the soil moist. From March onwards pull off the light every day in fine weather, leaving it off when the nights are mild. If the points of the shoots have been pinched, this treatment will have for result the formation of sturdy, bushy little plants, and which, if carefully planted, will make a fine show. Probably the easiest way, and one more often practised now than formerly, is the raising of seedlings. A pinch of seed sown every year will ensure a good supply of young plants, which, in a general way, grow with more freedom than those obtained by means of cuttings. By sowing in June the young plants will attain good strength by autumn; and if two sowings are made, one about the beginning of June, the other a month later, a better succession of bloom will be secured. These seedlings should be treated as recommended in the case of cuttings, nursing them along in the young and tender stage of growth, but exposing them to the open air when large enough to bear heavy rains without injury. A bed of seedling Pentstemons of a good strain is one of the prettiest of floral displays, and must charm all who have an eye for beauty of form and colour, independent of mere brilliancy; and naturally the raising of seedlings has more interest, as one never knows what is coming, and there is sure to be some variation in tint from year to year.

PLANTING. — Pentstemons, more than many things, love a good, free, and deeply stirred soil, and did my means equal my love for this flower, I would take care that the plants had fully 2 feet of good loam at their disposal. What Pentstemons best like is loam rather light than otherwise, with a moderate addition of leaf soil or thoroughly rotted manure. With good drainage, plants thus situated will bear a considerable amount of climatic vicissitudes with equanimity. They will also make strong and sturdy growth, and will produce flowers in great abundance. In the case of light, porous soil, deep tilth is the great point to keep in view, and 18 inches at least in depth should be secured. With a good mulch of short manure in summer, there will then be no difficulty in growing Pentstemons in soils which naturally dry up quickly in hot weather. When Pentstemons are found not to suffer much in winter, they may be planted in October, as then they become well established by the beginning of the following summer, but otherwise the middle of March is time enough. Plant firmly and mulch with about 3 inches of Cocoa-nut fibre or short manure.

J. C. B.

LILIUM AURATUM OUT-OF-DOORS.

I WOULD recommend L. auratum to be planted out-of-doors in groups of four, at say 9 inches apart, on 2 inches or 3 inches of sand and broken charcoal mixed together, thus combining drainage with sweetness. The crown of the bulb should be about 3 inches below the level of the surface, and should be covered with clean sand, which will prevent worms, &c., from making havoc amongst the bulb scales. A stout stake should next be driven into the ground in the centre of the square or circle, as the case may be, to which the stems must be tied as they grow. A stratum of cow manure, baked so as to destroy insects and crushed to powder, should be laid about an inch in thickness on the sand. If the bulbs are planted, say in January, a mound of ashes about 6 inches thick should be placed over each to guard them from frost; indeed, it would need more degrees below zero than we are in the habit of getting to freeze bulbs under such a blanket. This must be an annual application in November. Slugs find the ashes an insuperable barrier, but the Lily shoot pushes easier and straighter through them than even through sand. In May the heap may be made level with the soil, an operation which should be done carefully, so as not to break the young stem. As the season advances the only manure or stimulant required will be an occasional dose of water in which a porous bag of soot has been steeped. If these bulbs be allowed to remain three or four years without disturbance, and also without having the stems removed till December, when they should be carefully twisted out, they will be found to have wasted no time underground in increasing and multiplying, as their young side

growths will furnish evidence. The latter should on no account be allowed to flower, and they will re-appear each succeeding year with stouter stems. At the expiration of four years the whole of that particular colony may be carefully lifted; the young bulbs should be separated carefully from the parent, and their after treatment is only a repetition of that just recorded. Should any scales be broken off in the operation, they may be planted in sand, each piece forming the nucleus of a fresh plant. These remarks apply, with slight variations, to the bulk of the Lily tribe. The chief points are good drainage and full exposure to sunlight, taking care at the same time to protect the bulbs from frost in winter. R. A. H. G.

Horsforth, near Leeds.

SUB-TROPICAL BEDDING.

It may be thought to be a rather inopportune time of year for discussing this subject, but as I intend to write on one phase of it only, that is seedling and hardy plants that can be made to do duty as sub-tropicals, and the present being the time to sow the seeds, and also to plant out hardy kinds, it will be seen that these notes are the opposite of being inopportune. The words sub-tropical bedding are associated in many people's minds with all that is extravagant in horticulture, and as only to be attempted by those who have full command of any number of hothouses and the means of buying or of raising the finest Palms, Dracænas, Tree Ferns, Musas, and the like; but there never was a greater horticultural fallacy, as effects, at any rate equal, and in some respects superior, can be made even with hardy plants alone, though I would not advise this; but for variety's sake, the use in conjunction therewith of the best seedling species of plants that are most easily raised by the ordinary appliances—pits and frames—that are common to most gardens. Perhaps my notions of beauty of form in regard to this subject may be defective, and therefore only to be taken from my standpoint; but they have this advantage, that they have passed muster, nay, have been commended when tested as practical pictures. This much it is necessary to say in order to remove any bias there may be in the minds of persons who only believe in sub-tropical plants of the highest grade and of the tenderest character.

The following is a list of hardy plants that give extra fine effects all the summer, and some few of them continue in a fairly effective condition throughout the winter: Acanthus mollis, A. spinosissimus, and A. lusitanicus, Acacia (common), Ailanthus glandulosa, Aralia Sieboldi and A. japonica, Arundo conspicua, A. Donax and A. versicolor, Bambusa Fortunei, B. Metake, and B. falcata, Bocconia cordata, Crambe cordifolia and C. juncea, Gynerium argenteum, Gunnera scabra, Ferula gigantea, F. communis, Melianthus major, Rhus Cotinus and R. glabra laciniata, Sambucus (silver striped), S. niger aurea, Tamarix germanica, Yucca gloriosa, Y. longifolia, and Y. recurva. Arrangements of the plants must of course be subject to individual taste, but a good rule to follow is to, in each bed, use as large a proportion of evergreen as of deciduous or herbaceous kinds, so that the beds will not look bare in winter. As an illustration, say that a large circular bed has to be furnished on this double season plan, it would be somewhat as follows: Central plant Aralia Sieboldi, next three plants, equidistant, of Sumach (Rhus Cotinus), next six plants of Melianthus major, then a ring of twelve plants, six being Yucca recurva and the other six Acanthus mollis; the latter, though it loses its best leaves, never quite dies down in any winter, and it is one of the grandest of summer foliaged plants that there is in the herbaceous list. In summer such an arrangement might be carpeted with Chilian Beet, Perilla or Coleus, which imparts a real sub-tropical effect, and in winter neatness can be assured by surfacing the bed with Cocoa fibre. The above may be taken as a type of the many pretty arrangements that can be made with hardy plants alone, though personally we give preference to intermixing hardy and easily raised seedling kinds, of which the following are amongst the best for the purpose: Acacia lophantha, Beet (Chilian), Canna Annie Orange, C. gigantea major, C. maxima, C. nigricans, Cannabis gigantea, Chamæpence Casabonæ, C. diacantha, Cineraria maritima, Eucalyptus globulus, Ferdinanda eminens, Grevillea robusta, Perilla nankinensis, P. laciniata atro-purpurea, Ricinus africanus, R. compactus, R. Gibsoni, R. macrocarpus, Salvia argentea, Solanum giganteum, S. marginatum, S. pyracanthum, S. robustum, Wigandia caracasana, and Zea japonica variegata. The majority of these should be sown at once, but such as the Castor-oils (Ricinus), Hemp (Cannabis gigantea), Chilian Beet, Perilla, and Zea japonica variegata, that germinate and grow rapidly, need not be sown for another month, or even more, lest they get crippled by being pot-bound before it is safe to plant them out. The following may be taken as a typical arrangement of seedling and hardy kinds in combination: Tall central plant Ailanthus glandulosa, then three plants of Ricinus sanguineus, and next six plants of Acer Negundo variegatum, then twelve plants of Ricinus Gibsoni, and next a complete circular line of Grevillea robusta, with edging of Salvia argentea and undergrowth of Cineraria maritima. Other arrangements might be given, but these will suffice to show the direction to take to obtain sub-tropical effect without real sub-tropical plants. In these types of plants, with our short summers, free or rapid growth is essential to bring out the full beauty of the plants; hence it follows that high culture must be a first consideration. A close, moist soil is at all seasons several degrees lower in temperature than a porous one, and therefore good drainage should be a prime consideration; and next, deep tilth and abundance of manure. W. W. H.

TENNIS LAWNS.

Lawn tennis has become so popular, that a garden is now considered incomplete without a plot or court in which it can be played; and as this is a good season to set about the formation of ground for the purpose, it may be of use to many if I give a few particulars as to how to proceed. The first thing in the making of fresh lawns is to fix on a suitable site, which, if possible, should be so chosen as not to be shut in too much with shrubs and trees, although shrubs are desirable to a certain extent to secure privacy and trees for partial shade—a great boon on bright days. The trees should, therefore, be on the south side, and the shrubs where they will shut in the ground from public view; but it is very important that they be not sufficiently near for the balls to be driven among them, as then they have to be continually hunted up. This labour may to some extent be obviated by the use of nets; but the better way by far is either to have a sunken court or raised banks, the latter being preferable, especially if the position happens to be at all wet and low. In this case the ground should be drained by running a row or two of tiles through it at a foot or so deep, according to the nature of the soil, and the outlet or level for getting rid of the water. The draining done, the next thing is to level, making it uniformly firm and solid. If the soil is found to be at all stiff and close, it is a good plan to use plenty of sand or road scrapings at top, or in lieu of these fine cinder ashes, either of which will prevent the surface from becoming very hard and cracking in dry weather or sloppy and muddy in wet. As soon as it is levelled and dressed as just described, it will be ready for turfing or sowing; if turves can be had they are best, as there is then a good bottom at once. To have fine herbage on them they must be obtained from a meadow or pasture that has been closely grazed; they should be cut about 9 inches or 1 foot wide, 3 feet long, and 2 inches thick, sizes handy for laying down; when this is done it will be necessary to ram any projecting or high parts down, and then make all smooth by the aid of a heavy roller. This should be plied from time to time during the spring, always taking advantage of any rain or thaw after a frost, as then the surface is soft and in a condition to be affected by pressure. In the event of turf being difficult to get, a good lawn may soon be had by sowing seed. The preparation requisite for this is just the same as that for turf. The best kind of seed for sowing to form fine courts or lawns is that which consists of a mixture of lawn Grasses and small Clover. The seed may be sown in March; it then germinates quickly, and is soon out of the way of birds. When up, gentle rolling is all that is necessary till the Grass gets long, and then the mowing machine must be put to work; but the Grass should not be cut close till it becomes well established, when the machine ought to be passed over it regularly once every week all through the summer and autumn. This will cause it to spread and thicken and form a bottom like a green carpet, elastic and pleasant to tread on. S. D.

PRESERVING CHRISTMAS ROSES FROM DEFORMITY AND SPOT.

It will, I think, be allowed by those who have had experience with Christmas Roses that no matter how strong pot-established or freshly-lifted roots may be, their flowers are never so plump and fine as those on healthy roots in the open garden; that being so, it is of the utmost importance that the flowers should be preserved from injury. Where flowers must be had, I am aware that plants in the open cannot be relied upon in severe seasons, though with a little covering they seem to make some progress even at the worst of times. The point, however, to which I wish to refer is how to get clean flowers without little holes, imperfectly-formed sepals, or decayed edges from open garden roots. Many will doubtless have been annoyed to see buds malformed and eaten as soon as they have emerged from the ground. A damaged bud never makes a perfect flower, and we all know how conspicuous flaws become in large white flowers like those of the Christmas Rose. From what I have observed I believe the damage is done when the buds are very young. About the time when our early frosts occur they are just cracking the surface of the soil and the buds get damaged. I am unable to say positively that slugs injure them, but I have seen them about the young blooms and buds in numbers, and when cleared away the injury ceased. The remedy consists in taking wood ashes in the latter part of autumn and scattering them thickly over the crowns of the Hellebores; with a wooden peg also gently pierce the soil, so as to let down a little water. If this exposes the buds too much, a mixture of sand and more wood ashes should be used to cover them again. The earth thus treated becomes so saturated with potash that the slugs forsake it. All this may seem a deal of trouble, but surely not too much if by it large, pure white flowers can be had at Christmas. No doubt this dressing is of benefit to the plants as a manure as well. After this treatment all that is required is placing bell-glasses over the plants when the buds begin to turn white; they should, however, be tilted a little to admit air.

Kirkstall. J. Wood.

Lilium lancifolium rubrum.—I find the different varieties of Lilium lancifolium to be equal if not superior to the larger flowered L. auratum for many indoor purposes; they make good plants with six or seven blooms in pots not more than 5 inches or 6 inches in diameter; even moderate-sized bulbs in 4-inch pots produce on an average four good blooms, and for mixed floral decorations where small pots are a necessity, such plants are welcome. As soon as the tops of such plants die down in autumn I shake the bulbs out of their pots, sort them into different sizes, and re-pot at once. One good bulb is enough for these small pots, and such bulbs usually throw up two good flower-stems. The soil that suits them best is turfy loam, a little hotbed manure, and sharp silver sand well mixed together. In potting put a good handful of sand right on the crown of the

bulb, and do not fill the pots more than three parts full of soil; when the stems push up they can then be top-dressed with some rich compost; they push out a quantity of roots from the base of the flower-stems, and unless these are covered with soil they wither up. Therefore directly they are visible cover them over, and rough pieces of cow manure may be advantageously applied just before the flowers expand; some weak liquid manure will also add size and colour to the blossoms. They do best under movable frames, which can be raised as growth progresses, keeping the tops always near the glass. Keep a sharp out-look for aphides, and when observed dip the points of the shoots in tobacco water or Gishurst compound, as they get down among the leaves and are not easily exterminated by fumigation.—J. G., *Hants.*

New hybrid Freesia.—Doubtless before long we shall see in English gardens the new Freesia described in a recent number of the *Revue Horticole*. It is a cross between the white-flowered Freesia refracta and the yellow-flowered F. Leichtlini; in habit it is intermediate between the two, being more slender than the first named parent and more robust than the second. The flowers are larger and better than those of either, and are deliciously fragrant, the three inferior petals bearing a deep orange blotch. When well grown it flowers readily during winter, and, being of a more robust character than its parents, it forces well. The name which has been given to this desirable bulbous plant is Freesia hybrida Giardino Corsi-Salviati; it was raised in the gardens of the Marquis Corsi-Salviati, an enthusiastic horticulturist, who resides at Sesto Fiorentino, near Florence.—G. N.

5132.—**Wall climber under trees.**—For covering a wall quickly in such a situation I should recommend "A. M." to plant a vigorous growing variety of Ivy, such as the Irish; other wall plants are not satisfactory where shaded by overhanging trees. As the soil is probably full of tree roots, a border about a couple of feet wide should be dug at the foot of the wall before the Ivy is planted, and should the soil be poor, a little well rotted manure or decayed leaves may with advantage be added to it.—ALPHA.

—— In order to cover a wall in such a position as that described by "A. M." there is nothing equal to Ivy; in fact it is the only plant that will answer if the trees are such as to darken the wall much; and even Ivy, which is the most accommodating of plants, will not do as well under conditions of this kind as where it has more light. There is no plant with which I am acquainted that likes rich soil better than Ivy; the ground should be dug deep, so as to get rid of the roots of the trees for the time being; plenty of manure should be put in; the roots of the trees will not be slow to help themselves to this, and each spring until the wall gets covered there should be a good dressing of manure laid on the top as far as the roots of the Ivy are likely to extend. In such a case where time is an object, and where the growth will necessarily be slower and weaker than if better situated, I should put in the best pot plants I could get; they can be had 7 feet or 8 feet high with four or five shoots each; if planted sufficiently near together, say a yard apart, and the shoots properly spread out evenly they will cover a good space to begin with, and if the work is to be satisfactory, after attention in the way described with, manure must not be wanting. Hedera canariensis, usually called the Irish Ivy, has no superior for a position of this kind.—T. B.

SHORT NOTES.—FLOWER.

Annual Chrysanthemum.—Some plants of this raised from seed sown in the open ground last April began flowering in July, and have continued to do so ever since, although on two separate occasions (November and December) we had 11° of frost.—J. C. C.

Single Dahlia White Queen.—Last summer I stated in THE GARDEN that this was the freest flowering, most distinct, and best of all the single Dahlias, and those who grow this fashionable class of flowers may remember this fact, but I would not advise them to trust to seed. Dependance can only be placed on having the true variety from cuttings.—J. MUIR.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 19.)

LOMARIA NIGRA.—This interesting New Zealand species, although plentiful a few years ago, is now getting scarce. It is distinct in habit and striking in appearance. It is dwarf in growth, and although its barren fronds, borne on short, somewhat fleshy stalks, generally attain about 6 inches in length, they fail to produce much effect when grown in a pit or on level ground. The place in which it shows itself off to perfection is a crevice in rockwork, where the intensely blackish green colour of its foliage contrasts singularly with its surroundings. The fronds, which towards the base become pinnatifid, have their upper part generally furnished with broad and slightly lobed terminal pinnæ, whereas in the pinnate portion the pinnæ, round or obtuse in shape, are divided nearly to the rachis. The fertile fronds, which are much contracted, are also of smaller dimensions. This species greatly dislikes being watered overhead. Greenhouse.

L. NUDA.—A handsome Tasmanian species often met with in cultivation under the name of L. falcata. With the exception of L. gibba, which is more rapid in growth, this is undoubtedly the most useful Lomaria in a young state for table and general decoration. It is of compact habit; its pinnatifid fronds, broadly lanceolate in shape and of a light green colour, are produced in great quantities and very freely from a crown which with age produces a short, slender stem of erect growth and very tough texture. In that respect at least it differs from any other member of the genus. These fronds, which are of a gracefully arching habit, grow from 15 inches to 20 inches in length, and are borne on short, dark, rounded stems of good substance. This species, which is readily propagated from spores and extensively grown, has produced several varieties; the best of which, and indeed the only one worth cultivating for its own decorative merits, is the L. nuda pulcherrima, a very ornamental plant with a constitution equally good as that of the typical kind. From the latter it differs in having the extremity of each of the pinnæ somewhat crested or again pinnatifid and the apex of the frond formed by a light crest adding a special charm to the plant. Both species and variety should at all times be kept from artificial heat, the effect of which on the young growth is most pernicious. Great care must also be taken to keep their foliage dry, so as to avoid the dark brown streaks which one often sees in the pinnæ. Greenhouse.

E. ONOCLEOIDES. — This beautiful evergreen species from the West Indies is now becoming rare in cultivation. It is distinct in habit, its handsome and gracefully arching fronds, which are pinnatifid, being sometimes 30 inches in length, and 4 inches to 6 inches in breadth, forming an exceedingly ornamental head, borne on a stem of slender proportions, sometimes rising to 10 inches or 12 inches in height. The pinnæ, which are closely set often reach nearly 3 inches in length; although pointed at their apex, they have a broad base and are of thin texture. The fertile fronds are widely dissimilar, being sometimes wholly contracted and completely covered with sporangia, whereas in other cases the upper and lower parts of them remain barren and some of the pinnæ in the middle of the fronds only become fertile, similar to the fertile fronds of Osmunda javanica and O. interrupta. At other times, again, their lower part only is contracted and fertile, while the upper portion is as broad as in the barren fronds. The whole plant is of a bright dark green colour and very attractive. Stove.

L. PATERSONI.—A distinct Tasmanian species and very dwarf in habit. Its fronds are produced in great abundance from a short and nearly horizontal root-stock which has a great tendency to creep underground. Being placed, as they are, several deep and all around the crown, they form a thick and handsome head of foliage of a dark green colour, the whole relieved by numerous young fronds, only partly developed, which are to be found among them at almost any time of the year, and which for a long period remain of a beautiful metallic hue. The sterile ones grow to about 21 inches in length, and are generally single, lanceolate, shortly and suddenly acuminate, and gradually tapering towards the stalk, which is short and fleshy. The margins of the barren fronds are beautifully waved. One characteristic, which is peculiar to this kind only, I believe, is the length of the fertile fronds, which, contrary to those of all other Lomarias, are longer than the barren ones; they often average 18 inches; they are, besides, borne on longer stalks also than the others; they are linear, slightly acuminated, and bear two or three segments, also linear, and about 4 inches long. Although as a rule they are simple, it sometimes happens, especially when the plant is strong and growing vigorously—as, for instance, in the delightful rockery at Devenham Bank, Worcester—they become pinnatifid towards their middle, and bear from five to seven lanceolate segments; it is a species which does best when planted out. Greenhouse.

L. PROCERA.—This very handsome Australian species, which is not grown as extensively as it really deserves, is of a massive and stately habit. Although not a gigantic grower, it possesses a very robust constitution, and grows to a good size, when it is really very ornamental. Its gracefully arching fronds are borne on thick, fleshy stalks, very scaly at the base; they average about 20 inches in height by 8 inches in breadth, and are pinnate, the pinnæ being obtuse, acuminate, of a leathery texture, and thickened at the margins. The pinnæ of the barren fronds, of a dark green colour, grow to about 4 inches in length, and measure about 1 inch in their broadest part; whereas those of the fertile fronds, which are themselves much shorter and blunt, are linear, and entirely covered with sporangia. It is one of the few kinds which do not object to being watered overhead now and then. Greenhouse.

L. PUNCTULATA.—This South African species, which in many collections is still found under the name of Scolopendrium Krebsi, is a most interesting plant, but one which does not possess the slightest outward sign or character of a Scolopendrium. It is an easily-grown plant, producing from a central crown a great quantity of pinnate fronds, ovate-lanceolate in shape, and growing from 12 inches to 15 inches high; the pinnæ are narrow and some 2 inches to 3 inches long, the lower ones being auricled at the base. They are of a deep green colour. The general aspect of the plant is that of a Lomaria or a Blechnum, whose fertile fronds are similar in shape to the barren ones. It requires thorough drainage, stagnation at the roots being particularly injurious to it, and the soil most suitable for it is an equal mixture of peat and loam, with a little addition of sand. Its fronds are also very valuable for decoration, as they retain their freshness a long time when cut and put in water. Greenhouse.

L. VULCANICA.—A totally distinct species from New Zealand, suitable alike for a rock fernery or for a Fern case. It is a very good grower, although it rarely exceeds 10 inches in height. The fronds, which are of a dark green colour, rise from a fleshy crown, and average from 6 inches to 10 inches high; they are pinnatifid and lanceolate in shape, and are borne on stalks, whose base is covered with black, chaffy scales. Their pinnæ, which are rather obtuse, are from 1 inch to 1½ inches long, and somewhat auriculate, especially the lower pair. The fertile fronds are of the same size as those that are barren, but much contracted, and completely covered with sporangia, except the lower pair of pinnæ, which as a rule are auriculate and totally sterile. Greenhouse.

L. ZAMIOIDES.—This—one of the most distinct species in the genus—is a native of South Africa; it is easily distinguishable from all others on account of its extremely dense habit, and likewise by the succulent, leathery texture of its foliage. Although it hardly grows to sufficient height to be classed among Tree Ferns, it produces a stout, massive, and thick stem, which sometimes attains

a height of from 3 feet to 4 feet, and is densely clothed with large, deep black, chaffy scales. From the stem rises a quantity of sturdy fronds from 2 feet to 3 feet in length, pinnate and Zamia-like in general appearance. The pinnæ, which are from 3 inches to 5 inches long, are so closely set as to be almost imbricated, especially in young plants; they are of a dark, shining green colour on the upper side, whereas the under surface is at first of a bright tawny hue, gradually turning to a very pale green in mature fronds. Greenhouse.

Fell.ea.

Rose Garden.

THE WEATHER AND THE ROSES.

With the exception of sufficient frost in November to cut off the single Dahlias (then in full bloom), we have as yet had no winter. But for that seasonable accident, probably this season would have presented the unique phenomena of Dahlias and other tender flowers blooming throughout the winter, the beauty of the earth thus matching, or at least harmonising with, the unprecedented brilliancy of the sky. As it is, Tea Roses on walls have been blooming throughout the winter, and now Roses in general in the open are making a general rush towards growth, such as has probably never been seen before in the middle of January. For some weeks the Roses behaved admirably, nor listened to the voice of the charmers, charm they ever so powerfully or wisely. But when the thrushes began to utter their sweet springtide notes above them, and the earthworms crawled forth among their roots, and the moist mists of winter became warmed and yet more warm, the Roses joined in the general unseasonable advance of vegetation, and seem now to have outrun in the race of speed all other sorts of plants and of living things.

Unseasonable weather affects different forms of life differently. For example, the smaller birds seem readily deceived: the rooks seldom or never. Already some of the former, and even the thrushes, seem tittering their love notes, and are seriously engaged in selecting nesting places, and even in building. The rooks meanwhile, while holding an unusual number of solemn conclaves, lasting longer than usual at eventide, only resolve to enjoy their rich and full feast of food all the more, and not to be taken in and done for by nesting out of season. Similar contrasts are numerous enough among plants. Take, for in tance, the white Thorns of our hedgerows in contrast with the buds of our Roses. The former are still resting safely in the safe security of winter dormancy; the latter, as you will see by the buds enclosed—all samples from the open air—are already far advanced towards bud and blossomhood. Welcome as the mild open weather has been for planting and other groundwork, it is now becoming serious for vegetation. True, the Roses are more advanced than other plants or trees, yet the buds of Peaches and Nectarines on the walls are also on the move, and the Roses are already in great danger. The buds sent are from Roses that have not been pruned; in fact we have suffered so severely from spring frosts, that we prune no Roses till March now. No doubt we lose a tremendous amount of vital force, fluid, growth, time, but the latter proves our gain and safety in the end. If any readers can point out any other or better way of retarding base buds than the simple one of leaving the tops unpruned till the last moment, perhaps they will be so good as to do so. Of course there is

Another way, which I have pointed out previously and I regret not having preached it more this abnormally precocious season, that is the lifting and replanting of the Roses towards the end of October or early in November. A check to growth, then, not only favours the multiplication of roots, but also holds back the tops; with such winterless winters as this propably the latter is the greater good. In the search for perpetuity of blossoming we have enfeebled the constitution of our Roses in two ways. By the infusion of Tea, China, Noisette, and other tender blood the Roses have become less able to withstand the cold. By making them more excitable they are the more liable to injury, for the cold-resisting power of most plants is largely determined by their dormancy. What with cross-breeding, forcing, culture, and unseasonably mild weather, dormancy has hardly been seen or known among our Roses of late years. Last year was bad enough, and this threatens to be far worse, unless Jack Frost wakes up and puts his stopper on to the heads of our Roses. But he must come soon or not at all if he is to do our Roses good and not harm. But it is all too soon to prophesy, and rosarians are not a croaking crew, whatever may have been said to the contrary. Besides, I enclose a bud of Niphetos, about to open on the open wall, and other buds are nearly as forward. I fancy such gatherings are quite unprecedented. Nor are these by any means alone. Up till now several vases have been kept fairly filled all winter with Roses from the open air, slightly aided by a few from under glass. Has anyone before gathered Niphetos from the open on January 21?

D. T Fish.

Influence of the stock on the graft.—Some contest this influence. Very lately my friend Alphonse Karr has cited an example, that of Hybrid Perpetual Roses flowering better when grafted on the common China Rose than on the Brier. In my opinion that influence is general, although not always perceptible. Let those who have doubts make an experiment. Let them plant two wild Briers, like those used for standard Roses, near one another; graft one of them with a Tea Rose, and let the other grow at random. After three or four years they will find that the grafted one has scarcely grown thicker, and that the one left to itself has nearly doubled in circumference; and perhaps the grafted one has died. Who does not know that Pears are grafted on the Quince to obtain pyramidal forms, growth not too vigorous, and in consequence earlier fruit? Let those who are not acquainted with this matter graft the same variety of Pears on a Quince stock and on a seedling Pear of the same age, and they will soon perceive that the latter is by far the more vigorous. I had in the severe winter of 1871 a sad experience; all the Pear trees in my garden grafted on Quinces were killed by the hard frost, while those on Pear stocks survived. Why do Tea Roses, and particularly the more delicate varieties, acquire more vigour when grafted on the seedling Brier than on their own roots?—Jean Sisley, *Monplaisir, Lyons.*

Gloire de Dijon.—The esteem in which this Rose is generally held is a sufficient guarantee of its merits. There is one striking feature in its character that is deserving of special notice; I allude to the way in which it adapts itself to the various forms in which it is cultivated. As a climber or as a standard it is remarkable for the freedom with which it flowers; besides this, it has the great merit of being as hardy as any of the Hybrid Perpetuals. When used as a climber I prefer it on its own roots. Here, in the west of England, I find it enduring all kinds of winters on a wall with an east aspect, without in any way suffering; and the way in which it renews itself by sending up strong young shoots from the base is well worthy of remark. Hard pruning is very hurtful to this Rose. It is better to cut out some of the old wood than to remove the young altogether. In order to secure a regular succession of flowers every year of a presentable size, it is necessary that a good portion of young wood should be preserved for the next season's flowering, merely shortening back a few inches of the tops of the shoots that are laid in. In providing a station for the roots, it is necessary to bear in mind that, as a rule, this is a long-lived Rose, and the preparation must be in accordance with its character. It is not very particular as to soil, provided this be deep and holding and contain something substantial for the plant to feed upon. One thing may be reckoned upon as certain, and that is, it is a difficult matter to confine its roots, and they are not many. Three or four thong-like roots sent out as feeders are about the usual number belonging to a large plant; but I cannot attempt to say how far or in what direction they may travel in search of food unless they are confined. This Rose is, unfortunately, when grown as a standard, pruned on the same hard-and-fast rule as the Hybrid Perpetuals, which is quite at variance with its character. To cut the young growth back to a spur is wrong. The old wood only should be cut away, and the young and strong shoots left from 15 inches to 18 inches long; then they may be expected to flower in a satisfactory manner. This is a useful Rose for training on a frame in the shape of an umbrella, a form of growth that was some years ago more in favour than at present.—J. C.

Garden Flora.

PLATE 424.

CLOVE AND BORDER CARNATIONS.*

It may not be out of place to ask what is a border Carnation. The accompanying plate shows self-coloured flowers only. But the definition should be as broad and far-reaching as it is possible to make it, and should include every variety that can be successfully cultivated in the open borders the year round. I have had satisfactory proof that a large proportion of our beautiful flakes and bizarres can be grown all the year round in open borders. Many people, however, prefer selfs, and therefore the selection of varieties should perhaps be left to those who intend to grow them. To such I should say have as much variety as possible, and plant as many as there is room for. Much newly-awakened interest, I observe, is taken in these sweet and beautiful flowers, and their value as border plants is fast becoming known. Cobbett preferred a fine Carnation to a gold watch set with diamonds, and the renowned Sarah, Duchess of Marlborough, has been frequently heard to say that "nothing gave her so much pleasure as the sight of her Carnations in full bloom, and which she preferred to all the greenhouse plants in her possession." Besides her border Carnations, the Duchess cultivated about 200 of them in pots. Old florists well understood the value of planting the Carnation in masses, which is certainly the best way to make them effective, and for this purpose self-coloured ones are the best. Hogg, writing somewhere about sixty years ago, says: "The effect produced by a number of Carnations growing together is undoubtedly striking." Further, it is stated that "the Clove Gilliflower, or the true old Clove, as it is called, of which we hear so much mention made, if we may credit the testimony of very old gardeners, is now lost to the country. One flower, they will tell you, would scent the whole garden, the perfume was so strong and powerful." Whether we now possess the "true old Clove" or not, no one can tell. And it is a question whether we require it, as many of our recently introduced selfs and flakes also are clove-scented. That we have a superior selection of Carnations now to what existed sixty years ago does not admit of a doubt.

A selection of Cloves consisting of different colours should include the following, viz.: Crimson, and shades thereof: The true old crimson, Crimson Pet, Géant des Batailles, Hindoo, and Sparkler. Purple: Albert, Cremorne, Imperial Purple, Lord Rosebery, and Daniel Delworth. Scarlet: Coroner, Jupiter, Lucifer, Vivid, and Fire-eater. Pink:

* Drawn in Mr. Turner's nursery, Slough, August 10, 1883.

Annie Williams, Cynthia, Mary Morris, Mrs. Whitmore, and Rosa Bonheur. White: Bride (Hodge's), Bridesmaid, Duchess of Connaught, The Governor (blush), Mrs. Matthews, and W. P. Milner. Yellow: Chromatella, King of Yellows, Lady Cathcart, and Lady Rosebery.

Nearly all these self-coloured Carnations thrive out-of-doors, planted in groups and arranged in colours. They even succeed within reach of the smoke of London, as is proved by the fine displays annually made by them in Messrs. Veitch's nursery, Chelsea, where they are grown by thousands and arranged in beds according to their colours. The finer varieties, too, were grown equally well in quite as unsuitable surroundings in Mr. Dodwell's little garden at Clapham. Mr. Dodwell used to plant masses of seedlings, which he also grouped with good effect in the very limited space at his command. A certain way of making this good old English flower more popular would be to plant large groups of it in the London parks. What a grand effect masses of the various colours would have backed up with evergreen shrubs and in front a broad margin of well-kept lawn! Their perfume, too, so grateful and yet so distinct from that of any other flower, would also add to their value. In order to get the best results from a bed of Carnations, they should be planted in deep, well-manured soil, and the plants should be left two years in the same place.

The grass, as it is called, should be layered in August. This is done by scraping away some of the surface soil from around the plants and replacing it with fine sandy material, and the work ought to be done in such a way that when the layering is finished the whole surface of the bed should be level. If the layers form roots freely, there will be far too many of them. It may, therefore, be well to thin them out, when enough might possibly be obtained to plant two more beds the same size as the original one, still leaving enough to form a mass of blooms the following season. J. DOUGLAS.

SEASONABLE WORK.

FLORAL DECORATIONS.

ORNAMENTAL Grasses impart to an arrangement a lightness and distinctive character which Fern fronds, handsome as they are, fail to give. Moreover, it is difficult to keep up the needful amount of cut Ferns without disfiguring the plants. Briza maxima and gracilis are two of the best of the Quaking Grasses. We find the former to be especially valuable, and to arrange well with Water Lilies and similar subjects. This sort is also one of the best for cutting and drying for later use. If cut while the deep green tint is in it, it retains its colour better than if left till it has assumed a brownish tinge. Lagurus ovatus (the Turk's-head Grass) is one of the most distinct kinds, as well as one of the best for keeping purposes if treated as just advised in the case of the Briza. For bold arrangements in association with large flowers this is an excellent kind. Another valuable Grass is Eragrostis elegans; this is a later kind than those previously named, and comes in useful for cut purposes up to the time when the early frosts spoil its colour. It is a somewhat stronger sort than the others; when well grown it attains a height of from 2 feet to 2½ feet. It should, therefore, be allowed more room than the others in which to develop itself. The following sorts are all useful and distinct, viz., Anthoxanthum gracile, Brizopyrum siculum, Bromus brizæformis and giganteus, Hordeum jubatum, and Paspalum elegans. Two new kinds have recently been brought forward, viz, Briza spicata and Bromus patulus nanus, both of which will doubtless prove useful. These Grasses taken collectively are about the best that can be annually raised from seed. Stipa pennata and elegantissima may be increased by division, perhaps, with more certain results than from seeds. These ornamental Grasses are all valuable in their seasons and for preserving for use afterwards, not, however, after they have been disfigured by drying. When those raised from seed are well above the soil it will be well to thin out any kind that has come up too thickly. This will throw more stamina into those that are left, rendering them more durable. The following annuals are all useful associated with Grasses, viz., Campanula Loreyi and its white variety, Catananche cœrulea, Sweet Sultan (yellow), Rhodanthes, Linum grandiflorum coccineum, the Corn Flowers in various colours, dwarf Poppies, single Dahlias, which have a future before them, and last, but not least, Gypsophila elegans and its variety rosea. Many more annuals might be named, but these are among the best for decorative arrangements and for using in conjunction with Grasses. One of the hardy perennials that may be raised from seed is Chelone barbata coccinea; this, when in flower, yields good spikes for trumpet vases.

INDOOR PLANTS.

CONSERVATORY.—After the clearing out of Chrysanthemums from conservatories, there is often some falling off in the display. This should be remedied by having ready to take their places such plants as come into bloom, either naturally at that time, or with a little forcing. For this purpose there are few things better than the different varieties of winter flowering Salvias, such as those named a few weeks back. These, combined with Camellias, forced Lilacs, Hyacinths, Tulips, Narcissi, Cyclamens, Primulas, double and single, early sown Cinerarias, pot Mignonette, Epacrises, Correas, Genistas, and Azaleas, will, if grown in sufficient quantities, keep up a display little inferior to that which may be looked for later on. It is well, in particular, to urge the claims of Azaleas for conservatory decoration in the two dull months, December and January, during which time there is no more difficulty in having them in good blooming condition than there is later on provided the plants have been properly prepared by having their growth made early and their buds set, but this cannot be done by turning the plants out-of-doors to set their buds when the growth was partially made the summer previous. To have them in good blooming order in winter they must be kept tolerably warm under glass through the summer, so that their buds are plump and big, looking as if they were ready to burst by the middle of September. Managed thus, there will be no difficulty experienced in getting the flowers to open freely in a moderate heat in November. In this way there is no forcing in reality required, such as would cause the blooms to come soft in texture, making them of little use for cutting. Medium-sized plants are best for the purpose, and they should never be stopped, but allowed to grow, as they will do if kept clear from insects and vigorous, a little loose, which admits of half the flowers they produce being cut with a fair length of wood attached to them, a way in which they are of much more use than when the growth is stumpy and short.

CLIMBERS that are employed to cover an end wall of a conservatory, or to furnish the roof, are often the least satisfactory of its occupants. This is especially the case when the plants chosen are naturally of too strong and vigorous a habit. In this case they either smother everything else in the house or have to be so severely cut in as to interfere with their flowering, and, what is even more detrimental to their well-being; they generally exhaust the limited quantity of soil that can be afforded them to grow in to an extent that does not admit of its fertility being kept up by additions or manuring. Where such a state of matters exists it is much the best to remove the old plants and replace them with others of a less rampant habit; this will give an opportunity for completely removing the soil. This is essential, as with permanent plants of this kind comparatively little can be done in the way of removal without destroying the roots to an extent that would be injurious. With the same object in view those plants that will thrive in loam should have soil of that description given them in preference to peat. Whatever is to be done in the way of cleaning conservatory climbers from the worst kinds of insects that affect them, such as mealy bug and scale, should now be carried out whilst the plants are comparatively at rest, as during this time the work can be done much more effectually as well as with less injury. As has often been urged, a sustained effort should be made to completely eradicate these pests, for where nothing is done beyond periodically freeing the plants from a portion of them, the work has to be repeated indefinitely, the result being a continuous expenditure of labour, with more or less injury to the plants.

BROWALLIA ELATA.—This free-flowering little plant is very useful for decorative purposes, coming into bloom in a comparatively short time from seed. If some are raised in this way two or three times in the course of a year, a continuous succession will be kept up; if a little seed is now put in and placed in moderate warmth, it will at once vegetate. As soon as the seedlings are up they should be placed on a shelf near the glass and allowed to remain until large enough to handle, when they must be pricked off into small pots.

CAMELLIAS.—Where these have not yet had their annual cleaning by sponging the leaves and removing any scale insects that may exist on the shoots, it should at once be attended to. In the neighbourhood of towns, where the atmosphere is charged with soot, they are greatly benefited by having their leaves sponged two or three times a year. If the plants are turned out in beds—and still more so when grown in pots or tubs in conservatories, where some warmth is kept up during the winter—especial care must be taken that the atmosphere, as well as the soil, is not allowed to get dry, or the buds are sure to drop; this is particularly the case with the white varieties, which are more easily affected in this way than the others. Where any large plants of inferior kinds exist that it is intended to graft with better sorts, they may now be headed down and grafted. Any of the numerous ways in which grafting is performed will answer, but if the plants are large and the stems a considerable length before branching out, they may be cut down 8 inches or 10 inches above the collar and cleft grafted, putting in four or six, binding the stock round so as to keep the scions in their places, and surrounding the whole with ordinary grafting clay, after which they may be placed in a house or pit where a little extra warmth is kept up. We have found Camellias to succeed best when grafted thus early before the sap is about to rise, as if the work is deferred too long the flow of sap is such as to often prevent the grafts taking.

FUCHSIAS.—Young plants struck from cuttings at the latter end of summer and that have been kept on growing slowly in an intermediate temperature will now require larger pots, for if ever they are allowed to become at all cramped for want of pot room, they will not move freely afterwards. Such as have occupied 5-inch or 6-inch pots may be moved into others 2 inches or 3 inches larger, using good turfy loam with a little leaf-mould, some thoroughly rotten manure, and sand in proportion to the greater or less quantity which the loam naturally contains; but Fuchsias do not require the soil to be quite so open as some other quick-growing plants do. Pot moderately firm, but not so much so as in the case of some things of a more permanent character; pinch out the points of the shoots to induce a close, well-furnished condition. Some varieties require less attention in this respect than others, being naturally disposed to branch out without stopping. A well-grown Fuchsia should, when in bloom, present a dense mass of pendent shoots drooping from a single stem, each clothed with healthy foliage and flowers. This state can be secured in these autumn-struck plants in a way that it is difficult to accomplish

with old specimens or with later spring-struck stock, although the latter make nice small examples, but for large conservatories where size is an object with a considerable portion of the occupants autumn-struck plants are the best.

FRUIT.

Vines.—So far a mild winter has favoured early forcing, and now that the days are increasing in length, a little time apparently lost through the dark month of December may be redeemed by taking advantage of bright days for running up the temperature of the house after it is closed, and by making frequent additions of warm leaves to the internal ridges and linings which have been at work ever since the house was closed. A continuance of mild weathea will lend an inducement to the maintenance of a high night temperature, but a period of rest being absolutely necessary to successful culture, a mean of 60° must not be exceeded during the hours of darkness. Run up to 70° on bright mornings with a chink of air at the apex, and close early to ensure a rise to 75° for a short time with plenty of atmospheric moisture. Continue direct syringing until the bunches are well formed and increase the fire heat if they show signs of running to tendril and drawing up towards the glass. Many growers leave off syringing as soon as the Vines break, but whenever early forcing is carried on against Nature, a good syringe in skilful hands plays a very important part in keeping the Vines clean, healthy, and vigorous through the early stages of growth. If pruning and cleansing in late houses be still in arrear, lose no time in bringing this work to a close. Avoid the barbarous practice of depriving the rods of their natural protection by scraping off the bark, but wash them well with strong soap water, and keep the ventilators open until the time arrives for starting the Vines. Prepare Muscat houses for shutting up at the end of the month by giving repeated waterings to inside borders, and have a good body of well-worked fermenting material ready for use as an economiser of fire heat as well as to produce a mild, soft atmosphere, so essential to the proper filling and bursting of the buds. By taking time by the forelock, and bringing Muscats on steadily, they will break evenly, and set their fruit better than if placed under high pressure before they come into flower; moreover, having the whole of the summer before them, the fruit will become thoroughly ripe by the end of August, the Vines will have a long season of rest, and the Grapes, being finished under bright sun-heat, will be in the best possible condition for keeping after removal to the Grape room. A mid-season house containing mixed kinds may now be started in the usual way, and pot Vines which have been rested and cut down for growing into fruiting canes may be brought forward by being placed on the fermenting material. Give water sparingly, shake out, and pot when they have made growths 2 inches in length, and plunge in a bottom-heat of 70°. Put in the remainder of the "eyes," using small pots firmly filled with sandy loam, and have a good bottom-heat in a close pit ready for their reception by the first week in February. If grafting is contemplated, perhaps the best time is the rising of the sap in the Vines selected for working.

Pot Vines.—Fruiting Vines may be kept at a temperature of 60° to 65° by night, and 10° higher through the day; give air at 70°, and run up a few degrees after closing. Having selected the bunches for the crop, stop the shoots at the third joint, and allow the first set of laterals to extend until every part of the trellis is covered, but not crowded with foliage. Feed well with tepid liquid, and keep the roots well covered with fresh surface-dressing as often as the soil is washed away from them. Guard against sudden checks by the admission of cold draughts of air, or by allowing the bottom-heat to fall below 70° before it is renovated with fresh leaves in a fermenting state. If the pots are standing on pedestals, the whole mass may be turned to the bottom of the pit without disturbing the roots, which must be kept progressing, otherwise the Grapes will not set well.

Peaches.—Where numbers of houses are forced a busy time is close upon us, and in order to keep pace with daily details in this and other departments no time must be lost in getting late trees tied in and ready for starting or retarding as the case may be. In the management of late Peaches, which it is usual to retard in the spring, all pruning should be performed as soon as the fruit is gathered, when the application of fire-heat for a few weeks will bring up the blossom buds and ripen the wood to the tips. This important point having been secured, vigorous young trees may be tied in full length; but should there exist a doubt as to their ripeness, the strongest shoots may be cut back to a triple bud, which always contains a shoot-producing bud in the centre. If the trees have not been attacked by insects dispense with paints and strong dressings, which frequently do more harm than good, and wash well with warm soapy water, or a weak solution of Gishurst compound, 4 ounces to the gallon of water. Large trees which produce an abundance of blossom may be top-dressed with good rotten manure as soon as they are tied in. Young ones will set their fruit best without the manure; but in each case the roots must be well supplied with water from the tanks, as the buds are now swelling, and a short supply of water will prove fatal to the crop. Give an abundance of air by night and day, and to counteract the influence of this mild weather, run off all portable lights when the external air stands above 40°. In cold gardens, where the open-air Peach crop is uncertain, large span-roofed houses of the most simple and inexpensive character, if judiciously planted with the best late kinds, will soon clear their cost, as the demand for late house fruit is considerably on the increase, and, like late Grapes, pays better than early forcing. For this house such varieties as Barrington, Walburton Late Admirable, Gregory's Late, Prince of Wales, Sea Eagle (a fine free-bearing kind which keeps a long time after it is gathered), the Nectarine Peach, and a few of the high-coloured mid-season sorts, including Bellegarde, Royal George, and Dymond. Nectarines being less valuable, a good yellow, like Pitmaston or Pine-apple, Stanwick Elruge, and Albert Victor might suffice. If the houses are built lofty and planted with trained standards, Bays, Aloes, and a host of half-hardy subjects may be kept in them through the winter months.

Cucumbers.—A few seeds of Telegraph may now be sown in small pots filled with light, rich soil, and placed near the glass in a light, well-heated pit. Cuttings of a good strain may also be struck in a sharp bottom-heat, provided they can be taken from healthy plants which are free from insects. To ensure success, select firm, short-jointed shoots, insert them singly in small pots filled with fibry turf, previously warmed to a temperature of 80°, plunge under bell-glasses, and treat as seedlings after they are well rooted. Where Cucumber houses are divided into sections, now is a good time to take one in hand and divest the plants of all the fruit and a portion of the old foliage which may have become infested with spider or mildew—two of the worst enemies we have to contend with in winter culture. Cleanse the house and glass, syringe with a mild insecticide, and top-dress the beds or pots with fresh virgin loam and horse manure. If worms have found their way into the beds or pots, warm clarified lime water will soon dislodge them. See that houses in full bearing are not over-cropped, feed well with warm liquid manure and guano water alternately, fill the evaporating pans with the same, and top-dress the roots with fresh maiden loam little and often. With increasing length of days syringing may be more frequent, provided it can be done without raising a scalding steam from the pipes when they are hot. Many houses of winter Cucumbers are ruined by scalding steam from highly-heated pipes, and it generally happens that the mischief is not discovered until it is too late to seek a remedy. Amateurs and others who grow their Cucumbers upon the old-fashioned principle, and depend upon their own seed beds for plants, should now set about getting the materials ready for making up a bed sufficiently large to receive a one-light frame. Good stable manure, well worked and fermented, and sound Oak leaves, in equal proportions, will work up well together.

FLOWER GARDEN.

The exceptionally mild, open weather is proving a boon to all who have much planting or top-dressing labour on hand. For all Conifers and American plants the top-dressing should be vegetable soil, that is, peat or well-rotted leaf soil. If well-decayed stable manure can be afforded to be mixed with it, the trees will better appreciate it. Before applying the dressing, remove all the loose top soil, Moss, Couch Grass, or other troublesome weeds, and then give at least double the quantity of the new dressing in lieu of the old soil cleared off, well firming it over the roots, and if the trees are on turf, the sods may be at once rolled back, but should not be beaten down till a good soaking of rain has taken place to wash the soil in about the roots. Ornamental trees of every sort that seem unhealthy may often be resuscitated by treatment of this kind. Thorns, Beeches, Limes, Oaks, and the like are not particular as to character of soil, provided it is good. For these kinds of trees we usually use the refuse from Vine and other fruit tree borders, and apply the manure in the form of a mulching over the entire space of the new dressing. When the weather is such that top-dressing cannot be proceeded with, the trenching of ground, draining, &c., by way of preparation for new plantations, should be done, it being desirable that all planting be completed and the roots established in their new quarters ere there be danger of a check from drying March winds or early summer drought.

Bedding plants.—It is now time that any plants that are required in quantity and of which the stock is limited by reason of restricted space for wintering should be started into growth for the production of cuttings. Coleus, Iresines, Alternantheras, and variegated Pelargoniums are among those that we have now to start, and of the kinds to be raised from seed the following are now being sown, viz., Cannas, Solanums, Ferdinandas, Grevilleas, Ferulas, Centaureas, and Chamæpeuces; all are sown in pans and covered with glass till germination has taken place; bottom heat required, 68°; top heat, 70°. It is too early as yet to sow such quick-growing kinds as Castor-oils, Hemp, and Maize, because if sown now the pots get so full of roots that the plants get stunted before planting-out time. Cannas that were lifted and wintered in sheds may now be divided into single crowns, and be potted in small pots and started into growth, but the slower the growth is excited the more robustly will the crowns come up. Dahlias, too, sorts that are required in quantity, should be at once placed in heat; they produce cuttings most freely when planted on a bed of leaves in the propagating pit. Cocoa fibre refuse or leaf soil is just as good to plant them in as the best soil that can be got. The single varieties are now so much to the front that everyone will be expected to have them, and now is the time to set about their production. Violas, Calceolarias, Gnaphaliums, Echeverias, and Sempervivums in cold pits have suffered this season from damp more than they usually do from frost, and to prevent further mischief in this direction they should be frequently picked over, and every article of decayed foliage removed, the surface soil stirred to hinder Moss formation and to prevent a soured state; air should also be freely given whenever the weather is favourable.

Euphorbia fulgens planted out.—In order to have plenty of long brilliant wreaths of flowers, plant this Euphorbia out. So long as the position is a light one and the night temperature does not fall below 55°, there will be plenty of bloom. It may be trained against a wall or

form a simple bush in the border. I saw a short time ago a wonderfully fine specimen of it growing in a small brick pit that had been run up in a corner of the stove, and I have seen hedges formed with it along the back of Cucumber houses, but to do it well there must be plenty of light to ripen the wood. Soil is a matter of less importance.—E. H.

FRUIT GARDEN.

VINE ROOTS GOING OUTSIDE.

Mr. Baines reiterates his views on this subject—one on which he invariably retails second-hand information—somebody else's experience, not his own. All that gardeners hold in reference to the matter is that a Vine planted midway between an inside and outside border will send its roots principally into the latter, treatment and all other things being equal; this I hold to be true, but I do not attempt to explain it, and I shall be much obliged if Mr. Baines will tell me of any vinery border in the kingdom in which the Vine roots did not take to the outside border by preference when it was equally accessible and good. His idea that Vine roots go outside because they are not well treated inside is repudiated by nearly every experienced cultivator. I, for my part, am perfectly willing to adopt either view on good evidence, but my experience, which, in the case of Vines, is probably greater and more varied than Mr. Baines's, convinces me that he is quite wrong. Until he can point to an example where the Vines were planted near the front arches and took to the inside border as much as to the outside one, I will continue to think he is wrong. I do not wish Mr. Baines, in answering such a question, to compromise the name of any gardener, but just to tell me where such a fact has been proved, and I will investigate the matter myself. If, as Mr. Baines says, the Vine roots go outside because they "do not get fair treatment inside," he is bound to tell us why Vines planted wholly inside against the back wall or in the centre of the inside border do just as well or better than those at the front, and which, although planted inside, send their roots nearly all outside. I have both early and late Vines with their roots all inside and all outside, and they do equally well in both cases, and I have had vineries till this year in which the Vines could go either in or out, and my constant experience has been as I have recorded. Mr. Baines's case is just this: Vine roots take as readily to inside as outside borders where the opportunities are equal either way, and when they do not extend inside it is because the inside borders are neglected. This is a matter that can easily be settled by an appeal to facts. Let Mr. Baines explain how Vines growing perforce inside succeed so well when those planted in the same house and in the same soil run outside if placed where they can get out. The common sense presumption is that if the inside border was so much neglected that the front Vines left it altogether, those confined to the inside would not thrive either, but this does not happen. J. S. W.

INSIDE V. OUTSIDE VINE BORDERS.

On the subject as to whether Vine borders should be wholly inside or outside, or a combination of the two, opinions appear to be pretty equally divided. Judging from what I have seen, I should say that the majority of vineries are so constructed as to admit of the Vines rooting in both inside and outside borders, but this fact is not proof positive of the wisdom of having the two borders, and I have further observed that not a few gardeners have thought it unnecessary to complete either the inside or outside borders as the case may be. Some of the best Grapes to be seen have been, and are, annually grown by the advocates of either system, but I believe, if the truth could be ascertained, the preponderance rests with those who have their Vines rooted principally or exclusively in outside borders. While admitting this, I yet do not commit myself to the opinion that inside borders wholly are mistakes and ought not therefore to be recommended. On the contrary, I hold that more depends upon the skill of those in charge than upon the position of the Vine border, and that it is quite possible for an experienced and intelligent man to grow good Grapes under either condition. There are advantages and disadvantages attending both practices, these varying according to circumstances.

Outside borders are, as a rule, preferable for either the inexperienced amateur or the overworked gardener, or for a place, and unfortunately there are many such, in which water at times, and generally when most wanted, is scarce. During the autumn, winter, and spring months, outside borders mostly receive abundance of moisture in the shape of soaking rains, and by mulching them, say after a good soaking late in April or May, with fresh strawy stable manure, in preference to short manure, which binds and then cracks, they will be kept sufficiently moist during our average summers. Even in a dry season one or two good soakings suffice, but with inside borders the case is very different. These outside borders may become much too cold for the roots of Vines that are forced, but if they receive a heavy covering of fresh dry leaves as soon as these can be procured, with boards or straw thatching to keep them in their place, and to throw off snow water and heavy rains, this difficulty may be partially obviated. Further, if these borders are formed above the surface or on a level with the hot-water pipes, they get considerable warmth from being in contact with the front wall. It is surprising how warm these front walls become, especially when it is necessary to fire hard, owing to the temperature being low outside. The good old flues are not so despicable as we like to think them; these used to warm the outside borders much better than the modern hot-water apparatus. It has long been considered wrong practice to dry off borders planted with any kind of fruit trees and Grapes in particular, and in the case of outside borders there is less danger of this occurring either from choice or neglect than in that of inside ones. The chief recommendation possessed by

Inside borders is the fact of their being perfectly under the control of the grower. Cold they never are, and they rarely become too wet, unless it happens that water finds its way in through some interrupted old drain, the outlet of the drainage of the border being also defective. Too much water is never given them. The majority of inside borders do not get half enough water, and in many cases the probability is that they do not receive sufficient to reach the carefully laid drains. It is here where the danger attending inside borders lies, as once they become dry the greatest difficulty is experienced in thoroughly re-moistening them. Unless they are kept well supplied with water the result will be poor root action, correspondingly poor top-growth, plenty of red spider, and perhaps mildew, and consequently poor crops, coupled with the gradual decline in the vigour of the Vine. Where this state of affairs exists all the blame is attached to the inside border and those who formed it, whereas the fault does not lie so much in the border as in its treatment. Those who understand and meet the requirements of the Grape Vine can grow first-class fruit with the aid of inside borders, Muscats apparently being particularly good when thus grown.

Combination borders, as I may term those that are both inside and outside, appear to find the greatest number of adopters, but I have no great faith in them. I do not consider two borders at all necessary. The formation of one good-sized border is an expensive affair, and if this is well done it is ample. At any rate, it is really wasteful to make two large borders, and, if they must be had, then let them be of moderate size, the two together being of the width of the house. Form these or any other borders of good lasting materials, and when well occupied with roots frequently soak them with liquid manure, annually top dress with good compost, occasionally remove the front of the border to one-third of the extent of the whole, and carefully replace the preserved roots in good, fresh compost; always maintain them uniformly moist, and, other conditions being favourable, first-rate Grapes must be the result. It is often stated as conclusive evidence in support of the theory which claims the superiority of outside over inside borders, that the roots of Vines planted inside are certain to ramble and become most active in the connected outside border. So they will, but not if they receive proper encouragement inside. They run into the outside borders simply because the conditions there are more favourable to the formation and spread of the roots than those inside. Leaves materially assist in the formation of roots, but as reciprocity is absolutely necessary, the rooting medium must also be suitable, and it is quite certain a nearly dust-dry border is more likely to destroy the roots than encourage their spread.

Choice of borders.—It may be wondered which practice or what kind of border I favour. My anticipatory reply is, Neither exclusively, but all according to circumstances. In some positions an outside border might either be an obstruction or an eyesore, and in that case I would say, Form an inside one, and see that ample provision in the shape of a large soft water tank is made for supplying the proper amount of water. Another house it may be desirable to convert into a vinery, where perhaps brick pits and permanent pathways already exist; or it may be that a new house is to be built in a position where water is scarce and manual labour perhaps expensive and not over plentiful. In all such cases I would recommend outside borders. I prefer heated inside borders for very early Grapes, and ordinary inside borders for the latest supplies, as being respectively the most conducive to the production of very early or very superior and long-keeping fruit. The combination borders are a sort of safety valve for the undecided. What is their principal recommendation? W. I. M.

PLANTING FRUITING VINE CANES.

In my opinion "S. C." (p. 10) will not gain anything by planting fruiting Vine canes for permanent Vines, or by planting alternately fruiting and permanent canes, as the treatment of the fruiting Vines interferes with the treatment of the permanent ones. "S. C." should prepare a good sweet border, get some healthy one-year-old Vines, plant them towards the end of March, and allow them to start as quietly as possible, in order that the buds may break strongly and regularly. When the buds are fairly broken, retain the strongest bud nearest the root as a leader. Gradually increase the heat, and continue to give them plenty of heat and moisture, till growth is completed. When the leader gets two-thirds up the rafter, pinch out the centre, and allow the side laterals to run at will. When growth is complete, give a drier atmosphere, with plenty of heat and liberal front ventilation in accordance with the temperature outside; this keeps the atmosphere in motion, retains the heat, plumps up the buds, and, under such conditions and with well-ripened canes, he may look forward to having a crop of good Grapes the following season. The extra cost for fruiting canes will go far to buy a good supply of Grapes in the summer season, and, in the long run, "S. C." will find himself considerably in pocket.

James Smith.

Waterdale Gardens, St. Helens.

Premature ripening of Pears.—For two successive seasons Winter Nelis ripened in November, and were all eaten early in December. This happened in the case of fruit gathered from trees trained on walls with an eastern aspect, as well as on that of those with a southerly aspect. The variety, though small, is decidedly second to none in point of quality, but we should value it much more at its natural season of ripening, viz., during December and January. Huyshe's Prince of Wales had to be used during November, though it sometimes keeps good till the end of the year. Ne Plus Meuris is never good here, and what fruits of it we have are quite ripe now; yet

in some gardens it is most valuable in March. At present we have not a sound fruit of Knight's Monarch left, and Easter Beurré is ripening fast, and forms a good succession to Glou Morceau. Beurré Rance is also commencing to ripen, but the Bergamotte Esperen is behaving better, and the same may be said of Josephine de Malines. I cannot account for this premature ripening, and I cannot prevent it. If subjected to a low temperature the fruits either refuse to ripen at all, or become spotted and comparatively worthless.—W. I. M.

Diseased Vines (*R. Spiers*).—Your Vines appear to have been attacked by thrips. Tobacco smoke usually kills this insect, but, like most remedies, it does not affect the eggs in any way, so that it should be applied more than once. Fumigation would be useless. Paint the pipes with the following composition: One lb. fresh lime, 2 lbs. flowers of sulphur; mix with enough water to form a thick paint. Then make the pipes as hot as possible; the fumes from the sulphur will kill the thrips; repeat the operation in a week. Various insecticides will kill thrips if they can be made to reach the insects, but with Vines in leaf this would be difficult, and if many escape they would soon swarm again.—G. S. S.

5129.—**Apple trees cankering.**—"G. N." enquires, What is the best treatment for cankered trees? To answer that question aright one would require to know the character of the ground and perhaps its position. If the soil is heavy, with a damp, sour subsoil, it might be necessary to drain it. Apple trees also have a great tendency to canker on light, gravelly soil. In both cases canker is caused by the roots running into the subsoil, whence they extract nutriment injurious to them. Your correspondent ought to dig a circular trench half round the trees, at a distance of from 4 feet to 12 feet. The larger the tree, the greater should be the distance. It may be necessary to dig down 18 inches, cutting through all the roots; then work back towards the tree with a fork, throwing out the soil. During this process the thick roots striking deep into the ground should be cut through. Some good loam, or at least fresh soil, should be put in to replace that taken out, and the old roots should be kept near the surface. All the severed roots will throw out a quantity of fibrous roots, which, striking into the new and suitable soil, will throw vigour into the trees. The other side of the trees should be done the following season. Some rotten manure spread over the roots will help to keep them near the surface Root pruning should be performed in November.—J. Douglas.

Shrivelled Grapes plumping up again.—Mr. Baines says (p. 18), "that no amount of water given after the berries begin to shrivel will cause them to plump up again." He is mistaken. I do not know if the fact could be put to any practical use, but shrivelled Grapes will plump up again if sufficient moisture is pumped into them, and he will find the fact recorded in Thomson's "Book on the Vine" (p. 62). I was in charge at the time of the vineries, and in a Lady Downes Vine on which the Grapes were allowed to hang till the sap began to rise for experiment the shrivelled berries "suddenly got plump, while others that had shown no signs of shrivelling burst their skins, and the sap began to drip from them." This was bleeding through the berries; and I may remark, in connection with the subject of Grapes cracking, that the bursting of the berries in this instance did not resemble cracking. The moisture oozed or burst through the skin and stood in globules on the surface, and dropped when it had accumulated, so that it could no longer hold on; but, to the best of my recollection, the berries did not split or crack, like those of the Madresfield Court Grape.—J. S.

Nailing freshly planted wall trees.—When wall trees are planted it is customary to loosen the soil to a considerable depth, and also to add a considerable amount of new soil; and, no matter how firmly it may be consolidated by treading, it will continue to settle down for some months. Nevertheless, one frequently finds trees that have only been planted a few days tightly braced up to the wall, with the result that as the soil settles down the trees get completely suspended by their fastenings and the roots get broken. Then, as they fail to make further progress, they are condemned as useless and probably thrown away. This is no imaginary evil, but one of frequent occurrence, especially where no regular gardener is kept, as in that case there is the inducement to finish off the work at once. If, however, the future well-being of the trees is considered, they would invariably be left unnailed for several weeks, or even months. In fact, I find it best to only temporarily fasten the branches to the wall during the first year, simply to prevent injury from wind waving. At the end of one year's growth the shoots may be placed in their proper position and securely fastened; but at first they should on no account be tightly braced up to the wall or brought down from their erect habit of growth too quickly. In the fan system of training, which is decidedly the best for wall trees, the outer branches should only be brought down by degrees to their horizontal position, as they grow more freely if allowed to rise at the points, and as the centre fills up they can be brought down to the true fan form.—J. G., *Hants.*

KAY'S DENDROMETER.

(AN INSTRUMENT FOR MEASURING HEIGHTS OF TREES.)

There are various methods of ascertaining the heights of trees, all more or less satisfactory; but the simplest and most efficient contrivance that has come under our notice is a little instrument recently invented by Mr. Kay, forester to the Marquis of Bute, Rothesay, and which is called Kay's Dendrometer. It consists of a square board (see fig. 1), having its sides 9½ inches in length. On the sides of this square parallel lines are drawn at right angles to the edges. The square is attached by means of a pivot and clamp screw to a stout iron-shod pole about 4½ feet in length—a convenient height for taking tree measurements.

This instrument is constructed on the principle which applies to all right-angled triangles. The side A B (fig. 1) is termed the base-line, and corresponds with the horizontal line from the tree or other object intended to be measured, to the foot of the observer. The lines running perpendicular to the base line represent the altitude or height of the object either in feet, links, or yards, according to the scale by which the base line is measured. The height of any given tree is indicated on the face of the Dendrometer at the point where the plumb line (suspended from the point A) intersects the perpendicular line corresponding with the distance on the base line from the centre of the trunk of the tree to the observer. The figures along the top and bottom of the instrument show the number of divisions corresponding to the lines of altitude interseeted by the plumb line.

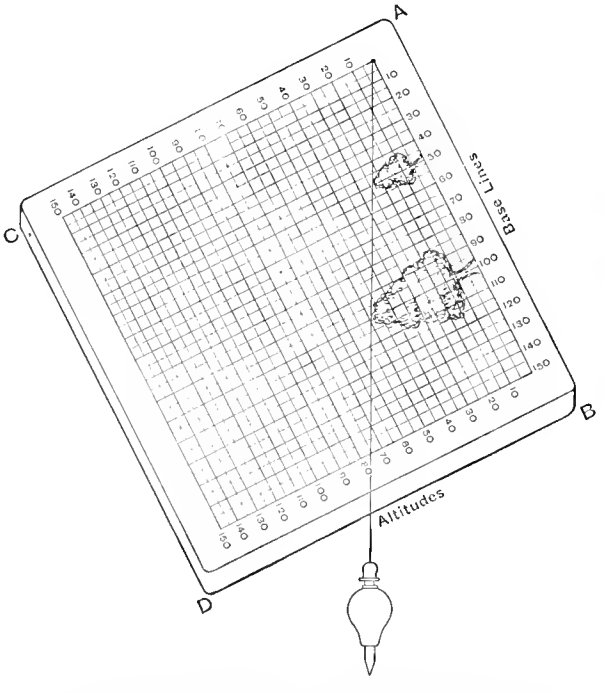


Fig. 1.—Square face of instrument. On the square itself the altitude lines are marked at every foot, the base lines at every 5 feet.

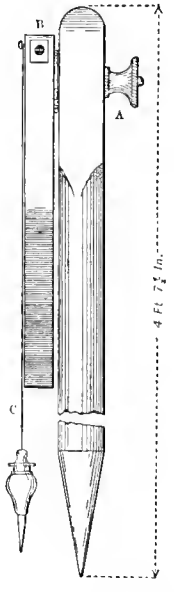


Fig. 5.—Side view of instrument. A, clamp screw; B, perforation for taking the sight; C, plumb line.

Each line of altitude represented on the instrument corresponds with a unit of the scale employed, whether this scale be in feet, links, or yards. The base line is marked only at every fifth unit, thus, 5, 10, 15, 20, and so on. Whatever standard of measurement is fixed upon, whether it be in feet, links, or yards, for the base line, it is of course understood that the lines of altitude must be fixed to the same scale. The divisions on the face of the instrument are 150, but if at any time it be desired to ascertain the height of

SHORT NOTES.—FRUIT.

5113.—**Manuring fruit trees.**—Fruit trees when young and vigorous require no liquid manure in winter.—J. D. E.

5133.—**Scale on Peaches.**—"A Young Gardener" (p. 51) will find Murray's Vine and Peach Composition to kill the scale on his Peaches.—G. M., *West Ashby Manor, Horncastle.*

5130.—**Strawberry culture.**—It is better not to dig between the rows of Strawberry plants; but it is a good plan to mulch between the plants with some rotten stable manure.—J. D.

Pears on the Quince.—I have for many years grown Pears on the Quince stock, but I fancy there is a sameness about the taste of the fruit, which to my mind always has a Quince flavour and is devoid of the delicate aroma of Pears grown on the Pear stock. Is this fancy on my part, or have any of your readers had the same experience?—F. C. B.

an object above 150 feet, the divisions of the instrument must be termed yards, when, of course, a height of three times 150 feet (450 feet) can be measured.

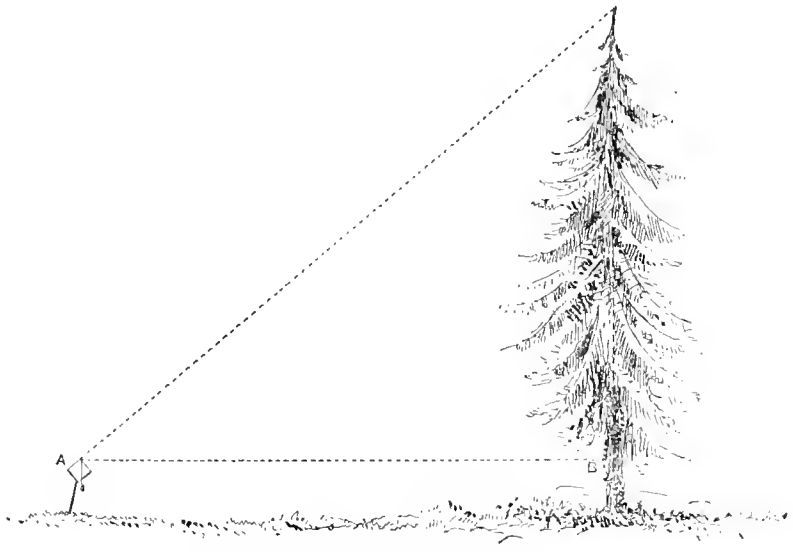


Fig. 2.—Mode of measuring trees quite perpendicular.

THE MODE OF USING the Dendrometer is as follows: Suppose the object to be measured be a tree. The operator must first place himself at a sufficient distance from the tree, so that the extreme top of it can be distinctly seen. Note must then be made of the distance from the centre of the bole to the staff of the Dendrometer. At this point (where the operator stands) the staff of the Dendrometer is to be fixed in the ground. Then setting it in the direction of the tree, turn the square face of the instrument (which works on a pivot fixed on the upper angle) until the plumb line falls direct upon the line A B (fig. 1). Fix the square in this position by the clamp screw, and then look through the "sight" (the perforation running through the square from C to A, fig. 1), and mark the place on the tree where the line of sight cuts the tree, as at B in fig. 2. This point (B) will give the level corresponding to the height of the observer. Next loosen the clamp screw and turn the square until the line of sight cuts the extreme top of the tree, then tighten the clamp screw again. The plumb line will then be seen to make a triangle with the base and altitude lines, as shown in fig 1. The height of the tree will be indicated by the number of the line of altitude, which is intersected by the plumb line, on the base line corresponding with the measured distance from the tree.

The diagram (fig. 1) shows clearly what takes place during an observation. Suppose the base line from the centre of the tree trunk to the observer measures 50 feet, and after "sighting" the top of the tree the plumb line falls over the square in the manner indicated in the diagram (the upper figure), the height of the tree measured would then be 25 feet. Again, if the base line measured 100 feet, and after "sighting" the topmost point of a tree, the plumb fell across the square, as in the lower figure in the diagram, the tree would be 50 feet in height. Of course, in every case the height from the ground to the observer's eye must be added to the height read on the instrument.

IN MEASURING RECLINING TREES or other objects, care must be taken not to measure the base line from the centre of the tree trunk, but from the point on the ground perpendicular to the highest part of the tree. This point may be ascertained by holding a plumb-line between the eye and the tree, and marking on the ground the place thus indicated, as at B, fig. 3. On finding this point perpendicular to the highest part of the tree, the observer may proceed as in the preceding instructions. It will thus be seen that in measuring objects not exactly perpendicular, some care is necessary in the operation, or the measurements will be inaccurate. In the case of ascertaining the height of an object, as, for instance, that represented in fig. 3, if the base line were measured from the centre of the bole, instead of from the point B, the observed height would be too great.

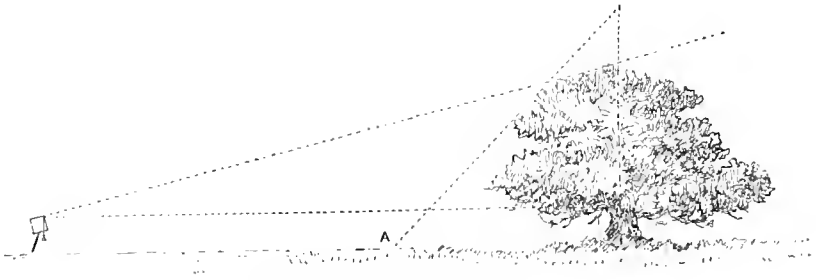


Fig. 4.—Mode of measuring round-headed trees.

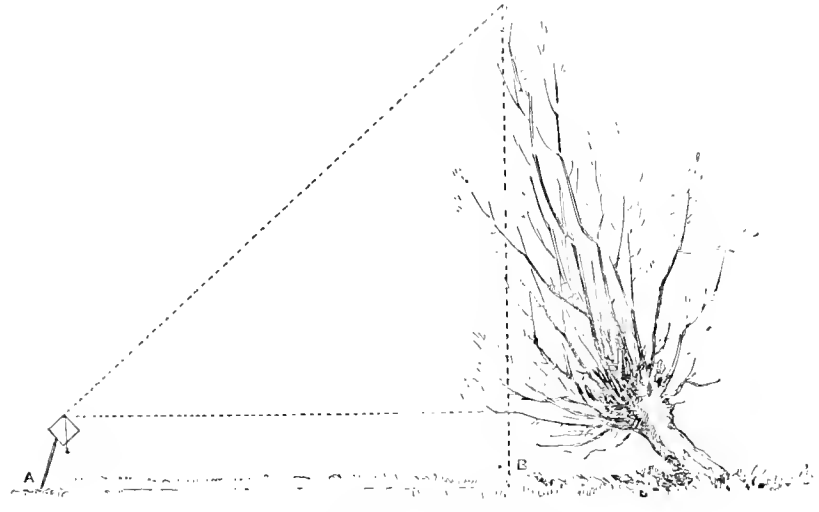


Fig 3.—Mode of measuring reclining trees.

In short, if the base line were measured from the centre of the bole on the side to which the tree is leaning, it would give too great a height: and on the other hand, if the base line were measured on the side the tree is leaning from, the height so ascertained would be less than the true height of the tree.

MEASURING FLAT-TOPPED TREES.—In measuring the height of round or flat-topped trees, the observer must choose a station sufficiently distant, so as to fully see the highest part. If viewed too near, as at A in fig. 4, it is impossible for one to see the highest part of the tree, and the result is that the height is greatly increased. Therefore, in order to avoid such errors, the object should be viewed as far back as possible, so as to obtain a view of the highest point right over the true perpendicular, or in the event of this not being possible, the perpendicular and height of some definite point may be ascertained, as in fig. 3. The height of any part of a tree or other object may be ascertained by subtracting the result of one observation from that of another. This instrument possesses many advantages; it is simple, no calculation being required; the height of any tree or other object can be ascertained at any convenient distance, and by it the height of any portion of a tree, such as the height of the trunk, can be ascertained from one station. It is, moreover, light and portable—not its least recommendation for an instrument of this kind.

It has recently been awarded a first-class silver medal by the Scottish Arboricultural Society—a

sufficient proof of its efficiency. The agents for the sale of this instrument are Messrs. Dicksons and Co., 1, Waterloo Place, Edinburgh, by whom the instrument was sent to us, from which our diagrams were prepared.—*Woods and Forests.*

NEW PLANTS FOR 1884.

Mr. Thompson, of Ipswich, has just issued a supplement to his seed list, from which we extract the following relating to this year's new plants:—

Aquilegia vulgaris grandiflora alba.—Tastes proverbially differ, and I must confess that by the side of the splendid Aquilegia cœrulea, A. chrysantha, or the older but scarcely inferior A. Skinneri and A. truncata, the ordinary varieties of the common Columbine (A. vulgaris), possess but few attractions for me, though many of the hybrid forms or varieties are handsome. The present variety is, however, so remarkable for the size of its flowers, as well as for the purity of their colour, that it may be regarded as scarcely inferior in beauty to any of the above named species. It has the not inconsiderable advantage over them of being less delicate, succeeding in any soil, and surviving the severest winter. Whether grown singly or planted in groups, it forms a very attractive object, and can be strongly recommended for general cultivation.

Allium Wallichianum.—The genus Allium, from an ornamental point of view, suffers in general estimation from its culinary associations, a circumstance which is much to be regretted, many of the species being of great interest. Amongst these may be named A. azureum, A. acuminatum, A. Moly, A. ciliatum, A. triquetrum, not to speak of the more recent introductions, such as A. giganteum, A. Ostrowskianum, A. atro-sanguineum, and, lastly, the handsome bulb now first offered. It is said to grow from 1 foot to 2 feet high, and bears in August and September a large head of handsome deep purple flowers. It is a native of Sikkim, and will doubtless prove quite hardy in this country.

Aster Bigelowi.—This handsome composite has already been offered by me under the name of Machæranthera Townshendi, the designation under which it was cultivated at Kew; but the genus Machæranthera being now merged in that of the Aster, from which it does not differ in any important particular, I am desirous of at once adopting the change of name. The new specific name has the right of priority, it having been earlier described under that name by Prof. Gray, in the Proceedings of the American Academy of Sciences. Although such changes of nomenclature are unpleasant, it is but the first plunge, and it is desirable to adopt it at once before the superseded name has taken any deep root. Under whatever name it may be distributed, it is a very ornamental plant, well deserving of cultivation. It has been already described in a previous issue, but for the benefit of new customers it may be proper to state that it grows 3 feet to 4 feet high, producing many stems from the same crown, which are clothed with lanceola e leaves with a wavy margin, and terminated by corymbs of large flower-heads, 2 inches or mo re across, the ray florets being of a deep purple colour, and the disk yellow. It is perfectly hardy, but, like most true biennials, does not flower till the second year.

Aster Bigelowi lilacinus.—This differs chiefly from the preceding in being of somewhat dwarfer habit, and in having ray florets of a pleasing lilac-purple shade. It is not a garden variety, but a wild form which retains all its characteristics when raised from seed. As affording a contrast of colour it can be well recommended.

Calendula maritima fl.-pl.—This and the next species have been received from a Neapolitan seed firm, with the following description, which I give textually: The Calendula maritima is a native of the Sicilian mountains, and is dwarf, compact, and free blooming, and in our country valuable as a spring flower. The beautiful double form we now have pleasure in offering is far superior to all others of the officinalis class. Its flowers are somewhat smaller, but are so abundant that they cover the plants for two to three months, and, though perennial, it commences flowering two months after being sown. It comes true from seed, both as to colour and doubleness.

Calendula sicula fl.-pl.—This variety differs from the foregoing chiefly in the colour of its flowers, which are of a brilliant orange. It is of the same bushy habit, and flowers quite as abundantly. A coloured figure of this plant appeared in the *Gartenflora* for September last, with description by Dr. E. Regel.

Chrysanthemum Myconis. — This species, though long known to botanists, and familiar to most visitors to southern Europe, is seldom, if ever, met with in gardens, where it appears to be as deserving of a place as the better known C. segetum, to which it is allied. It is of dwarf and bushy habit, growing little more than a foot high, with foliage similar to that of the species just named, but less divided. The flower-heads are entirely yellow, and are said to be nearly 4 inches across, though wild specimens are usually smaller in dimensions. It blooms freely in a small state, and is stated to be very useful for cutting, and superior for that purpose to C. coronarium and its varieties. Requires only the treatment of the hardy annuals.

Delphinium trollifolium — Although the tuberous-rooted perennial Larkspurs of the North American continent, if we except the brilliant D. cardinale and D. nudicaule, are, as a rule, less showy than the garden hybrids of late years obtained in Europe, they possess a character of their own which should render them acceptable in any flower border. Of this section of the genus, the D. tricorne, a very dwarf species, with small dark blue flowers, from the Eastern States, is not unknown in gardens, but it is decidedly eclipsed by the present plant, which was first detected in Oregon, by the late Mr. Elihu Hall, of Athens, Illinois, by whom seeds were sent to me some years since. The D. trollifolium produces from strong roots stems fully 2 feet high, bearing rather large, long-stalked, five to seven-lobed foliage, the lobes cleft acuminately. The flowers are produced on the upper half of the stem, in a loose, leafy raceme, with long pedicels, and are individually nearly as large as in D. sinense; colour a deep, clear blue, with usually a white centre. It is not only a really showy species, but derives additional value from its blooming at least before the ordinary border Delphiniums are in flower. It is scarcely necessary to state that it is perfectly hardy. The seed, when spring sown, usually remains dormant till the following autumn or winter, but if sown as soon as gathered it germinates early the following spring; it should, therefore, be sown in pans under glass.

Epilobium Fleischeri. — Although several species of Willow Herb possess showy flowers, few of their number have been promoted to the dignity of garden plants, owing to their weedy habit and roots. Two dwarf species are, however, occasionally met with in gardens which are really deserving of cultivation. One of these, the E. Dodoniæ, is a European plant, growing rather more than a foot high, with linear foliage and rosy purple flowers. The other, E. obcordatum, a recent introduction from California, with bright rose-coloured flowers, is less known, though a far more ornamental plant than the preceding. Owing, however, to its alpine character, it is more delicate, and succeeds best on the rockery. To these two species a third has been recently added, the E. Fleischeri, from the mountains of Transylvania, of which seeds are now offered. It forms a spreading tuft of slender shoots, nearly a foot long, which are clothed with lineal uncial foliage, and in their upper portion produce numerous large rosy purple flowers from their axils. Though well adapted to the rockery, it succeeds equally well in the borders, and in both situations flowers profusely for several weeks together.

Glaucium tricolor.—This is a pretty Poppywort, bearing some resemblance to the G. phœniceum, growing about one foot high, with lyrately-pinnatifid foliage and numerous scarlet flowers, each petal being marked at its base with a roundish black spot margined with yellow. It may be treated like the Eschscholtzias, and if sown with them will form a pretty contrast. It is a native of Podolia, and though not a strictly new plant, does not appear to have been in cultivation for many years.

Haplocarpha Leichtlini.—This showy new composite was offered last year without any personal experience of its merits. It proves to be a very desirable introduction, of easy cultivation, either as a half-hardy annual, as it blooms first season, or as a frame perennial. When treated as an annual it cannot be sown too early, and if potted off singly and shifted on till May, it will commence blooming soon after being planted out. The seeds are somewhat irregular in their growth, some appearing quickly and others coming up at intervals throughout the season. Those which germinate late in the summer can be potted and kept under glass through the winter, when their flowers will serve to enliven the dull months, though they require slight sunshine to ensure full expansion. The plant is a most profuse bloomer, when planted out throwing up a succession of flower-heads throughout the summer and autumn.

Ipomœa paudurata.—As this very distinct species appears for the first time, it may be desirable to give a brief description of it. It is a twining perennial plant, nearly smooth, with long, stout stems arising from a huge root, with leaves regularly heart-shaped and pointed, some of them contracted in the middle, so as to be fiddle-shaped. The flowers are produced, from one to five, on peduncles longer than the leaf-stalks, with an open funnel-shaped corolla, 3 inches long, white, except in the throat, which is purple. From their large size they produce much effect in bright sunshine. The root attains frequently a weight of 10 lbs. to 20 lbs., and is popularly known from its shape as Man of the Earth, and also Wild Potato Vine. As it is found in the New England States, it should succeed in warm, well-drained, sandy loams in this country, and deserves a trial.

Lavatera arborea variegata.—The Tree Mallow is an old inhabitant of our gardens, and in the southern counties of England may occasionally be met with trained on cottage walls, where it will often reach to the height of 8 feet or 10 feet. Its flowers are, however, less showy than those of many other Malvaceous plants, and its foliage is not devoid of a certain degree of coarseness. The variegated form now offered is a striking improvement on the typical species, the foliage being handsomely and irregularly blotched with dark green, pale greenish gray, and creamy white. It must, however, be understood that this variegation does not show itself in a marked degree till the plants have entered their second year's growth, when a large percentage will assume their mottled livery. Although nominally hardy, it will be advisable to protect the seedlings from frost the first winter, planting them out in spring, when they will make rapid growth. As the plant bears pruning well, it may be grown to any form, and any well-marked varieties may be perpetuated by cuttings. This plant received a first-class certificate from the Royal Horticultural Society in May, 1882.

Papaver umbrosum fl.-pl. — The single-flowered form of this striking annual species, introduced to cultivation by me several years since, has become an important feature in most gardens for spring and early summer flowering. The form now offered is a remarkable one, the numerous stamens being changed into small tongue-shaped petals, each of which carries the corresponding blackish blotch Further cultivation will doubtless result in the development of these petaloid organs into petals as large as the outer series. The seed offered will produce about sixty per cent. of double flowers. Like the single form, it may be sown in autumn for spring flowering, or in March for summer blooming.

Primula Parryi.—This handsome alpine Primrose was first offered by me some years since in seed collected by the distinguished botanist whose name it bears. But the plant being still rare in

gardens, I am glad to be again in a position to supply freshly collected seed. It is pretty well known that this species is found growing on the margin of alpine rivulets, fed by the melting snows of the Rocky Mountains, and its roots are frequently submerged. From this it may be readily inferred that its treatment should be that of a semi-aquatic. The seeds require to be kept moist to ensure germination, and must not be subjected to a high temperature. A cool greenhouse, the pot of seed being set on a shallow pan of water, will be the most suitable arrangement to ensure success. Should the seedlings not appear at the end of three or four weeks, the seed pot may be removed to a warmer house—a change which will probably bring up a fair crop of young plants.

SILENE PENDULA COMPACTA FL.-PL. — The single form of this plant (S. pendula compacta) has become indispensable to all spring gardening, and this new double form, owing to the greater duration of its flowers, cannot fail to become equally so; indeed, when perfectly fixed in character it will probably supersede the original plant entirely, as the double Zinnia elegans has almost extinguished the single forms. It is one of the best dwarf bedding annuals for early blooming that may be had in succession by frequent sowings. Like those of the single form, its flowers are bright rose-coloured, but here we have a new white-flowered variety, which is said to be a desirable companion plant, and which gives flowers equally double and in the same profusion.

STATICE SUWAROWI.—Of the very limited number of annual Statices this novelty appears to be the finest yet introduced. It resembles in general habit the S. spicata, but is altogether a larger and a far more showy plant. It produces a rosette of undulated glaucous spreading leaves, each about 5 inches long and 1½ inches to 2 inches broad. From this tuft are thrown up several erect branching flower-stems, bearing dense flower-spikes of a bright rose, with a shade of crimson, each primary spike being from 10 inches to 15 inches long and the secondary ones about half that length. As in all the plants of this genus, the individual blossoms are small, but compensate by their number for this. A single plant is said to last in flower for two months, and by successive sowings it may be had in bloom during the whole summer and autumn. It is a native of Turkestan and requires the treatment of the half-hardy annuals.

SWEET PEA PRINCESS BEATRICE.—The popularity of the Sweet Pea renders it certain beforehand that any new variety of a well-marked character will meet with a cordial welcome. Several new forms have been recently brought forward, of which that named above is probably the best. It differs only in the colour of its flowers, which are of a rich carmine-rose, slightly shaded with lighter and darker tints. The petals are of remarkable substance, similar to those of Violet Queen, but it is of a more robust and free flowering habit than that variety. It is said to be more fragrant than the older sorts, and to come perfectly true from seed. It received the award of a first-class certificate from the Royal Horticultural Society in August last.

TRITOMA CORALLINA.—The varieties of Tritoma Uvaria are indisputably among the showiest of garden plants, but their vigorous habit of growth renders them less suitable for very small gardens than for those of some extent. The introduction of the charming dwarf species, T. Macowani, a few years since, therefore, met a real want, and it has speedily found its way into most gardens where choice plants are esteemed. Its flower-scapes grow little more than 2 feet high, the foliage being even shorter, and its flower-spike is relieved from the lumpishness which characterises that of the older varieties by the spreading lobes of the perianth, which feature imparts a lightness and elegance of form wanting in the other species, and which reminds one of some varieties of Epacris. The pale saffron tint of its flower-tubes adds much to its charms, the colour being quite distinct from that of the rest. T. corallina is said to be a hybrid of the species just named, and differs from it by its larger flower-spikes, which are of a bright coral-red, and which are produced in longer succession than in the parent plant.

ARCTOTIS ASPERA VAR ARBORESCENS.—If less showy than the splendid A. aureola, this species has at least the merit of being of easier propagation and cultivation. Its large, pale, creamy white flowers are marked with pale yellow around the disc, and the under surface of the ray is tinted with purple; the flowers are very freely produced. It should have considerable space allotted to it when planted put, its growth being rapid.

HETEROTOMA LOBELIOIDES —This curious and interesting plant was offered by me in seed two years since, but appears to have met with little attention. It is, however, so pretty and so well suited to open air culture in summer that it only requires to become more widely known to secure a permanent place in our gardens, where its growth will be more compact and its flowers more abundant than when treated as a greenhouse plant. Under glass it will attain the height of 2 feet or more, but in the open ground it will scarcely exceed 1½ feet. The foliage varies from ovate-cordate to lanceolate, and is repandly toothed and acuminate. The flowers are produced in leafy terminal racemes, and are remarkable for their singular form. The upper portion is of a yellow colour, and is similar in shape to that of a Lobelia, but, unlike the flowers of that genus, is furnished with a curved spur of a purple-crimson colour, bearing some analogy to that of Impatiens Jerdoniæ. They are produced freely not only from the principal stems but also from the laterals, and as the root continues to throw up a succession of stems throughout the season, ample provision is thus made for a prolonged flowering period. It may be safely planted out after due hardening off, at the time when the other half-hardy perennials are placed in their summer quarters, that is to say, from the middle to the end of May.

LEONOTIS LEONURUS (Lion's Tail).—Under its older and better known name of Phlomis Leonurus this handsome Labiate was formerly met with at intervals in English gardens, but amid the crowd of competitors for admission to the flower border has lately been almost overlooked. It is a dwarf suffruticose perennial, growing in good soil 5 feet or 6 feet high, but flowering in a much smaller state, with soft, strongly veined, lanceolate serrated foliage 1½ inches to 3 inches in length. The flowers are produced in whorled clusters from the upper axils of the principal stem and branches, and are of a fine orange-scarlet colour, in form resembling those of some Justicias, or the more homely white Dead Nettle, the upper lip of the corolla being, however, much longer than in that plant, and remarkable for their fringe of soft hairs; the lower lip is very short, and the two small lateral segments being of purplish black colour. They are produced rather late in the summer, and it is therefore desirable to plant it out as early as possible, and to encourage growth by due attention to watering in case of need. It may be also grown in large pots plunged in the border, which will permit of its removal in unfavourable seasons to the greenhouse or conservatory to protect it when in flower.

PENTSTEMON LABROSUS. — This fine species, raised by me from Californian seed, is now offered for the first time. It is allied in habit to the well-known P. barbatus, but is really quite distinct from that species. It grows to from 3 feet to 4 feet high, with narrowly spathulate, entire, fleshy foliage, and long panicles of crimson-scarlet flowers, which are remarkable for the length of the lobes of the lower lip of the corolla and for their patent or spreading position, which they retain till the flower falls. Having stood out two winters without injury, it may be assumed to be quite hardy; it remains in bloom for a considerable period, and will certainly prove a most desirable addition to this popular genus.

SALVIA GREGGI.—This is a very pretty hardy species, from Texas, forming an erect, much-branched plant, from 2 feet to 3 feet high, bearing small, oblong-ovate, blunt foliage, very smooth and entire, with a marked odour of Rosemary. The flowers are produced in terminal spikes, from 3 inches to 6 inches long, of about the dimensions of those of S. azurea, but of a clear rosy carmine colour. It commences flowering in August and continues in bloom till frost sets in. In light, well-drained soils it has proved quite hardy. It should be planted, as far as possible, in sheltered situations, being liable, like many other species of this interesting genus, to be broken by high winds.

TRITOMA SAUNDERSI.—This splendid variety produces flower spikes from 15 inches to 18 inches in length, and earlier by several weeks than the forms of T. Uvaria. The flower tubes are a fine red tipped with yellow. It may be strongly recommended to all lovers of this showy genus.

TRITOMA UVARIA NOBILIS —This fine variety is equally deserving of cultivation with the preceding, from which it differs in its somewhat shorter ovate spikes, the flowers of which are entirely red. It is a very vigorous form and apparently very hardy.

TREES AND SHRUBS.

NOTES ON SHRUBS.

HAMAMELIS ARBOREA.—This is a Japanese representative of the Witch Hazel of the United States. By the way, it may be interesting to mention here the curious mistake into which a practical propagator fell a few years ago simply by placing too much confidence in the English name. Knowing nothing of botany or, as a matter of course, of the botanical affinities of the plant now under notice, he attempted to increase his stock of so valuable a flowering tree by grafting it and using as a stock our common English Hazel. Of course, nothing but failure could result from such a method. The Witch Hazel of the United States, Hamamelis virginica, is the proper stock to use for this charming flowering shrub. The flowers are larger than those of its American relative, and are of a bright orange-yellow colour. They are borne in many-flowered clusters in great profusion, and the species is without doubt one of the best of early spring flowering shrubs.

EUONYMUS FIMBRIATUS.—According to a recent number of the *Revue Horticole*, a handsome variegated form of this fine Himalayan species has originated in an Italian nursery. The name under which it labours is, however, rather a cumbrous one—Euonymus fimbriatus foliis marginatus et argenteo-maculatis. It is stated to be without doubt the most beautiful Euonymus known, of vigorous habit; it forms a shrub with dark green very glossy foliage, regularly and broadly margined with creamy white, often spotted with white, changing to carnation red. This form should prove a valuable acquisition for cool conservatory decoration, as the green-leaved type has handsome and distinct foliage characters, and only requires shelter from frost in order to secure success in its management. Indeed, a nice specimen throve well enough against a wall in the open air for some seasons at Kew, until the severe winters of 1879 and 1880-81 proved too much for it.

ANDROMEDA FLORIBUNDA. — Few perfectly hardy flowering shrubs are more beautiful than this, and few lend themselves more readily for general decorative purposes. Grown in pots, it forces well, and the handsome white flowers, borne in crowded panicles of dense naked racemes, remain a considerable time in full beauty; the neat habit and dense mass of dark evergreen foliage are not without charm even in themselves. Just forty years ago Loudon wrote, "It was introduced in 1812, and, being extremely difficult to propagate, is still rare in collections. . . . . Plants some years since were ten guineas each, but they may now be had at a guinea. The plant is very prolific in flowers, and is extremely beautiful." The height of the plant in its native habitats is, according to the work just quoted, 2 feet or 3 feet, but in Dr. Asa Gray's "Manual" it is stated to vary from 2 feet to 10 feet.

Pieris japonica is one of the most graceful and desirable of hardy evergreen shrubs. In The Garden, Vol. XII., will be found a good coloured plate which does no more than justice to so charming a subject. When seen veiled over with the pendent racemes of white waxy bells it would be difficult to imagine a more beautiful shrub. Plants do well in pots and force well. Last year a large number in flower during the early spring and late winter months formed a conspicuous feature amongst the decorative plants in bloom in Messrs. Veitch's Chelsea establishment. In most gardens and catalogues it may be as well to state the name Andromeda japonica is given instead of Pieris japonica. A variegated form, and one, moreover, thoroughly deserving of cultivation, inasmuch as the plant is as vigorous as the green-leaved type and as free a bloomer, is to be found in some nurseries. It is quite as hardy as the species, and the white bordering surrounding the brilliant green of its leaves gives the plant an aspect of special beauty particularly in the eyes of those people who have a weakness for variegated plants.

Lonicera Standishi.—For the sake of its deliciously fragrant white flowers this Chinese Honeysuckle is well worth a place on a wall or in the mixed shrubbery border. Under the conditions first named it flowers earlier than when not accorded such protection; but the flowers, with their unmistakable odour of Orange blossoms, if not produced so freely or developed at so early a season as when the plant is grown against a wall, render the plant a favourite wherever it is met with. A good specimen growing against the wall of Museum No. 1, at Kew, is now in full flower. Altogether, L. Standishi, in company with the Chimonanthus and the deservedly popular Jasminum nudiflorum, is one of the best of early flowering shrubs. Lonicera fragrantissima is another Chinese Honeysuckle well worth the attention of the public, the horticultural public generally. Like the subject of this note, L. Standishi, it does well under pot culture, and although the white flowers are not particularly showy, they fill the air with their fragrance. When well established it blooms very freely, against a wall or in sheltered positions often flowering about Christmas.

George Nicholson.

Royal Gardens, Kew.

PROPAGATING VARIEGATED OAKS.

A correspondent asks how these can be propagated. Both Quercus cuspidata and its variegated variety may be propagated by grafting them on the common Evergreen Oak (Quercus Ilex). The best stocks for the purpose are young seedlings of about the thickness of a lead pencil or upwards, and they are all the better if established in small pots before they are grafted. The summer months are the most suitable for the operation, that is, if grafted plants are kept close under glass till a union has taken place. The grafting may be done in the following manner: Take the stocks—which must be in good healthy condition—and just shorten in any very straggling branches, but nothing more, as it is better to remove the head by degrees after a union has taken place. The scion chosen should be a good clean shoot, but without any tender leaves on it, as they are so easily injured. Side grafting is the method generally employed, and in carrying it out make an incision in the stock at about an inch or two above the surface of the soil; then insert the knife an inch and a half or so above that and bring it down to the incision just made, thus removing a piece from the side of the stock, the size of which will depend upon that of the scion. This latter can be fashioned with a sloping cut on one side, to exactly fit the stock, when it must be tied on securely and the point of union covered with grafting wax. The grafted plants must then be placed in a close frame, and well shaded till a union takes place. When this happens, air must be given by degrees and the head of the plant after a time may be cut away.

T.

Double-blossomed Cherry.—Not many deciduous flowering trees are more beautiful than this, and it is so hardy that no weather injures it. It will grow, too, in any kind of soil or situation. The purity of its white flowers is, moreover, not the least of its merits. They are much liked in a cut state, even for button-holes. It is most effective when grown as a standard on stems about 5 feet in height; it also looks well in the shrubbery border in the form of a bush.—J. C. C.

Cotoneaster frigida.—Among trees and shrubs this makes a showy object at this season of the year. It is of robust growth, not particular as to soil, and produces freely large bunches of bright red fruits. These, too, seem less liable to be attacked by birds than those of many other trees and shrubs, and therefore remain in perfection for a long time. Their depth of colour seems to vary a good deal in different individuals, no doubt owing to the plants being raised from seed Comparatively common though it be, it is certainly better worth the attention of planters than many oftener employed by them.—Alpha.

Tree Ivies.—In their early life tree Ivies are of rather slow growth, but after the first half-dozen years they become very effective, and as years roll on their lack of progress really becomes a virtue, as it is very convenient to have plants that never seem to get too large for their situations. The tree Ivies always have a cheerful appearance, but their most effective time is in winter, when all other things are dull and dreary. Tree Ivies, either as single specimens on Grass or planted in the front of shrubbery borders, look well. They originated, I suppose, from sports. I have one selected from the Irish Ivy some years ago; it made its first appearance as a stiff, erect branch growing out of a thick mass of creeping growth This piece was taken off as a cutting, and it became a tree, and has never since shown any disposition to creep or climb. Others probably originated in the same way. They are specially adapted for suburban gardens, or, for that matter, small gardens everywhere, because there is no fear of their getting out of hand. The variegated forms are very bright and cheerful.—E. H.

The Witch Hazel (Hamamelis virginica).—During autumn and early winter this shrub has an interesting appearance, its branches being then thickly studded with its peculiarly formed flowers. Individually they are not particularly showy, but being produced in large numbers, they form quite an attractive feature in the garden, and that, too, at a time when scarcely any other outdoor shrubs are in bloom. The Witch Hazel is an inhabitant of the United States, whence it was introduced in 1736. In this country it assumes the shape of a somewhat open bush, and is seen to the greatest advantage when about 6 feet high, though in its native country it attains greater dimensions. Like most North American shrubs, it does best where the soil is not very hot and dry. During the first or second month of the year a couple of other kinds are in flower, viz., H. arborea, the blossoms of which are of a dull reddish colour, and H. japonica, with lighter tinted flowers. The individual blooms of the last-named two are larger than those of the Witch Hazel, and from the fact of their flowering early in the season, they are also very desirable shrubs.—Alpha.

The Silver Birch.—When this tree is crowded, its symmetry and natural outline are lost, but given sufficient space for proper development, and few deciduous trees are more ornamental in winter than this Birch, the dark colour of the small branches contrasting strongly with the silvery stem. The entire aspect of a well-grown specimen is elegant and graceful. I have nowhere seen the Silver Birch so judiciously used as the late Sir Charles Lamb used it in his beautiful park at Beauport, near Hastings. In various parts of this fine place I remember seeing it judiciously disposed on the brink of some charming dells, down into which its graceful branches dipped in a most pleasing manner. The effect was enhanced, too, by its being backed up by trees of noble bearing and of various hues of colour, the undergrowth being Bracken and Gorse. No one would wish to see any place overdone with Birches, but I do say they want to be seen in proper character and well situated oftener than they now are.—J. C. C.

JAPANESE PALMATE-LEAVED MAPLES.

These, in common with many more excellent shrubs, have for a long time been under the bane of a false frost-tender reputation, which has, unfortunately, hindered their propagation and prevented them from taking that place in British gardens which they long ago might and ought to have occupied. I have before spoken of the beauty and hardiness of one of these Maples, and I am again induced to make an effort to redeem them from almost utter neglect, and, if possible, instil into others something of the admiration which I myself have for them. The common Acer palmatum forms a dense, average-sized shrub, having numerous long thin shoots and opposite small palmate, at first light, afterwards dark green leaves. A. p. atro-purpureum has larger, at first bright, afterwards dark, red leaves on stouter

Acer palmatum.

shoots. A. p. dissectum has finely-cut skeleton-like apple-green leaves, equalling the finest Ferns in their Vandyked veination. Sub-variety rubrum of the last is characterised by its reddish brown leaves, and presents a fine contrast to the last-named. Both are very attractive either in the mixed shrubbery or singly on a lawn. They ought to be planted close to walks in order that the tracery of their elegant leaves might be the better studied. I have enumerated the most distinct and striking of the varieties for outdoor planting, but there are many more polymorphic forms some of which have prettily variegated leaves, but though all are perfectly hardy, they are better calculated for conservatory decoration than for any decided effect out-of-doors. I am not going to underrate the qualities of such ornamental plants as purple Oaks, Beeches, &c., but I only say that A. p. atro purpureum is the most ornamental shrub of all. Seen near, its foliage is not only dazzling, but also exceedingly neat; seen from afar, it scintillates among other shrubs like a ruby. May I be allowed to suggest that this plant might be advantageously used for bedding purposes? Plants, say, from 1 foot to 2 feet in height planted permanently in beds would produce such a show as no Alternanthera, Iresine, or similar plants are capable of making, and

though the plant in question is deciduous, the bare twigs in winter need be no objection to its use in this way, as even nude twigs are surely as pleasant to look upon as the bare black soil of beds in winter, all the more conspicuous after the fiery glare of autumn has vanished. S. G.

VARIETIES OF LAURUSTINUS.

THE Laurustinus (Viburnum Tinus) is an old and common shrub in our gardens; and, where the climate is sufficiently mild, it is still one of the handsomest during the winter and spring months, as it commences to flower towards the end of autumn, and continues in bloom for a long time. In such a climate as that experienced around London, the frosts render its flowering a matter of uncertainty; yet, apart from that consideration, it is a pretty evergreen shrub, in no wise particular as to soil, provided it be not too hot or sandy, and it always repays a sheltered position. Its appearance is too well known to need any description from me, but there are some purposes to which it may be applied, and yet seldom is, of which I now propose to speak. For greenhouse or conservatory decoration during the winter months it is very useful, as it needs but slight protection, and is extremely floriferous, even in a small state. Thus it will be seen that the Laurustinus can scarcely be included among the shrubs for forcing, as it is only a case of flowering at its proper season; yet it will bear a day temperature during the winter of 50° with advantage. Its value as a decorative subject is now extensively recognised by some of the Continental growers, who cultivate it largely; and during the last two or three seasons pretty little bushes or standards of Belgian origin may be seen in some of the London florists' shops. In most cases they are profusely laden with bloom lighter in colour than when out of doors; indeed, many quite white.

The cultivation of plants suitable for this purpose will, of course, commence with the propagation thereof, which must be done by means of cuttings, layers, or suckers, and not by seeds, as plants raised in that way are not so floriferous as the others. Cuttings strike easily, especially if protected by a frame; and when sufficiently rooted, they may be either potted or planted out. When in good soil, by this latter method the young plants make the most rapid progress, and soon form sturdy little bushes. If any of them are inclined to grow straggling, the points of the long shoots should be pinched out to cause them to break out again; or those with vigorous shoots may be trained up to form standards, after the Continental manner. For this purpose the plants should be grown in an open and sunny rather than a sheltered spot, to insure floriferousness, and when potted up early in the autumn, must be kept rather close and shaded till root action recovers from the check. After this they may be either planted out every season, or kept in pots or tubs as the case may be. If the latter they should be plunged during the summer, and attended to in the matter of water at that time; while if full of roots a little weak manure water at times will be beneficial. It may be thought that all this entails a great deal of labour, but it is quickly done; and plants grown in this way form pretty symmetrical little specimens for small pots which is not the case if they are taken up from the shrubberies or borders without preliminary preparation although large bushes may be dug up, potted, or tubbed, and will flower all the winter. Another purpose to which it may be put is for covering low walls, the foliage being green and cheerful, while the protection of the wall will be beneficial to the flowers. The Laurustinus differs a good deal in individuals. A marked variety is lucidum, which is of more spreading habit than the common kind, with fewer branches and much larger leaves. These latter are quite glabrous and shining, which renders the foliage very handsome, but the flowers are not produced so freely as in the ordinary type. There is also a sub-variety of this with variegated foliage. The variety hirtum differs in a contrary way from the preceding, the leaves being very rough and hairy. In colour they are blackish green. This is the hardiest of all, and is both free in growth and blossoms. The white-flowered (album) is sometimes spoken of, but the colour varies a good deal, according to the conditions under which the flowers are produced. Another feature is added to the plant during summer, when the blossoms are succeeded by berries of a deep blue colour. As soon as the young growth now in process of formation acquires a moderately woody texture it forms the best cuttings, that is, if a frame can be spared; but if necessary to put them in the open ground, the wood must be well ripened. ALPHA.

RECENT PLANT PORTRAITS.

ALLIUM OVIFLORUM (Regel's *Gartenflora*, plate 1134).—An apparently rather coarse-growing Garlic, bearing on the top of a tall stem a rather scattered bunch of small purple egg-shaped flowers. By no means an especially ornamental or showy variety.

PASSIFLORA RUBRA, LINARIA PILOSA VAR LONGICALCARATA (Regel's *Gartenflora*, plate 1135).—The first of the above-named plants is a small flowered Passion Flower, with rather thin-petalled, light red blossoms. The second is a pretty pale-flowered Toad-flax, with comparatively large flowers, differing but slightly from L. pallida.

ÆSCHYNANTHUS TRICOLOR (*Revue de l'Horticulture Belge* for January).—A nice plate of this handsome, scarlet-flowered, cool stove trailer.

DECAISNEA INSIGNIS (*Botanical Magazine*, plate 6731).—A double plate of this curious member of the family of Berberideæ showing a raceme of its dull, greenish flowers, and the greater part of one of its extraordinary three-lobed curled seed-pods. This plant is said to be one of the most remarkable of Indian botanical discoveries, and its fruits are said to be edible; it is a native of the Eastern Himalayas, and is also finely figured in Cathcart and Hooker's handsome folio work, "The Plants of the Himalayan Region." It has also been described under the name of Slackia insignis.

PRIMULA PROLIFERA (*Botanical Magazine*, plate 6732).—A very handsome Primrose, indigenous to the Eastern Himalayas, the Khasia Mountains, and Java; also known and described by Wallace in his "Malay Archipelago" under the name of P. imperialis; it has by far the largest foliage of any Primula, fully-developed leaves attaining 18 inches in length and 5 inches in breadth. The flower stems rise from 12 inches to 20 inches in height, are about the thickness of a goose-quill, and bear from two to six superposed, rather distant whorls of faintly sweet-scented, pale, golden yellow flowers. The seed of this fine Primula was sent by Mr. H. J. Elwes to Mr. I. Anderson-Henry, of Edinburgh, who sent a flowering specimen to the Royal Gardens at Kew in June of last year.

LOTUS PELIORHYNCHUS (*Botanical Magazine*, plate 6733).—An exceedingly rare, curious, and beautiful plant from Teneriffe, whose native name is Pico di paloma, or Pigeon's Beak, from the curious shape of its handsome, deep red flowers, which are produced in dense racemes at the ends of the branches. It is also known under the names of Heinekenia peliorhyncha and Pedrosia Bertheloti. It forms an excessively-branched, slender bush, clothed with appressed, very short, silky pubescence, giving it a silvery hue. Seeds of this singular plant were sent to Kew by Mr. Wildpret, of the Oratava Botanical Gardens, Teneriffe, in 1881, and the plants flowered in the cool greenhouse in the month of May, 1883.

MORINA COULTERIANA (*Botanical Magazine*, plate 6734). — This plant is a native of the Western Himalayas, and bears tall spikes of small, whitish flowers. It is apparently of merely botanical interest, and by no means so ornamental or desirable a plant as the better-known M. longifolia, which is a very handsome plant, with bright rose-coloured flowers, edged with white and black anthers; figured on plate 4092 of the *Botanical Magazine*, vol. lxx.

PHACELIA CAMPANULARIA (*Botanical Magazine*, plate 6735).—A native of Southern California, and a near ally of the beautiful Whitlavia grandiflora (figured on plate 4813 of this work), with smaller flowers, but of even a more brilliant blue, rivalling that of the most admired Gentians. This beautiful plant was first raised from seed by Mr. Thompson, of Ipswich, who flowered it in the open border in 1882, and sent specimens to Kew, from which this plate was drawn.

ANGULOA UNIFLORA (*Regel's Gartenflora*, plate 1137).—This Orchid bears solitary, medium-sized flowers of a dull, creamy white, faintly spotted with red on the inside.

PHLEDRANASSA LEHMANNI (*Regel's Gartenflora*, plate 1138).—A bulbous plant, producing narrow, tubular, orange-scarlet flowers in somewhat thin bunches of from three to four on top of a tall stem. W. E. G.

KITCHEN GARDEN.

PEAS AND VERMIN.

FOR preserving newly sown Peas from depredators, we find nothing so efficacious as a thorough dressing of soot. It helps us in many ways; it saves our buds from the birds, Turnips from the fly, Onions from the grub, Celery from the maggot, and bulbs, and roots, and seedlings from various destroyers. We sow and dress Peas with it as follows: After sowing the seed rather thinly and evenly in wide, flat drills, 3 inches deep, a good sprinkling of soot is scattered over them by hand; half the soil drawn out is then placed over the seed, another thicker coating of soot is dusted over that, and the remaining soil is levelled back over the row. The Peas are thus guarded by two distinct coatings—one enveloping the seed, the other half way from the surface. Rats and mice sometimes try to burrow out the Peas, but the first layer of soot is generally enough for them, and they go away discouraged. The quantity of soot used does not appear to have the least injurious effect on the Peas; on the contrary, it acts as a stimulant. With surface slugs we have also to contend; therefore the garden line is re-stretched exactly over the middle of the row, and along it is laid a small ridge of sifted coke ashes; with the back of the rake these are spread out several inches on each side of the line, and thus form a protective, nearly slug-proof, gritty band, in the middle of which the Peas come up. These, we think, form a better deterrent than coal ashes, on account of their sharper, grittier character. These operations necessitate a good deal of treading, which early in the year, when the ground is in a wet state, is undesirable; to obviate this, therefore, we keep a few thin boards, on which we work; after the ground is ready for the drills, and the line is stretched for the first row, the boards may be placed midway between that and the next; therefore at a distance apart, say of 5 feet or 6 feet, the two rows can be treated as desired without placing a foot on the soil or removing the boards till the whole is finished. Peas sown and treated in this manner involve no further trouble till well above ground, when occasional dustings of soot are necessary to save them from our most troublesome foe, the house sparrow. A. MOORE.

Cranmore Hall.

Forcing Chicory.—Roots of this well grown during summer and lifted and stored in autumn will now be ready to force. It should be done in darkness, so as to blanch the leaves, which are much liked cut up in salads. The roots may be forced in any structure having a temperature ranging from 55° to 65°. Place the roots in pots or boxes as may be most convenient. If they are found to be too long for the depth of the pots, they may be cut to the desired length without injuring them in any way. Plant them moderately close together, running some fine soil in between them until it overtops the crowns about an inch, and water well to settle all down properly. Place over the pot or box in which the roots are planted

another pot or box of the same size, packing some Moss or something soft and dry between the rims to exclude light, darkness being necessary to blanch the leaves. They will be ready for use when from 6 inches to 9 inches in length. If kept moderately moist when placed in the house to force, they will produce an abundance of fine blanched leaves. A Mushroom house at work will be found one of the best structures in which to grow blanched Chicory.—WM. CHRISTISON.

SCIENCE AND NON-SCIENCE.

WE find the following in the *Times*:—

A NEW POTATO.—At a meeting of the Linnean Society, at Burlington House, last week, a paper was read by Mr. J. G. Baker on the species of Solanum which bear the tuberous roots called Potatoes. Out of the 700 species of Solanum known to botanists there are only about six which produce tubers, and only one of these, the common Potato, Solanum tuberosum, has as yet been cultivated. Mr. Baker said that the native home of the Potato is those parts of Chili where the air is exceedingly dry, and that it grows at a considerable altitude. There is, however, another species which grows in the moister portions of the same country, where the climate is even damper than in Great Britain, and this species would, therefore, be far more suitable for cultivation. As long ago as 1826 some specimens of this Potato were sent to England, and were cultivated by Mr. J. Sabine ("Horticultural Transactions," v., p. 256), but were supposed to be identical with the common Potato, and did not attract any further attention. When growing in the wild state the roots are small and of a bitterish taste, some with red and others with yellowish skins. Under cultivation, however, the plants were found to grow most luxuriantly, sending out stems in all directions, so that two plants yielded in one year over 600 tubers, and the principal stems were more than 7 feet long, while the tubers showed a remarkable increase in size and had lost entirely their bitter flavour. The ordinary Potato is grown as if its sole object in life were to produce tubers, and, moreover, it is grown under artificial conditions of climate and soil. Under these circumstances, the plant naturally loses its vitality, as indicated by the fact that after a time it ceases to produce flower and seed, and it then readily becomes a prey to the Potato disease. The same rule applies to other plants, where one function is stimulated at the expense of another. The best method, therefore, of preventing the Potato disease is to grow that Potato which is most suitable to the climate, and to restore the vitality as soon as the plants cease to flower and fruit by cutting off the stems which produce tubers, and saving only the roots which obtain nourishment for the plant.

Scotch Champion Potato. — I cannot agree with those who place this variety at the head of good Potatoes; few of the market growers in this locality would think of placing it equal, much less superior, to Magnum Bonum. In this locality the latter is grown largely simply because growers take the market value of any crop as the test of its worth. Magnum Bonum is worth considerably more than Champion, and it is equally as good a cropper. Magnum Bonum is liked for its smooth skin; in preparing it for use there is scarcely a tithe of the waste that there is in the case of the deep-eyed Champions. In nearly all large contracts for supplying Potatoes to the naval and military authorities about here I find that Magnum Bonums, or shallow-eyed Potatoes, are the kinds required; consequently Champions are at a discount. This does not arise from Potato culture being at a low ebb in South Hants, for in no part of the kingdom are Potatoes more successfully grown. The soil is light and dry and warm; and last season's crop was exceptionally heavy and free from disease, fine tubers picked ready for table being obtainable in any quantity at from 4s. to 5s. per cwt. Scotch Champions are, I admit, good in flavour, but I find that soil and seasons determine that point to a great extent. The Champions may be champions in the north, but to Magnum Bonums the name would be better applied in the south.—JAMES GROOM, *Gosport, Hants.*

Early Potatoes.—Everyone having Potatoes to plant should now see that they are not beginning to sprout. If stored in heaps covered thickly with straw, they will be almost sure to be sprouting. Those for seed should therefore be separated from those for table use. All growths should be rubbed off except those that are not more than a quarter of an inch in length. The sets should then be laid out thinly anywhere where light can reach them and where frost can be excluded. Under such conditions growth will be retarded, and when it recommences, owing to being exposed to the light, it will be strong and vigorous by the time the sets are planted, and if the ground is in good condition, no check will be experienced. Seed pushing weakly is, in my opinion, owing to having so much of the energy of the tuber wasted in making useless growth. If all varieties were treated in this way a stronger plant and better crop would be the result.—J. P. B.

Forcing Potatoes. Potatoes, as a rule, are forced in most establishments, and wherever there is convenience for doing so they will be found a desirable crop. If desired, new Potatoes may be had fit for use by Christmas, provided there is a proper structure in which to grow them, but, as a rule, it is better to force so as to have a fair supply during April and May, when old ones begin to get unfit for cooking. But little outlay or labour is needed to have crops ready to dig in April. Where very early crops are required, pits furnished with both top and bottom-heat are necessary, and by maintaining a steady temperature of 55° a good crop may be expected. Potatoes may be successfully grown in pits heated with flues, provided the atmosphere is kept moist. Pits filled with fermenting material are equally suitable; the walls should be upon arches, and the bottoms of the pits should be slate or wood, placed a few inches apart, in order to allow the heat to ascend. Thus constructed, a steady heat may be maintained by frequently changing the manure and leaves and replacing them with hot material. Pits with pigeon-holed walls and sunk below the ground level are also excellent places in which to force very early Potatoes.—W.

5127.—**Mushrooms.**—If "W. B." has not got his bed too wet I would advise him to try covering the tiny Mushrooms completely over with half an inch of sifted loam, in a nice friable condition, neither too wet nor too dry, but such as may be handled pleasantly without sticking to the fingers, and discard the litter entirely. I was induced to adopt this plan some time ago on account of the ravages committed by woodlice, and I found it not only effectual against these pests, but it also improved the size and quality of the Mushrooms, as in a day or two after its application they burst through strongly and vigorously. My plan now is to keep a basket of loam in the Mushroom house ready for use, and to every morning examine the bed and wherever I find the Mushrooms now appearing on the surface about the size of Peas I place a handful over them and gently press it down Should the spawn appear simultaneously all over the bed in this manner, I would spread half an inch of loam gently all over at once. Sometimes too great a heat at the time of spawning will drive the spawn to the surface, especially if the bed is covered with litter. This will cause the produce to be weak, and sometimes entirely lost unless timely remedies are adopted. Removing the litter and top dressing with loam will generally be found to answer.—J. S.

Brussels Sprouts.—After trying a good many of the new varieties of these I have come to the conclusion that a packet of seed of the old imported strain will produce as firm and well-flavoured sprouts as need be desired. If not already done, a pinch of seed should be sown at once in heat to produce plants early. It should be sown in a box which, when the plants make their appearance, should be shifted to a cool and light place, and as soon as they are large enough to handle, they should be pricked out in a frame set on a bed of leaves, or if a frame cannot be spared, boxes may be used, and then placed in a cool house or pit. The plants should be fit for setting in their permanent quarters some time in April. For the main crop nothing is gained by sowing earlier than March, for if sown earlier, the seed does not germinate freely, and if the plants are put out on good ground they grow so tall that the first high wind injures them. Our soil is stiff and loamy, and for Brussels Sprouts, and indeed for all the Brassica tribe, we simply dig the ground over roughly early in winter without any manure, and at planting time put out the plants 3 feet apart each way. We have now a good breadth of Brussels Sprouts grown as stated; each plant is from 2 feet to 2½ feet high, and clothed from top to bottom with firm Sprouts of good flavour, all grown from an ounce packet of imported seed, costing a shilling.—G. T. B.

*** An excellent sample of Sprouts of medium size, firmly grown, and good in flavour.—ED.

Cost of the Royal Parks and Pleasure Gardens:—

Battersea Park	£7,522
Bethnal Green Museum Grounds	345
Bushy Park	3,043
Chelsea Military Asylum Grounds	203
Edinburgh Royal Botanic Gardens and Arboretum	2,124
Greenwich Park	2,132
Hampton Court Park	1,070
Hampton Court Pleasure Gardens	2,226
Holyrood Park	1,587
Kennington Park	1,464
Kensington Gardens	6,117
Kew Botanic and Pleasure Gardens	21,436
Linlithgow Peel	220
Longford River, Hampton Court	658
Regent's Park and Primrose Hill	9,888
Richmond Park	2,956
Richmond Park, Department of H.R.H. the Ranger	2,763
St. James' Park, Green Park, and Hyde Park	37,760
St. James' Park, Department of H.R.H. the Ranger	1,790
Victoria Park	7,238
Salary of Bailiff of the Royal Parks	780
	113,322
Pensions Paid to Staff of Royal Parks	1,501
Total cost of Royal Parks	£114,823

Lælia anceps (*J. B.*).—Four, and even five flowers on a spike of this Lælia is not an uncommon occurrence.

Vine borders.—In THE GARDEN, p 48, third column, 45th line from the top, read "several tons of Grapes in a 'place'—not 'house.'"

Pine-apples from abroad.—We understand that as many as fifteen thousand Pine-apples imported from abroad have lately been sold in the London market during a single week. In face of such importations (much of the fruit being fine) our Pine growing will probably soon be a thing of the past.

Sparmannia africana.—This may be grown into a very large specimen in a comparatively short time It grows rapidly and it never becomes too old, for though little yearling plants will blossom freely, the true character of this plant is only developed when it gets old. I have some cuttings struck last spring, each of which is carrying a spike of flowers at the top.—E. H.

Names of fruit—*J. Legg.*—1, Beurré Rance; 2, Bezi de Quessoi; 3, Sam Young; 4, Court of Wick——*A. M. G.*—1, Beauty of Kent; 2, not known. —*Bloxham.*—Apple: Cambus Nethan; Pear: Uvedale's St. Germain.——*Subscriber.*—1, Cox's Orange; 2, apparently Sam Young; 3, not known at Chiswick; send again next year early in the season.

Names of plants.—*J. C.*—Ligustrum japonicum.——*Hetty.*—Farfugium grande.——*E. G.*—1, apparently Pteris longifolia; 2, Aspidium falcatum.——*G. Turner.*—1, Coronilla glauca; 2, Brachysema lanceolatum; 3, Genetyllis tulipifera; 4, Cytisus racemosa.——*R. C. C.*—A Filmy Fern. ——*J. W.*—An Umbilicus; send in flower.——*H. K.*—1, Pleopeltis species; 3, Pteris serrulata cristata; 4, Polystichum aculeatum; 5, Asplenium maritimum; send others another time.——*C. Innes*—1, Cocos Weddelliana; 2, a kind of Palm; 3, species of Latania; 4, Cyperus alternifolius.——*R. M. C.*—Goldfussia isophylla.——*Leeds.*—Apparently a Columbine (Aquilegia).——*Mrs. D. (Stirling).*—We cannot undertake to name Cinerarias; the flowers you send represent an ordinary strain.——*Bessie H.*—1, Lasiandra macrantha; 2, Centropogon Lucyanus.——*A. R.*—Chimonanthus fragrans.——*H. W. Elliott.*—Cattleya Warscewiczi delicata (a fine form); *C. chocoensis* (also the best variety of the species).——*K. A. S.*—Shrub is Thujopsis dolabrata; Fern, Asplenium Adiantum-nigrum; Moss, Hypnum tamariscinum.

No. 637. SATURDAY, Feb. 2, 1884. Vol XXV.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

EARLY SINGLE DAFFODILS.

SEVERAL causes besides the season affect the time at which Daffodils flower, and we cannot form a correct judgment of their earliness or lateness, as compared with others, until all have been growing together for two or three years under the same conditions. Digging up bulbs whilst the leaves are still green during or after flowering makes those bulbs flower earlier next season if they flower at all, but often they fail to flower if so treated. Also moving from an earlier and warmer climate to one which is cold and late has for a season or two the same effect, as the bulbs flower earlier than those of the same variety which have been longer planted in the later climate. On the other hand, if a Daffodil is transplanted after its growth has commenced in summer, the flowering is retarded.

The first Daffodil which has flowered in my garden this year is a N. Tazetta, which came out under a south wall a week ago. The species seldom flowers with me till late in April, but the bulb in question was sent to me by post last spring from Bayonne while its leaves were still green. Two other sets of Daffodils, several clumps of each, are in forward bud, far ahead of the Tenby Daffodil, which is generally the earliest, flowering after warm winters about the end of February. Of these Daffodils, one set was sent to me at the beginning of last summer from Florence, being the wild single N. Telamonius of that district. The others were sent to me from the county of Cork, where they are naturalised, and where they were in full flower last year about the middle of February. They proved to be that very good and distinct variety of N. major called by Mr. P. Barr by the unworthy name of N. spurius, being identified by him with Haworth's variety of that name. It is nearly the best of the Ajax major, flowering very freely and being as good in colour as either N. maximus or N. obvallaris, and more elegant in shape than the latter. The normal time for the flowering of this variety in my garden is fully a month later than N. obvallaris (the Tenby Daffodil). I think from the description on p. 54 that N. spurius is probably the variety there indicated. Now that the season for these favourites, the single Daffodils, is coming on, I should like to draw the attention of their admirers to the fact that we have still much to learn concerning the history of many of the old varieties, and that some mentioned by Parkinson and more recent writers still remain to be recovered. Some of the new Daffodils, as Emperor and Horsfieldi, may be grander, but the older kinds are interesting. For instance, we are told that N. major, N. maximus, and N. moschatus are natives of Spain, but no part of Spain is ever specified, and I have been unable even to meet with any direct evidence of their occurrence in Spain either formerly or recently. A large single bloom of N. major, as I before said, is found in Tuscany, and probably in other parts of Central and Southern Europe, but any original information on the subject communicated to THE GARDEN would be interesting. Also with respect to the white-flowered Ajax Daffodils, there is one small meadow in the Thames valley in which they grow under conditions which make me suspect that they may be accidental varieties from the seed of ordinary N. Pseudo-Narcissus; but I am busily investigating this, and Mr. Peter Barr has succeeded in getting together a very good collection of these single Trumpet Daffodils, but I believe that more remain to be found. For instance, last year flowers of N. obvallaris, hitherto thought to be confined to the neighbourhood of Tenby, were sent to me from the county of Wexford and from Windermere, having been found growing wild in both places. I also obtained last spring three or four other varieties, apparently distinct, which are still under probation.

I should esteem it a great favour if anyone who has strange varieties of single Trumpet Daffodils would allow me to see a flower, and if anything new is sent, the sender shall have the choice of my best plants in return for a bulb. The most elegant and prettiest single Daffodil I have was accidentally noticed by me five years ago in a cottage garden at Farnham Royal. It is quite distinct from any in Mr. Barr's catalogue, and I suspect it to be a large development of the typical wild Daffodil. C. WOLLEY DOD.

Edge Hall, Malpas.

NOTES FROM THE RIVIERA.

AMONG the foliage plants largely used for house decoration there is nothing so handsome or so lasting as a species of Panax, with large leaves, reminding one of Tree Ivy on a gigantic scale. This plant will live in rooms for years without any special care, and it is much to be hoped that it and the much-enduring Phormium tenax (New Zealand Flax) will be grown largely for the market in England, as few plants are more desirable for house decoration, surpassing in many respects the now common Aralia Sieboldi. Out of doors in exposed and sunny situations such as the Date Palm enjoys, Pritchardia grandis is decidedly the handsomest fan Palm, for both Latania borbonica and Corypha australis require shade and moisture, which can only occasionally be found on these somewhat over-baked shores. It is satisfactory to see how well Cocos plumosa continues to grow wherever it can get sufficient moisture and shelter from strong winds, for if it attains anything like full size in this climate, it will add a great charm to Riviera gardens. Ficus macrophylla and F. australis have fully recovered any damage they may have suffered from last spring's severe snow storm, but Ficus elastica has had to push from the old wood, and for the time assumes quite a dense, bushy habit, totally unlike its usual lanky growth. One gigantic bush of the columnar Cactus hexagona is this year fruiting for the first time, as far as my observations in former years go, and its large crimson spheres of fleshy fruit are exceedingly handsome; whether owing to the season being favourable or to greater care in selecting good varieties, the show of winter Carnations is far superior to anything I have seen before in these regions. The growth of grass and flower-stem is much shorter, and the flowers larger in size and purer in colour. If in a few years the still somewhat too ragged edges can be a little smoothed out, there will be nothing to choose between the winter and summer-blooming Carnation, and then surely all who have a garden and a frame will grow these most useful flowers. Rich crimson, Clove-like blooms and flesh-coloured ones striped with red are particularly noticeable for their large size and clear colouring. Salmon-pinks and pure whites we already have in England, but a really free and large yellow Carnation or Picotee is still a desideratum in winter flowers.

This year there seems no advance as far as I have been able to discover in the Chinese Primula. Variations there undoubtedly are, but such only as are curious rather than beautiful. One monstrosity with tiny curled leaves and gigantic smooth-edged lilac-rose blooms on short stalks is interesting as an instance of Nature's freaks, but few gardeners would care to grow it, I should imagine. After a few hours of heavy rain one early morning, the hillsides are waking up to the call of spring, and Almond trees are now quite covered with blossom, and Weeping Willows that cast their old leaves one short month ago are fast greening over again. Anemone stellata stars the terraces and defies drought far better than either the purple or red A. coronaria. A. pavonina is sending up fat buds that soon will burst into beauty, while on garden banks Iris stylosa and the common purple Iris are in flower together—an unusual occurrence I cannot quite account for. Acacia dealbata is now in great beauty wherever it grows, and the Paris train daily takes at least a truckload of its fairy blossoms. The quantity of Roses is very great this winter, and they are lasting later than usual, which will throw the spring bloom late. Cloth of Gold Rose specially enjoys this dry season, and such bouquets of it in January are decidedly a welcome surprise, though the flowers when opened are thinner than they will be in spring.

In the market yesterday were many bushels of green Peas, but owing to the drought they are sadly bullet-like, and not worthy of their name, while new Potatoes not much larger than Beans are dug up by the peasants, who despair of their growing bigger. Perhaps when we hear of you in England getting frost and snow, we may be benefitted by some genial rains such as you have enjoyed so prematurely. E. H. WOODALL.

The new Primula prolifera.—The safe introduction of this long-wished-for Primrose, and its flowering and seeding at Kew last year in a border out-of-doors, give promise of a new race of hardy garden Primulas of an exceptionally large and vigorous kind. Primula japonica, the half-brother, or perhaps even brother, to this new Himalayan Primrose, will almost certainly cross with it, and the many colours of the former linked with the pale yellow of the latter, and its gigantic proportions as regards foliage and height of flower-stem, cannot fail to produce a race of hardy Primulas surpassing anything we possess at present, for on the hills of Java P. prolifera produces a flower-spike 5 feet in length, which bears whorl upon whorl in rapid succession of its yellow blossoms. In the *Botanical Magazine* it is described as having a flower-stem not more than 20 inches high, but the plant at Kew bore a spike almost, if not quite, this height, while the foliage did not exceed in size that of P. japonica; in some cases, however, the leaves of wild plants are 18 inches long and 5 inches wide, so that it may be expected that the flower-spike will be of corresponding size. Four years ago I saw a Wardian case of plants of this Primula which had been gathered on the Java hills, but which unfortunately had perished before they arrived in England, and the information received along with these plants gave their proportions as above stated, and that this information was not far out we saw in the remains of the dead plants in the case. Mr. Anderson-Henry no doubt will, with his accustomed generosity, soon distribute from his stock of this Primula what he has to spare to his friends, and they, it is to be hoped, will endeavour to make the most of what promises to be the harbinger of finer hardy Primulas than many have as yet dreamt of.

Flower fragrance.—Only a few large purple Violets with rich brown Wallflowers among them! but what memories are borne to us by their subtle fragrance—memories of old-fashioned gardens, red-walled and sunny, sloping southwards—real gardens of "all sorts of pleasant flowers"—a pleasaunce, in fact, "all for delight." The odour of Violets is of all other sweet-smelling things most delicious. A peasant may pick them from a

mossy hedgebank, or they may be grown in a queen's garden; but the fragrance they give us is the same. This brings us to the great central idea which lends to flower culture an especial charm. They are emphatically the same to rich and poor alike. A white Lily in a cottage garden does not waste its loveliness by regretting it is not in a royal parterre; and so a handful of Violets from a sheltered hedge or a sunny bank yields us a fragrance but few rare and tender exotics possess. Another good point possessed by the odour of Violets is the exquisite way it blends with those of other blossoms. Violet fragrance along with the sweetness of Japan Allspice, Narcissus papyraceus, with Wallflowers, or with a spray of Rosemary is too subtle for words—a "happy marriage," a harmony of fragrance like a beautiful dream.—F. W. B.

PLANTS IN FLOWER.

Narcissus monophyllus.—This is blooming here in a pot in a cold house. It has been in bloom since January 15. It is a gem, and ought to be grown by all lovers of this grand family, and when it becomes plentiful and better known it will be sought after by bouquet makers.—John Crook, *Farnborough Grange, Hants.*

Freesia refracta. — Messrs. Smith send from the Caledonia Nursery, Guernsey, a spike of Freesia which they state is regarded by Professor Foster as typical F. refracta. The flowers are not so large as those of F. refracta alba; their colour is a pale yellow, with the tube a deep yellow, while the perfume is akin to that of Lemons. It is certainly not such an attractive plant as the white variety.

A gigantic Arum in flower.—The remarkable Aroid, Godwinia gigas, is now fast developing its immense flower in Mr. William Bull's nursery, King's Road, Chelsea. This extremely rare plant was discovered by the late Dr. Leemann when collecting for Mr. Bull on the Chontales Mountains, Nicaragua. This specimen is quite unique; it flowered once before in this country; the bloom or flower-spathe then measured 1 foot 11 inches in length and 1 foot 8 inches in width—truly gigantic for an individual bloom.

Crocus minimus.—A flower of this sweet little Corsican Crocus has been sent by Mr Kingsmill, of Eastcott, with whom it has just commenced to flower, having braved the storms of snow, hail, and rain a few days ago. It may be best described as a diminutive C. Imperati, though the exterior of the sepals is not of such a decided fawn tint. It is quite a gem among spring bulbs. Mr. Kingsmill also sends a very pretty Oxalis from Madeira, and a Muscari, apparently botryoides, all from the open air.

Habrothamnus Newelli.—This comparatively new variety of Habrothamnus appears to be an improvement on the better known kinds, inasmuch as the colour is brighter and the clusters of bloom borne more abundantly. It is a capital plant for clothing the wall of a greenhouse, and throughout the winter invaluable for affording a plentiful supply of cut blooms. A large specimen of it in one of the greenhouses in the Royal Horticultural Gardens at Chiswick is a noteworthy object just now, as it is covered with bright magenta-coloured flowers.

Crocus Imperati.—What a pleasing feature this Italian species forms during the dullest and most dreary months of the year! It is now some weeks since I saw it in a garden near Kelso, and I am informed that it is still in full beauty. The corms were planted in the centre of a small circular bed some few years ago, since which time they have increased considerably, and the flowers are so numerous that they are quite striking. It is now a tolerably well-known species, at least by lovers of hardy bulbs. The blossoms are large, clear purple, buff or fawn-coloured externally, with longitudinal stripes of dark purple. It is doubtless these external markings of buds and flowers which make them so attractive.—H. P.

The Snowdrops, both early and late, all appear to be flowering much earlier than usual this year, having been doubtless enticed into bloom by the spell of spring-like weather we had a short time since. During the week we have found almost every species of Galanthus now cultivated blooming in Messrs. Barr's grounds at Tooting. There seemed to be but very little, if any, difference in the earliness of any of them, and even the very distinct G. Redoutei, which, as a rule, is the last to flower, was keeping company with the others. A bed of G. Elwesi in full flower was a beautiful sight, as may be imagined. The unusual glaucous hue of the foliage of this Snowdrop blends charmingly with the snow-white sepals and pea-green petals. The Crimean Snowdrop (G. plicatus) was likewise a pretty sight, as was also the true G. Imperati, the largest of all the Snowdrops. Here it grows some 9 inches and sometimes a foot in height, and has proportionately large blossoms of such a distinct globular form that there is no mistaking the variety for any other. It is a pity that such a valuable variety as the true Imperati undoubtedly is should be so scarce. The Spring Snowflake (Leucojum vernum) is in full bloom in this nursery also, and several weeks earlier than usual.

Uro-skinnera spectabilis.—This is a stove plant, bearing, when out of flower, a certain resemblance to some of the Gesneras, but when in bloom so pretty and distinct as to make it a matter of surprise that it is so seldom seen. It was introduced from South America about twenty-five years ago, and named in compliment to Mr. Ure-Skinner. It has stoutish stems a foot or two in height and oblong shaped leaves 5 inches or 6 inches in length, both stems and foliage being thickly covered with hairs. The blooms are borne in dense terminal clusters of about a score together; individually they are somewhat like those of a Pentstemon; the tube is about 1½ inches long, deep mauve on the outside and white within, and the flowers measure three-quarters of an inch or so across the mouth. It is a plant of easy culture, and is at present in flower in one of the compartments of the T range at Kew.

Large Camellias.—Enclosed are three Camellia flowers from a plant in the conservatory in Colonel Hagart's garden at Eastbury Manor. It is in a tub, and is upwards of 9 feet high. It was sent here from Ayrshire about eighteen months ago, and, notwithstanding that it got very much damaged by the journey, it is flowering magnificently, there being a great many blooms left as large as those sent, and there are a very great many more to open. The plant has not been disbudded, so as to obtain large blooms, but has scores of buds all bursting open at the present time. N. Fullegar, *Eastbury Manor, near Guildford.*

*** We do not recognise the variety. The flowers are indeed very large, and the colour, a deep rose-pink, is most pleasing. It is evidently a first-rate Camellia.—Ed.

Caraguata lingulata (the Cardinal variety).—A smooth-leaved, pale green Bromeliad, larger than C. sanguinea, described and figured in our last volume (p. 505), but in habit and colour of floral leaves closely resembling that species. Bromeliads are not such favourites in this country as they are on the Continent, but, be that as it may, cultivated Bromeliads are many of them of exquisite beauty. They are easily grown, cheap, and of great variety both in colour and form. Both the Cardinal Caraguata and C. sanguinea are beautiful and worthy of favour where coloured leaves are admired. In the stove at Kew there is now a plant of the Cardinal variety bearing three of its stained leaf cups through which the whitish flowers just manage to peep. This plant is not nearly so highly coloured as it was last year.

Pavonia Makoyana.—This is not supposed to be a particularly attractive flowering plant, the flowers not being sufficiently showy to win great favour, although they are something unusual both as regards form and colour. In the winter, however, one is always on the look-out for plants in flower, and especially for something different from the usual old-fashioned winter bloomers, and therefore this Pavonia may be recommended as a useful plant for the stove in winter, as it bears a good crop of its curiously-shaped purple and blue flowers during the first two months of the year. Large plants especially have a very effective appearance when in flower, and as the flowers last for several weeks, and the plant is a free grower and bloomer, this Pavonia may be admitted to a place among the plants for winter flowering. There is a specimen over 5 feet in height and bearing a good number of blooms now to be seen in the Victoria house at Kew. It should be noted that this Pavonia flowers freely in the summer as well as in winter.

Iris reticulata Krelagei. — When the early days of February come round we cannot refrain from making a note on the Netted Iris, the most charming of all early spring flowers. One would think that such a gem would be grown by everyone who could afford to procure a plant or two of it. Such, however, is not the case, for in nine out of ten private gardens that we visit it is not grown, and more than that—it is unknown. Its splendid rich purple blossoms, spangled with gold, have no rival, even among tropical Orchids, yet they can be had in the open in midwinter. Krelage's variety is the earliest, flowering about ten days before the typical form. Its blossoms, moreover, are readily distinguishable by having more of a violet or plum-coloured tint than the type, and by being somewhat dwarfer. Under the shelter of a hedge facing the south we saw a quantity of Krelagei the other day in Messrs. Barr's grounds at Tooting, and thought at the time, as they glistened in the sunlight, that we had rarely seen a more beautiful floral sight. I. reticulata can be had in bloom as early as Christmas by coaxing the bulbs on in a slightly warmed house or frame.

Rhododendron argenteum.—Every recurring season the large specimens of Himalayan Rhododendrons in the temperate house at Kew are objects of great beauty and interest when in flower, and indeed several of them are scarcely less attractive when pushing forth young shoots in spring, as the bright rosy tint of the unfolding leaves and the still deeper hue of the bracts that surround the unopened leaf buds, and hang down like strips of ribbon as the young shoots lengthen, are very striking. R. argenteum is, as usual, the first to flower, several heads of blossoms being already fully expanded, and others on the point of opening. This Rhododendron is a stout, bold growing kind, with leaves a foot or more in length, and of such a silvery whiteness when young as to well deserve the name of argenteum. The flowers are closely packed in large globular clusters; in the bud state they are pink, but when expanded nearly white and marked in the interior with deep crimson. Individual plants of this Rhododendron vary to a certain extent not only in the colour of the flowers, but also in the whiteness of the young leaves, but all are handsome.

Hardy Cyclamens—One of the prettiest sights in the way of flowers which we have seen for some time was a gathering of hardy Cyclamens which we saw the other day beneath a large Elm tree in Messrs. Barr's grounds at Tooting. The variety was the red and white Atkinsi, which has tiny globular flowers—one a beautiful carmine-crimson, the other white with red centre. As these bright little flowers peeped above the marbled foliage of the plants and the bright green leaves of the annual Grass, they had a charming effect. We have never before met with hardy Cyclamens in such a thriving condition as they are in this nursery. Not only do Atkinsi, Coum, and vernum flourish to perfection, but also europæum, hederæfolium, and all the rest. The later species are scarcely less remarkable at present than those in bloom, as they form a perfect carpet of luxuriant foliage of a deep green, beautifully mottled with silver. The plants have occupied their present position for some years. The soil, we believe, is of a peaty nature and the spot is thoroughly drained.

FLOWER GARDEN.

LITTLE-KNOWN HYDRANGEAS.

As a shrub in the south of England, and as a market plant throughout the United Kingdom, the common Hydrangea is well known and justly admired; but, according to the rate of progress made by Hydrangea paniculata grandiflora within the last two or three years, it bids fair to become as popular as the common kind for both the purposes just mentioned. H. paniculata grandiflora, as brought into Covent Garden Market, has been truly magnificent, plants about 2 feet high in 5-inch pots bearing three and sometimes four large clusters of flowers. These plants are mostly grown on the Continent, where large numbers are now cultivated and imported during winter in a deciduous state. They are then potted in good loamy soil, and placed in a frame or cool house, in which they flower; but in order to have them in early, additional heat must be used. When under glass this Hydrangea is very liable to suffer from attacks of red spider: therefore it must be syringed frequently, especially the undersides of the leaves, and as little heat used as possible consistent with the development of the blossoms. Being a gross feeder, it must never be allowed to become dry. As a hardy shrub, the typical, but seldom seen, H. paniculata is, except in flower, superior to its better-known variety, the foliage being larger and of a deeper green: the outline of the plant, too, is more pleasing and the growth stronger, but the flowers are not nearly so showy. Hydrangeas of the Hortensia type include, besides the common one, Thomas Hogg, a white-flowered kind; Otaksa, rose coloured; and cyanoclada, a kind with purple-black stems and bluish flowers. In many kinds the sterile flowers are but few in number, and thinly scattered over the cluster of minute fertile blossoms, so that they have a lighter appearance than Hortensia, and besides are less affected by wet. They include japonica, a sort with pale rosy flowers and thin pointed leaves; rosea alba, of more woody texture than the preceding, and smaller in the size of the leaves, flowers, and clusters, but one which grows quite as large. This Hydrangea is a very pretty shrub, as, when exposed to the sun, the sterile blooms are often deeply flushed with crimson. Stellata prolifera, with its star-like pinkish blossoms, is a pretty little kind, either in the open ground or in pots, while the Oak-leaved (H. quercifolia) is really grand when fully developed, yet it is quite a rarity. The leaves are large and lobed, in most cases downy beneath, and the sterile flowers are pure white. Its large distinct foliage stamps this, when not in bloom, as a very distinct shrub, but it is amongst the tenderest of the hydrangeas, and liable, unless somewhat sheltered, to suffer from high winds. Variegated-leaved kinds are represented by a golden-leaved form of the common one, which is very liable to revert to the green state. There are also gold and silver variegated varieties of H. japonica in gardens, the latter very pretty when grown under glass in early spring, the foliage then being clean and the variegation well defined. H. japonica tricolor, certificated by the Royal Horticultural Society, has leaves marked with white and green and margined with deep yellow. The variegation of this is very constant. Where used as outdoor shrubs, all the Hydrangeas should have cool and moist situations rather than hot and dry ones, but the best results are obtained when the roots are moist and the plants exposed to the sun, as then the blossoms become of a brighter hue than when in shade. The climbing Hydrangea (H. scandens), or Schizophragma hydrangeoides, has not flowered with me, but against a damp wall its growth is rapid, and it fastens itself securely to the crevices of the bricks after the manner of Ivy. ALPHA.

5132.—**Climbers for shaded walls.**—Like your other correspondents (p. 61), I would recommend "A. M." to plant Irish Ivy (Hedera canariensis) on his shaded wall. The best way is to buy properly prepared plants of it in pots which will be furnished with a number of good shoots; these may be spread out in the form of a Peach tree, keeping the shoots well down, so as to cover the wall from the ground. Secure the branches by means of flat-headed nails driven by the sides of the shoots, so that when growth commences in spring they may lay hold of the wall at once. When once planted, Ivy requires little or no attention and always looks well. Ivy which I planted on a wall in this manner three years ago has now reached the top, which is 20 feet from the ground In March all the old leaves should be cut quite close into the old wood with a pair of shears.—CHAS. BENNETT, *Bisborough, Cork.*

WHAT IS A GILLYFLOWER?

MOST people one meets with answer off-hand that a Gillyflower is a Wallflower, of course, and the bulk of the remainder call it a Stock, whilst the few in the minority give it what I believe is its true name, a Clove Pink; and it is in the hope of correcting an erroneous impression that I bring this question forward, for in this instance, at any rate, *vox populi* is not *vox veritatis*. Quite recently I was told that literary authority must go for very little if it be "understanded of the people" that a Gillyflower is a Wallflower. A lady friend of seventy-five, who has been a cultivator of old-fashioned flowers for more than half her life, says the Clove Pink is the Pink Gilliver of fifty years ago (G having the sound of J); so it was five hundred years since, for Chaucer calls it the Clove Gilofre, and he must, with his Anglo-Norman dialect, have referred to the Clove Pink, and that only, seeing that in the French of to-day we have Giroflée musquée, meaning Clove Pink; Girofle, Clove; Giroflée, Gillyflower; Giroflier, Clove Tree. Surely this must be "the curious, choice Clove July-flower" which Spenser and Ben Jonson called "Sops in Wine" (but never Wallflower), from the use in their day of the aromatic flowers as flavouring for wine, Chaucer recommending the same "to put in ale, whether it be moist or stale."

The "British Flora Medica" gives strong testimony to the Clove Pink being the true Gillyflower of old times; but I extract two quotations which rather lend their weight in favour of the Stock:—

> Bring hether the Pincke and purple Cullambine
> With Gelliflowers;
> Bring Coronations and "Sops in Wine!"
> *Spenser's Shepherd's Calendar.*
>
> Fair Ox-eye, Goldylocks and Columbine,
> Pinks, Goulards, King cups, and sweet "Sops in Wine."
> *Pan's Anniversary.*

The work just named gives Dianthus caryophyllus as Clove Pink or Gillyflower. Mr. J. Wood gives us the common name of Dianthus deltoides as wild Gillyflower; but, in apparent contradiction to this, he tells us, when writing of Cheiranthus Cheiri, or common Wallflower, that "at one time the Wallflower was called the Gillyflower, but the name is now only applied to a biennial and single variety of the Stock, a near relation of the Wallflower." Mrs. Lankester, in "Wildflowers Worth Notice," says, "The flowers of the Clove Pink are used to give colour and fragrance to a syrup used in medicine," and Hemsley tells us "the Pink was cultivated in very ancient times by the Mussulmans of Africa, who used it to perfume their wines." We thus get at the probable identity of "Sops in Wine" with the Pink, if we are to give Chaucer and ancient custom their due weight. In the quotations from the two poets given above, all three—the Pink, Stock, and Wallflower theories—may be supported; but then our poets were not infallible in giving plants their proper names, for have we not Milton calling the Honeysuckle the "Twisted Eglantine?" I do not suppose any of our forefathers would have used either Stocks or Wallflowers as "Sops in Wine," whereas it is beyond dispute that Clove Pinks were so used. In Chaucer's day, then, we have the Clove Gilofre, and to-day we have the Clove Gilliver; whilst in the intermediate periods we have July-flowers, Gilliflowers, Juilletfleurs, Œillet (pink) fleurs—the French adhering to their Giroflée to this day, only slightly transposing the letters of Chancer's Gilofre. This July flowering certainly expunges Wallflowers from the title in spite of old Gerard's statement that "the people of Cheshire do call it winter Gilliflower." In ALDE Pratt's "Wild Flowers" it is said "the generic name, Cheirauthus Cheiri, is derived from the Arabic *kheyry*; but this word is applied by the Arabs to a genus of red flowers, similar to it in little but fragrance,' doubtless the Pink, of the order Caryophyllaceæ, a native also of the Mediterranean region. Similarity of sound supports this view; indeed, the generic name of Cheiranthus, of doubtful origin, may have been bestowed on it in error from the *kheyry* of the Arabs, and, by similarity of description and habitat, both Wallflower and Pink being found on old walls, ruins, &c., and described as of sweet fragrance. The book on "Alpine Flowers" tells us: "The Clove Pink occurs in a wild state on old castles and city walls in parts of England, but more abundantly in similar places in the west of France," showing us its greater luxuriance nearer its recognised home. The Wallflower, so far as these remarks are concerned, being disposed of, as being wrongly called Gillyflower, the Stock has a distinctly clear claim to the name, for both being Crucifers, they may in past years have been confounded, especially as we have a Wallflower-leaved Stock, Matthiola græca, having yellow varieties, similar in everything to the yellow wild Wallflower, both also owning with the Pink the same natural home, and affecting the same old ruins, castles, and walls. Seventy years ago a good gardening book was written by one John Abercrombie—he was then aged seventy-two—in which we find Stock Gillyflowers, Stock July Flowers, double Stock July Flowers, Brompton and Ten-week Stocks, named frequently along with Wallflowers, the latter always distinctly separated when treated of in such sentences as "force now pots of Wall and Stock July Flowers," "different sorts of Stock July Flowers, Wallflowers, Sweet Williams," &c.; and old gardeners of to-day speak of Stock Gillivers and Pink Gillivers. But it is worthy of note that to the word Gilliver there is a prefix denoting a varietal distinction, used from Chaucer's time to our own. For my own part, I am of opinion that, although the bulk of the people may apply the term Gillyflower to the Wallflower, they are certainly in error, and the sooner they are understood to be so the better. That, correctly speaking, the prefix should be used, in order that confusion may be avoided as to whether the Clove Pink or Stock Gillyflower is meant, especially in this age, when we find the customs and terms of our ancestors becoming so general, and when we are again cultivating the hardy, old-fashioned plants of bygone years, and giving them the true, good old English names they were then known by. Gillyflower it is and should be—a July flower, not a spring flower; but if we wish to be correct, we should say at the time, I repeat it, whether is meant the Clove or Pink Gilliver of the fourteenth, or the Stock Gilliver of the nineteenth century, as living gardeners still use the precise terms named.

Horsforth, near Leeds. R. A. H. G.

VIOLETS OUT OF DOORS AND IN FRAMES.

AMONGST the many hardy flowers which commend themselves to the notice of the cultivator, few, I think are more worthy of attention than Violets. They are by no means difficult to grow, and will amply repay any extra labour bestowed on them. In order to grow Violets well, I find that they need shade and moisture, so I make it a rule to grow them on a north border, taking care before planting to have the ground well dug and enriched with a good dressing of leaf-soil and rotten manure in the autumn, and forked over prior to planting in the spring. As soon as the plants in the frames and those outdoors have done flowering, take them up and divide them into single crowns, each crown having a portion of root and plant them at distances varying from 6 inches to a foot asunder, according to the variety. Those intended for flowering where planted should be put into 4-feet beds, and those for frame work in rows. The

after treatment consists simply in keeping them well supplied with water till they have become established, cutting off all runners as they appear, destroying all weeds as they show themselves, and also keeping the hoe moving briskly amongst them. During the latter part of September make preparation for moving them into frames: give the frames a full south aspect; put at the bottom of each plenty of drainage, in the shape of ashes or what comes out of the stokehole, filling up the frame to within a foot of the lights with some good loam and leaf-soil and manure, the whole being well mixed together. Early in October put the plants into the frames, choosing the first fine day for that purpose, and planting them with good balls, about a foot apart, or so that they just touch each other and no more. After that, give a thorough watering, which usually lasts them till spring. The lights are kept off till frost makes its appearance; when once put on, they are kept on till after flowering; give them, however, all the air possible whenever the weather is favourable. About a month after planting, all yellow and decayed leaves should be removed, and the whole bed given a surface dressing of charcoal beaten small, so as to keep the plants dry. The following varieties are good, and we can always depend upon them giving a bunch or two of blooms, viz.: Marie Louise, a free and constant flowerer: Victoria Regina, the finest single of all: and the Parma we also find to be a very fine variety. To these add the well-known Neapolitan. We have several other sorts, but they are inferior to these, and not half so free. R. A.

HARDY SPRING FLOWERS.

Amongst these the Christmas Rose should be named first. There are many varieties of this plant, but the most popular and best form is the variety which flowers early, and produces large, pure white flowers, and is named maximus. In mild winters it flowers in January, and the crowns should always be covered by a cloche or handlight, set on three bricks, in order to protect the flowers from the wet; frost does them little harm. Next in succession come the spring bulbs, beginning with the small, bright blue Scillas, Snowdrops, and Crocuses, the latter of many shades of colour—purple, blue, yellow, silver, white, and numerous intermediate tones: and it need only be said of all that they can hardly be planted too extensively or too thickly on borders or on the Grass. They do not extend fast, and produce but little effect when planted thinly. To be seen to advantage, they should be planted in broad masses and the colours should be kept separate. When mixed indiscriminately the effect is monotonous. No plants produce a richer effect in spring than do the Crocuses arranged in distinct masses; and the pure blues, golden yellows, and silvers are the most effective. A mass of Snowdrops looks well on a lawn, but it is eclipsed by a mass of any of the silvery white Crocuses, which are more telling, the flowers being brighter and showing themselves better.

Later in spring we have a whole host of other bulbs, represented chiefly by the Narcissus and Tulip family, which together provide a rich display for two or three months, according to the season and locality. We have had Daffodils in flower some seasons from the 1st of April, when the Narcissus poeticus nanus, Horsfieldi, and others began to flower, till the 25th of June, when we could then gather good blooms of N. poeticus flore-pleno, the double white Daffodil. The Daffodils are mostly all suitable for culture on the flower border, or for naturalising on the Grass and in the wild garden. The varieties are numerous, but the really good kinds from the gardener's point of view are few. Respectable seedsmen who consult the popular taste reduce the list from a hundred or more sorts to about one dozen or a score: and these include such as the common double Daffodil, Narcissus maximus, Orange Phœnix, moschatus, bulbocodium, Horsfieldi, Bulbocodium, and Poet's Narcissus in its single and double forms, all of which are good. Of the yellow, perhaps the largest-flowered variety, maximus, and the small-flowered Bulbocodium are the best. The first is single, produces large clear yellow flowers, very effective in the mass, and the second does not grow much taller than a Crocus, and is equally effective. All the varieties should be planted early in the autumn, say October, but not later than November, for they begin to root and grow early. This is in the case of bulbs expected to flower the following spring, for Daffodils will transplant at almost any season of the year. We have often taken them up when just coming into flower, and the plants have flowered well afterwards. Roots may be planted in almost any situation under trees or in the open, but the earliest and best flowers are produced by plants growing in sunny situations, at least in the north. The tender kinds ripen their bulbs better in such places, and consequently flower better.

The list of Tulips is a long one, including double and single kinds; for outdoor planting the single kinds are by far the best. The doubles are top-heavy and droop, and for show have no chance with the single varieties. Any number of varieties may be planted, but preference should be given to the most pleasant shades, and between many so-called varieties there is little or no difference. There are early and late kinds, however, and in planting this should not be forgotten, as the two provide a long succession of flower, and if late and early sorts are planted in alternate patches, the one set will flower just as the other is going out. On the bare border hardy Tulips will grow and flower annually for a score of years or longer if not disturbed. Indeed, they will do this whenever they can complete their growth and mature their foliage properly, upon which their continuance depends. They succeed well in Grass, but do not last so long, as the Grass chokes them during the season of growth, unless kept trodden down.

Of Scillas and Lily of the Valley there are several cultivated forms, but the blue kinds hardly differ from the wild wood Hyacinth, except in length of stem and size of flower; but the equally strong growing rosy-tinted and the white kinds are decided acquisitions, especially the white variety, which is both scarce and dear. The flowers are large and pure white, and during the season are among the prettiest flowers on the hardy border. It is a plant worth planting as freely as the Daffodil, and it succeeds in any soil. It is a good subject to plant among masses of the Lily of the Valley, which thrives anywhere among other plants, and if let alone will yield quantities of flowers in May and June. Unlike Daffodils and Tulips, the cultivated pot Hyacinth does not establish itself outdoors except under favourable circumstances; but bulbs planted out in November in the open border bloom well in spring, and are both hardy and gay, rivalling or beating most other spring bulbs by their pleasing and bright shades. Old bulbs, too, that have been forced early under glass, if taken care of after they have done flowering till their foliage fades naturally, may be afterwards planted out, with the certainty of most of them flowering during the next two years. The flower-spikes will not be large, perhaps bearing nine or a dozen flowers each, but when planted in patches pretty close together, they look just as well as finer ones. Blue flowers are plentiful among spring flowers, and the Grape Hyacinth is one of the best. Roots, planted in almost any situation where the ground is not wet, soon make good plants, and produce many flowers unfailingly every spring, both in the north and south; but to produce effective masses it must be planted freely at the first, and then be left to itself. It flowers in April. Most of the Irises are summer bloomers, and will come to be noticed amongst these: but Iris reticulata is a very early flowering sort, and one of the most attractive of the whole family: it also forces well. The flowers are of a rich blue colour and fragrant, and the plants should have a favourable position on the border, as it comes into bloom in February and March.

In addition to those mentioned above, the following will all be found excellent, showy, and worthy of care in cultivation, viz.: Arabis, Dog's-tooth Violets, Cyclamens, the pink and blue varieties of Hepatica apennina, Iberis corifolia (the best perennial Candytuft), Phlox procumbens, a rockery subject, of creeping habit, and very pretty; Lithospermum prostratum, Anemone fulgens, the best crimson spring flower, and very showy; Aubrietia purpurea, close-growing and dwarf blue; red and white double Daisies, which flower freely till July, and are very good; Pansies and Violas in warm spots and borders; Saxifraga Wallacei, the showiest and best of its class, flowers white; Wallflowers, of which there are now good distinct strains of dwarf habit, that come true from seed; the giant white and yellow Polyanthus, the boldest and most striking of the yellow section of that family, producing flowers on stalks sometimes 9 inches high, with a cluster of flowers each larger than the common Primrose; Polyanthuses in variety; and, above all, coloured Primroses, a host in themselves, producing an almost endless variety of the richest shades of colour. Without doubt these are amongst the very best of spring flowers, and have a great future before them. Seed should be sown in all cases, if possible, as soon as ripe; but the previous year's seed, sown in April, gives the best plants for flowering the year following. These do not include the varieties of the Primula japonica and other exotic varieties, many of which are also beautiful. The common Auricula comes into flower as the Primrose goes out of flower, and only those who have grown it outdoors know how well it grows and flowers, especially in cool, well-drained soils. It is propagated by seed, the same as the common Primrose, and by division of the stools about midsummer, or any time in August or September. As regards the usual propagation of spring plants, they are multiplied by seed, cuttings, or division of the roots. Any subject which produces stems which can be separated, with a bit of root to each, will grow if divided and re-planted, either when the plant has just died down or when it begins to grow. All bulbous subjects are easily separated when the foliage dies down, and subjects that produce a profuse growth, like the Arabis or the perennial Candytuft, root freely under a hand-light any time during the summer.

J. S. W.

VEITCH'S VIRGINIAN CREEPER.

This is undoubtedly one of the most valuable plants for covering walls which we possess, as it attaches itself thereto without any nailing or other fastening. The foliage, too, is the right shade of green and very dense, and the plant is perfectly hardy. In a young state it is not very rapid as regards growth; but when once established, its rate of progress is much quicker, the slender shoots, studded at regular distances apart with bright green leaves, pushing away several feet in a season. If it is desired to cover a wall, and the plants are of the size usually sold—viz., about a yard high and slender in growth—they should be planted somewhat thickly, especially if immediate display is required. In this latter case they may be put in about 18 inches apart and secured to the wall by a few nails, a support which will be necessary till young shoots are produced, when they will attach themselves firmly to the bricks by means of the small sucker-like productions with which they are furnished. In this way, if large plants are removed, all that is necessary is to fasten them in their places till the first season's growth secures them in the ordinary way. I was compelled to remove some large plants two years ago, and as the roots were principally in brick rubbish at the foot of the wall, I was in no ways sanguine as to the result. However, I took up the plants, four in number, as carefully as possible. Even then, however, it was necessary to sacrifice some of the roots, and those that remained seemed very small in proportion to the branches. These latter were stripped from the wall without damage, the plants removed to their new quarters, planted carefully, and supplied with water during the following summer; the result exceeded my anticipations. It would now be impossible to tell that the plants had ever been shifted. This habit of securing itself to whatever support is near gives this Vir-

ginian Creeper an advantage over its stronger-growing ally, which to cover a wall requires in the first place to be secured thereon; but when that is done, the long drooping branches arrange themselves in a very graceful manner. In the case of Veitch's Virginian Creeper, however, the wall is covered with a dense mass of foliage. After it has attained a large size, it sometimes produces foliage that differs altogether from that usually found on it. In some cases, indeed, it is as large as that of a Grape Vine and deeply lobed. Such an occurrence is singular, as no one would take the large lobed leaves and the small ordinary foliage to belong to the same plant; but if cuttings with only large leaves are struck, the young growth produced therefrom is of the ordinary character. A pretty effect is produced by planting this Ampelopsis and one of the smaller Ivies in such a way that their branches become intermixed. In that case the Ivy furnishes the wall in winter, when the Ampelopsis is without leaves, and in summer the foliage of the other becomes more prominent than that of the Ivy. This Ampelopsis strikes readily from cuttings if taken off during winter. Cut the shoots into pieces about 6 inches long, and put them in pots of sandy soil. About a dozen in a 5-inch pot is a good, useful number, and they will require to be kept close in a cold frame till rooted. Cuttings will also root if put in the open ground, but in that case it is necessary to employ stouter shoots for the purpose, and it is not always possible to obtain them. The young shoots may be taken during summer and treated in the same way as those of Fuchsias, when they will soon root. They are more susceptible of damp than Fuchsias are, but with a little attention to obviate this but few will be lost. Take the cuttings as early in the summer as possible; they may be potted off when rooted, and will make good little plants by autumn. They will strike readily enough now, but in that case it is better when rooted to leave them undisturbed till early spring; then pot them off and plant them out as the season advances. This Ampelopsis is also known and frequently met with under the name of Vitis tricuspidata. ALPHA.

Wintering Tigridias.—The excellent illustration of Tigridia alba, published in THE GARDEN the other day, reminds me of one or two instances in which I have seen the other varieties of this showy flower cultivated in the west of England. At Langport I remember seeing them in September in excellent condition. They were in a bed in the open air where they had been growing four years with only the protection of some rough leaf soil put on the surface during winter. In Mr. Marshall's garden, at Taunton, Tigridias are lifted late in the autumn and taken to a cool house; they are then placed in a shallow box and some soil is put over the roots. A very little moisture in the soil serves to keep the bulbs sound and fresh during the winter. After all danger of severe frost is over, they are planted again in rather large clumps in the mixed border, where they flower as well as anyone can desire. I have tried these Tigridias both permanently planted out and lifted and stored during the winter, but our position is too cold. With us they only commence to flower very late in the summer, and then the flowers which they produce are but few.—J. C. C.

Dwarf Scabious.—These are not half so much grown as they deserve to be, as not only are they very showy in beds or borders, but they are also valuable in pots for the embellishment of greenhouses and conservatories—a purpose for which they are well adapted. They may be had in bloom almost at any season by sowing at different times, or by keeping plants stopped or pinched back till about a month or so before blooms are wanted. To have them early, seed should be sown in pots or pans in September, and the plants, when large enough, pricked off thinly or potted singly, and kept close for a few days to give them a start, after which the best place for them to winter in is a light, airy shelf in any cool house or pit near the glass. Early in spring it will be necessary to give them a shift into 7-inch pots, which are quite large enough to grow them in, as, when they become root-bound, it is an easy matter to keep them well fed by watering with liquid manure. By the end of May or beginning of June they will be benefited by being plunged outdoors, which should be done in an open, sunny position, as the more stocky and hardy the shoots are, the more flowers will they produce. For planting in borders, plants are generally raised in spring; but it is quite worth while to sow in the autumn, as they are so persistent in blooming that they last the whole summer through, however soon they begin. As they vary much from seed, it is a good plan to save cuttings from any fine sorts, and propagate in that way; by doing that a select strain may be secured, and distinct colours had for arranging in lines or beds as may be desired, or for planting *en masse*, in which manner they produce a very striking and pleasing effect. These dwarf Scabious live out-of-doors in mild winters; we have many now in our borders which have afforded us great quantities of flowers for cutting.—S. D.

Auricula offsets.—The season has now arrived for thoroughly overhauling Auriculas. Every one of them must be carefully examined; all decaying leaves and decaying matter should be removed, and the pots which have become dirty should be scrubbed clean. This is the best time to take off offsets. They strike roots more freely and require less looking after at this season than at any other. We use 2½-inch pots in which to strike them. Three small offsets may be put in one pot, or one or two larger ones in the same sized pot. The pots should be placed close together under handlights out of doors. Surface dressing next demands attention. This used to be considered a very important item in the culture of the Auricula, and by many growers it is held to be so now. A considerable portion of the surface soil is removed and replaced by some material much more stimulating, say equal parts of loam and rotten manure. Now, I have no hesitation in saying that more mischief is done to the plants by this rich feeding than good. All that the plants require is to have the green mould that may have gathered on the surface removed, to be replaced with a small portion of compost rather richer than that used for ordinary potting. Now, too, is the best time to sow seeds gathered in July last year. We used at one time to sow them as soon as gathered, but the largest proportion of them did not appear above ground until spring, and some small plants that appeared late in the autumn and winter were cut off by slugs. The seeds vegetate freely in a bed in which there is a little bottom-heat; and as soon as they are well up and the first rough leaf formed, they are pricked out in 3-inch pots, about a dozen in a pot; when the leaves meet together they are again repotted, three plants in the same sized pot. At next potting one only is placed in each pot.—J. DOUGLAS.

Christmas Roses.—These are most serviceable as regards supplying cut bloom. The earliest and finest with us is Helleborus niger maximus, which has much larger blossoms, with stronger and longer stems than those of the type; but, although a stronger growing kind, it does not flower so freely as H. niger, which comes quite crowded with blooms. In pots this latter is of great value, as it may be used for the embellishment of room windows or greenhouses, where plants of it will last in perfection for weeks at a time. In taking them up they should be lifted with good balls, so as to give as little check as possible; and, when potted in light, rich soil, they should be placed in a damp, cold frame, and kept close till they get fresh hold and the flowers begin to expand, after which they will bear more exposure and air without flagging. Those intended for cutting outdoors will need protection, for, though very hardy, the blooms being so near the ground get disfigured through the splashing of heavy rain; not only this, too, but they come more delicate-looking and pure under a cover of glass, the petals being then a lovely clear waxy white, without the tinge they usually have when fully exposed. If the plants are in single patches in borders, a handlight answers as well as anything, and a few old sashes may be laid over those growing in beds. People who are not so fortunate as to have a good stock of Hellebores will find early spring the best time to start with them, as then they are just commencing their growth, and may be pulled apart and divided at pleasure. What they like most to grow in is peat, and a good situation for them is the margin of Rhododendron beds, as there they get partial shade, in which they delight. Although peat suits them best, Christmas Roses grow freely and do fairly well in almost any soil that is not actually stiff and close; and even in this, leaf-mould and sand, dug and mixed with it, will afford all they require. In planting beds, they should be placed triangularly, at about 18 inches apart, so as to give room for their foliage to spread, as on the full development of this depends the crowns they make and the number of blossoms they form.—S. D.

LAWNS AND THEIR FORMATION.

THE lawn has always been regarded as one of the best and most pleasing features of an English garden, and through all the changes of style which have taken place in regard to the floral decoration of our pleasure grounds, no one has, so far as I am aware, ever suggested any alteration in regard to it or objected to its extent, provided it can be kept in proper order. The lawn may be described as the frame in which the garden picture is set, and without which, or failing to keep it in good order, no garden can ever look as it ought to do any more than fine paintings and other works of art can be displayed to advantage in an unfurnished or unsuitable building. Seasons may vary, and our flower beds may vary with them, sometimes be successful and sometimes disappointing, but in our peculiar and fitful climate the Grass lawn always affords satisfaction and pleasure, provided it has been properly made at the outset, and properly treated afterwards. A lawn should be spacious in proportion to the size of the garden, even, smooth, always green, and pleasant to walk upon. To have it like this, it must be well made and well kept, but most depends on the making of it; and the main points to consider in regard to this matter are the levelling, drainage, trenching or digging, sowing or turfing, and keeping; and these I propose to treat of separately.

ROUGH LEVELLING.

This is a term which applies to lawn making, whether the ground is intended to be flat or undulating. As a rule, the latter feature predominates, only tennis lawns and croquet grounds, &c., being laid out quite flat and level. Levelling undulating ground consists in simply filling up hollows and reducing knolls or hillocks, on the give-and-take principle, so as to give the ground an even and pleasing contour without disturbing its general form, except in the case of slopes and terraces, which must be set out accordingly at the beginning. In cases where the ground is very uneven, however, it sometimes becomes necessary to remove the good surface soil temporarily, and level the subsoil, or even remove a portion of it from its place—work which involves considerable expense. On no account should the good soil be buried under such circumstances; it should be put aside to go on the top again when the work is finished. Much needless labour and expense in forming a lawn on difficult ground may be saved by the judicious planning and planting of the ground, and no steps should be taken in regard to the lawn till the shrubberies, clumps, and beds, &c., are all set out, and their position and levels ascertained; and, as far as possible, all heavy planting should be finished beforehand. All tree roots and large stones should be removed from the lawn, particularly the former, which, if left in the ground, will decay in time, causing the soil to fall in and making the surface very uneven. In gardens where lawns have been made on the sites of plantations where the stumps have not been carefully removed, the after subsidence of the ground where the roots have been decayed renders the lawn very uneven and unsightly, not to speak of

the fungus which the decaying roots generate, and which appears annually in the shape of masses of offensive Toadstools all through the autumn.

Drainage.

A general rough level having been effected, the drainage must be seen to; the extent and nature of it will depend a good deal upon the formation. Thin and naturally dry soils are better without drainage, as it only tends to starve the Grass in dry seasons; but, as a rule, drainage is necessary to carry away superfluous water quickly, and prevent melted snow and heavy rains flooding the lawn for any length of time. For comfort's sake, lawns, like walks, should be dry. Drains 4 feet deep, and from 15 feet to 30 feet apart, according to the situation, with a 3-inch tile in the bottom, and 6 inches of broken stones or rough cinders down on the tiles, and a ready outfall to a main drain of sufficient capacity to prevent "drowning," will be sufficient in most cases; but in retentive soils or swampy peat even more than this may be needed. As a rule, a good guide in such cases is the amount of drainage found to be necessary on the farm lands of the district; what is sufficient for these will be sufficient also for a garden lawn, and what this is can soon be found.

Trenching the Ground.

The main beauty of a lawn consists in its freshness of appearance, and, to secure this for as long a period as possible throughout the year, the soil must be deep, rich, and dry; hence trenching in all cases is almost a necessity. It is rarely a piece of natural ground is found to be of uniform depth throughout. Nor is it needful that it should be so; but it is important that the gradations from the shallow to the deeper portion should be gradual, and even otherwise the ground is certain to be "patchy"—one of the worst faults a lawn can have. The finer Grasses and Clover will prefer those spots where the soil is deepest and richest, and forsake those portions where it is thin and poor, which will be usurped by Moss and weeds; and in dry seasons the latter will suffer first, and become brown and dead-looking, thus spoiling the appearance of the sward. I have seen lawns on which obliterated walks, that had not been trenched to the same depth as the rest of the ground, remain perfectly distinct, owing to the colour of the vegetation they produced, for thirty years afterwards. Whatever depth, therefore, the ground can be trenched to, which will depend upon the nature of the ground and the cost, it must be trenched to a uniform depth, and the subsoil in the bottom of the trench should be turned up rough with a strong fork as well: but any bad soil which may be dug up must be thoroughly mixed with the good soil and not left on the surface next the sod; for bringing up bad bottom soils on a lawn ground is not like doing the same on ground constantly cultivated by the spade or plough. Proceed by opening a good wide trench the width of the piece, and turn over the ground in a regular manner till the whole is finished, and then leave it for a good while to settle. Afterwards the surface should be finally levelled, and if any manure is to be given, it should be dug into the surface at the same time. If the soil be naturally good, no manure will be needed; but if poor, it will be much benefited by the application of rotten farmyard manure, rotten leaves, or vegetable refuse. Good fresh loam, free from weeds, is also excellent for the purpose. This trenching and manuring should be performed as early in autumn as possible; and the winter rains and frosts will settle the soil better and more evenly than ramming or rolling, neither of which is advisable.

Laying down a Lawn from Seed.

This is by far the best plan of forming a pure, clean Grass sward, free from those weeds and coarse Grasses which mar the appearance of so many lawns, and which are inseparable from lawns made from the natural turf. When seed has to be sown, the ground, being already prepared as advised, should be made ready for sowing in April by treading (rolling will not do) the soil evenly, raking it smooth, and removing all stones and lumps projecting above the surface; after that the seed should be sown thickly and harrowed slightly in by a short, blunt-toothed iron rake and rolled down. Grass seeds mixed in the right proportions for the purpose are most conveniently procured from respectable seed houses; but samples differ greatly, some "mixtures" containing more weeds and coarse Grasses than others, and these give the lawn quite a coarse appearance. Only the most respectable seed houses sell good Grass seeds, and, with a list of the different Grasses which the mixtures are said to contain, no one should have any difficulty in procuring what he wants. The quantity of seed to an acre should not be less than 50 lbs., and if much more can be afforded, all the better. As a rule seed is sown much too thinly, and years elapse before a dense turf is formed. By sowing thickly enough, however, and manuring judiciously, a good lawn may be had the same season the seed is sown. Remarkable examples of results from seeds in the course of a few months were exhibited in the grounds of the Paris Exhibition in 1878. Several English firms competed for the prize offered for the best example of lawn Grasses, each exhibitor being portioned out a considerable piece of ground, which they sowed and tended themselves. All the examples presented differences, some being fine and some coarse, just according to the proportion of the varieties of Grasses sown and the cleanliness of the samples; but although in each case the seed had only been sown about May, the Grass was quite thick and dense by the month of August, and beautifully fresh and green. The seed had been sown thickly in well-enriched soil, and the Grass had been regularly cut during the season, and the cuttings left evenly scattered upon the lawn by the mowing machine. Good seed is rather dear; but when we take into consideration the cost of procuring turf, laying it down, watering, rolling, and tending it, sowing is probably the cheapest plan, and in other respects it is undoubtedly the best.

Laying Down Turf.

For turf or sods the ground is prepared in the same way as for seed. The turf should be of the finest quality procurable; but it is only on certain formations and under certain conditions that it can be procured free from weeds and course Grasses. The turf should be taken off in pieces about 18 inches square, of an even thickness of 2 inches or thereabout, and brought to the place in rolls where it is wanted, and laid down at the same time that it is taken up. The sods should be beaten shapely by the spade as they are laid, and afterwards the whole lawn should be rolled frequently by a heavy roller in moist weather to render the surface level. In summer, should the sods shrink—as they will do in dry weather—the seams should be filled up with fine soil to prevent evaporation and bind the sods together. Turfing by inoculation consists in chopping the sods up in small pieces, scattering them over the ground, and rolling them in. This plan is only resorted to when turf is too scarce to permit laying down the turves whole; but it answers very well, and if a few seeds are sown at the same time, a very good lawn is thereby formed in one season.

Keeping the Lawn in Order.

To keep a Grass lawn permanently in good order it must be cut regularly by the machine or scythe, by the former if possible, and periodically manured by means of top-dressings. When the clippings are left on the lawn, manure need not be applied so often, as the short Grass acts as a manure, much in the same manner as wood ashes; but the practice helps to propagate weeds, Daisies, Dandelions, Plantains, and the like, and on the whole had better not be adopted, except on very clean lawns. Under any circumstances the cutting of the Grass should begin as soon as the Grass begins to grow in spring, and be continued till it ceases to grow in autumn. A smooth, dense carpety turf can only be preserved by these means, as the cutting prevents the Grass going to seed, and causes the roots and fibres to spread, until in a short time the turf becomes a dense velvety mass, such as is only found on a closely shaven lawn. At the same time, this constant removal of the short Grass is certain, sooner or later, just according to the quality of the soil, to impoverish a lawn, and must therefore be made good by annual or periodical top-dressings in the form of guano, soot, or wood ashes, or a mixture of all the three, than which there is nothing better, and one dressing in spring will be sufficient. To this end any garden refuse should be burned, and with it all the short Grass collected during the season, and as much earth as possible. The ashes can afterwards be sifted through a fine sieve, and have the soot and guano added to them when they are used, which may be at the rate of 3 cwts. or 4 cwts. to the acre. The fine siftings of coal ashes may also be applied with advantage alone, but more advantageously in conjunction with other manures. Two inches of coal ashes laid under the turf will prevent worms rising, and this plan may be adopted in the case of tennis courts and cricket grounds. In winter lawns should be frequently swept and rolled. As to weeds, the most troublesome in Grass are Dandelions, Plantains, and Daisies, which when once established are difficult to eradicate. They may be kept out of a well-made lawn with little trouble by removing them as they appear; but where they exist in quantities, Daisies and Plantains are not easily got rid of, except by much labour. Dandelions may be extirpated by cutting the crowns of the plants off and pouring a few drops of carbolic acid on the root, but the operation may have to be repeated several times.

J. S.

Snowdrops. — These are now blooming profusely in many parts of South Wales. I rarely find them in beds or within the bounds of cultivated ground, but in the woodlands they seem to grow naturally, and here they are in such harmony with their surroundings that I am surprised they are not strewn about everywhere in woods and parks. At present we have no flowers except Snowdrops, and they are more pleasing than the gayest flower bed or border I have ever seen in July.—Camerian.

Gladioli amongst Roses.—Many are deterred from growing these on account of the cost of the bulbs; but, though the named sorts are dear, seedlings are cheap enough, good roots being only about £1 per 100—at least, that is the price we get them for, and grand they are, with their strong tall spikes of bloom of many shades of colour, ranging from the vivid scarlet of the well-known brenchleyensis down to almost the purest of whites. For planting amongst Roses nothing can be finer, as, when the first flush of beauty is over, these Gladioli come in and tower up above the foliage of the dwarfs, or arrest the eye by their splendour, and lead it away from the ugly stems and stakes of the standards, which always seem to want something to hide them. When grown in borders, the way I think Gladioli look best is in clumps of three, planted triangularly, about 6 inches apart, as groups like that are very telling and produce a striking effect. I have heard many complain of losing their Gladioli, which is generally caused by taking them up too soon, as after flowering it is necessary for them to stand and ripen till the tops gradually turn brown and die away naturally, before which time the roots should not be dug up. Not only are Gladioli often taken up long before they should be, but they are frequently dried off, as it is termed, by exposing them to sun and air, which may be all very well for a few hours if they are wet when taken fresh out of the ground; but if they lie long, they must of necessity shrivel and lose much of their strength. The way in which I have always found them to winter best is in dry sand, which prevents any shrivelling and preserves their full strength. The time to plant is about the middle of March: and if others are put in at short intervals, a long succession of bloom may be had. The soil in which Gladioli do best is a rich deep sandy one; and if not naturally sharp, a handful of sand should be thrown over each bulb at the time of planting, which will keep it from rotting.—S. D.

FROGNAL.

This fine old house, the Kentish seat of Earl Sydney, is remarkable for having been the residence of the illustrious Sir Philip Warwick, a contemporary of the Charles'. Though Frognal has been in the Sydney family for the past century and a quarter, it is doubtful if any material alteration has taken place in the principal features of the house itself, and the garden, too, has seemingly undergone but little change. The grand old trees to be seen here were probably even in Warwick's time but little less in size than now, for many of them must have existed there for centuries. The garden is a beautiful example of the true English or landscape style, marred in no way by any modern introduction not in keeping with its character and that of its surroundings. True, a few modern coniferous and other trees have been introduced, but these consist of the best kinds, and borders full of old-fashioned perennials that meet one at every turn are brightened up in summer by a judicious assortment of bedding plants.

The annexed illustration shows a view of the house, looking across the lawn, and embraces the huge bole of one of the fine Oaks with which the place abounds. At the further extremity of the lawn, looking from the mansion, are some of the most perfect specimens of Turkey Oak that could anywhere be seen. They are not so remarkable for huge size as for perfect form and wide spread of branches. The height of the finest of these Turkey Oaks is 50 feet, with a spread of branches of over 100 feet, while the girth of the trunk at a yard from the base is 11 feet. This tree is a magnificent object from spring to autumn, and even in winter it is most picturesque. One of the finest English Oaks has a bole 18 feet in girth, a spread of branches of 110 feet, and a height of about 60 feet. There is likewise a fine Tulip Tree (Liriodendron Tulipifera) about as high as the English Oak just alluded to, and a Magnolia grandiflora in front of the house 50 feet in height. Besides these there is a great variety of other trees, consisting of Walnuts, Beeches, Planes, Chestnuts, and other deciduous kinds, besides Lebanon Cedars.

Next to the tree growth, which constitutes one of the especial beauties of the place, the most striking feature is the fine extent of lawn, particularly the stretch in front of the mansion, which is as level as a billiard table, and free from flower beds and other impedimenta which are so apt to destroy what artists term breadth of effect. Such a spacious and admirably-kept lawn as this affords ample room for practising lawn games without interruption. The boundary of the lawn is a sunken fence, which imperceptibly connects it with the park, certainly among the most beautiful in Kent, being thickly studded with magnificent tree growth, and well diversified by pleasing undulations that characterise the whole of the neighbourhood about the picturesque village of Chislehurst.

Frognal, Chislehurst. View of principal front.

The walls of the plain old red brick house are adorned with a fine growth of such shrubs as the Pyracantha, Garrya elliptica, and surrounding the house is a raised terrace, but one of the least objectionable type, inasmuch as it is not too high nor too abruptly cut off from the lawn, the slope being gentle and less like a railway embankment than one usually sees. The terrace is embellished tastefully with suitable vases, which in summer are filled with flowers. The vases skirting the path shown in the engraving contrast effectively with the predominating green of the lawn and foliage.

The principal display of flower beds consists of a double row of simple circular beds running parallel with the terrace, and placed so as to interfere in no way with the lawn. These beds are filled generally with bold masses of one kind of plant—an arrangement the effect of which is far finer than that of a heterogenous mixture of various kinds placed in a comparatively small area, and oftener than not the colours are most inharmonious. Last summer Mr. Crasp, the gardener, introduced a plan of filling some of the beds with tall-growing plants with fine foliage—a capital innovation, inasmuch as it somewhat relieved the terrace lawn of its otherwise monotonous flatness. Such plants as large-leaved Cannas, Tobaccos, Castor-oils, variegated Maize, Chilian and common Beet, Wigandias, and others produced a fine effect planted in bold masses, interspersed here and there with beds of such brilliant flowering plants as scarlet Pelargoniums, Tropæolums, Marguerites, and others of a similar character.

Roses, here as elsewhere, are evidently great favourites, as they occur everywhere about the place grown in various ways. The majority are pegged down, thus forming large compact masses of flowers and foliage. In one part some fine bush Roses are pegged down on the Grass—an excellent plan, and one that should be more frequently practised than it is. The only extra care they need is paying a little attention at first to have the shoots properly placed in the positions they are to occupy.

In a quiet, sheltered corner of the grounds there is a thriving plantation of the choicer kinds of Conifers, among the most noteworthy of which are Abies Albertiana, A. Douglasi, Cupressus Lawsoniana, C. nutkaensis, Taxodium sempervirens, Pinus Cembra, Cedrus atlantica and Deodara, Cryptomeria japonica, and Wellingtonia gigantea, all of which seem to flourish uncommonly well in this locality.

An Italian garden is still retained, representing, as it does, a relic of the old style of gardening, and adjacent to it is an old-fashioned Camellia house, filled with fine old bushes, which afford in early spring a grand harvest of bloom. The kitchen garden, fruit, and plant houses are on a scale commensurate with the wants of the establishment. There are some veteran Black Hamburgh Vines which still carry good crops of fruit. Plants to yield flowers for cutting are admirably grown, particularly Gardenias, Stephanotis, Maréchal Niel Roses, and other useful plants for that purpose, all planted out. W. Goldring.

Fruit Garden.

OUR GOOSEBERRIES.

Like many other fruits, the numbers of varieties of Gooseberries that encumber the lists are now practically endless, and many of the sorts grown are only remarkable for their size, flavour being a secondary consideration, and yet there is no fruit probably that is cultivated in English gardens in which the varieties differ so much in this respect. Between the good and bad-flavoured kinds there is a gulf so wide that only those who have compared them together can appreciate the difference. Our varieties of Gooseberries have not been the production of skilled hybridists or gardeners, who might be supposed to understand the subject best, but of operative weavers and mill-workers, who, strangely enough, have hitherto had the Gooseberry almost exclusively in their hands, and they have striven more for size than for quality in the production of new sorts. To such an extent has competition for prizes for size been carried in Lancashire and adjoining counties, that the "big Gooseberry" of the season has long since become a proverbial joke. Cultivated varieties of Gooseberries have not been numerous so long as some people imagine, and to Lancashire amateurs belong the credit of having brought this fruit to the degree of perfection it has attained. On referring to the several histories of the plant, we find that the Gooseberry was not known to the ancients, and that even at the present day it is only grown to perfection in England, where all the good kinds have originated, and in the colonies where the climate suits it. There is no record of its systematic cultivation before the seventeenth century, and it was late in the eighteenth century before garden varieties became common. At that date a Gooseberry weighing 10 dwts. was considered large, whereas now large kinds are three times that weight, or over 30 dwts. This fruit shows in a remarkable manner how much the bulk and weight of any fruit can be increased by cultivation. In its wild state the fruit is small and seedy, but in the cultivated state the pulp, as in the Strawberry, increases enormously. One good advantage of the increase in the size of varieties, apart from flavour, is that it increases the value of the fruit for pies and tarts, as the larger the berries can be had in the green and tender state, the more profitable the crop, for much money is now made out of green Gooseberries, while large quantities are also preserved before they are ripe.

The Lancashire Gooseberry grower bestows great pains on the cultivation of his favourite, and, as has been before observed, he attaches great value to size in the case of exhibition kinds. He has even devised a method of pruning and training whereby the berries hang clear of the branches, like the bunches of Grapes in a vinery, and so swell fairly without being bruised or pricked by being blown about by the wind. In a working collier's garden the writer was shown bushes trained as flat as tables, not above a foot high, and covering a large area of ground, the branches being supported by short stakes, over which they were trained horizontally; the berries were hanging clear underneath, and to be seen only by lying down on the ground and looking under the bushes. All this pains was taken to produce exhibition samples. To what degree of perfection the flavour of the Gooseberry might be brought no one can say; but if it be possible to excel the already existing best varieties as much as these excel others, we may expect the Gooseberry in the future to rank amongst the most delicious and esteemed of our dessert fruits. As it stands now there are none more acceptable, and even connoisseurs revel in a good "feed" of Gooseberries in season when plenty of other more valuable fruits are to be had. People hardly ever tire of eating Gooseberries, and they seldom do anyone, even delicate folk, any harm. It is a pity we cannot have more of them; they never cloy the palate. It is to the gardener we owe our good garden Gooseberries, for if he has not raised them, he has at all events selected the best for dessert purposes and for preserving, avoiding the larger and coarser varieties, which are of no use except for show.

The most popular dessert kinds are about the size of a good marble, and two typical sorts are the Early Sulphur and the Red Warrington. Of the latter we would speak particularly. It is an old sort, sometimes known as the Aston Red and Volunteer. The fruit is of fair size, of remarkably agreeable flavour, keeps well till late in the season, and is alike useful for dessert or for preserving. The bush is very prolific and very distinct in habit, growing in a wide-spreading shape, with the points of the shoots drooping towards the ground. There is no other red kind so extensively grown by those who know the good sorts either for market purposes or private use, and for a second early or late sort more of it should be grown than any other; its remarkably vigorous habit and fertility distinguish it from all others. A number of bushes of the Red Warrington here are, I suppose, at least 40 years of age. We transplanted them 18 years ago, and they were old bushes then; we have moved them more than once since, and they are still strong and fruitful. It is one of those sorts that do well behind a north wall, where the fruit will hang till November, and as it ripens in the open quarter in August, it has a long season of productiveness. During that season we use hardly any other sort. The colour is red or greenish red, for at times the fruit never becomes quite red all over; but it is always well flavoured. The somewhat too much praised Ironmonger is too small, as well as thick-skinned, and not a very valuable sort. Indeed, many of the small kinds have too much skin for their size, and I do not recommend small sorts for planting either for dessert or preserving. An excellent early white or yellow kind of about the same size as the Warrington is the Early Sulphur, which is a great bearer and a good grower. This sort is worth planting extensively. The fruit is excellent, of refreshing and excellent flavour, and ripe among the first. Garibaldi, another large yellow sort, is also good; and Woodward's Whitesmith is the best of all the green or white kinds, and may be grown as a companion to the Red Warrington. In order to have

Late Gooseberries, they should be either trained on walls facing north, or be planted close to the north walls when they cannot be trained to them. Here the fruit will keep a long while on the trees, especially if matted up when about ripe. Gooseberries require good culture and free pruning if good fruit is expected, but it is a bad plan to cut the shoots back severely. We often leave one-year-old shoots of the Warrington 2 feet long, and on such shoots we have counted nigh upon a hundred fine fruit in a good season. The common fault of Gooseberry management is allowing the buds at the base of the bush and on the stem to grow. These buds soon produce a thicket of gross shoots that choke up the centre of the bush and prevent the light and air from reaching the fruit. These shoots the unskilful or indifferent pruner contents himself by simply cutting back to the base, instead of wrenching them out altogether, and the result is a worse crowd than before. It matters little what shape a bush is trained in so long as it is kept thin and free from suckers and snags, or artificial spurs that produce useless spray. All shoots cut out should be cut clean off at the base, and most dependence should be placed on the young shoots for a crop. The caterpillar—that scourge of the Gooseberry quarter—can only be dealt with if taken in time when it does appear; and Hellebore powder, put in water and applied by a syringe, or, better still, a good-going garden engine, is the best remedy, only Hellebore is objectionable on account of its poisonous nature. Mulching the ground thickly with manure or short litter is an excellent preventive, as it appears to keep the caterpillars from getting up out of the soil, where they hybernate, to the bushes. We have heard before of mulchings of tan having the same effect, but any other mulching will do as well, provided it is thick enough and is tucked in close to the stem and extends outwards about 2 feet. When the bushes alone occupy the ground, its entire surface may as well be mulched over. This mulching keeps down weeds effectually, and, when the soil is poor, promotes a stronger and better growth. Once fruit quarters are mulched, mulch always. Such dressings bring the roots close to the surface of the soil, and these surface roots increase every year, so that it becomes dangerous to dig or fork about the roots, and digging in fruit plantations is, as a rule, an unwise practice. Mulchings should be applied in the autumn or winter as soon as the bushes have been pruned. S.

INSIDE *v.* OUTSIDE VINE BORDERS.

In reference to this subject "J. S. W." asked me to point to an example where roots of Vines planted near the front arches betook themselves to the inside border as much as to the outside one, stating at the same time that he does not wish me to compromise the name of any gardener, but just to tell him where such a fact has been proved, and he will investigate the matter himself. I can assure "J. S. W." that I am not disposed to assist him in inquisitorial investigations of this kind. Nevertheless, for his enlightenment I may venture to mention a place where all that I have said on the subject, and, more, can be seen and verified, and that is Eastnor Castle. Here there is a noted old Hamburgh Vine that every year produces a crop, that for combined weight and finish may safely challenge any in the kingdom. This, planted inside the end of a very long, wide house, has a full-sized outside border, and as much more inside, both of which are as full of active roots as they can hold. So far from its being correct that roots will not stop in an inside border if they can get out, I assert that, if their wants from the first in the inside are provided for and afterwards attended to, old Vines that have lost their inside roots, or that never have had any, can be induced to make them in quantity equal to that of young vigorous plants; instances of both I have proved in practice, and have frequently seen the circumstance verified by others. An instance of the latter occurreoce I also may name, as I saw, examined, and had authority for speaking of it a few years back, and that was at Wynward Park. There were there three large old houses filled with Vines nearly twenty years old that three-fourths of the time had been altogether in an outside border, and that were brought in through the wall level with the outside. Mr. Jones, who was gardener there then, had made a good inside bed, into which the roots ran, penetrating the whole, like those of Couch Grass. The Vines consisted of most of the leading kinds—Muscat of Alexandria, Black Hamburgh, Mrs. Pince, Raisin de Calabre, Victoria Hamburgh, Buckland Sweetwater, Alicante, and Gros Guillaume. Some of the bunches of the latter were from 7 lbs. to 10 lbs. in weight; Raisin de Calabre from 5 lbs. to 7 lbs.; and Victoria Hamburgh from 3 lbs. to 4 lbs. Taken altogether, they were as fine a lot of well-finished Grapes as I ever met with at one place, and to those who know enough of Grape growing to be able to trace results to their proper source there was no mistake that the improved condition of these Vines was owing to the newly-made inside roots. Those who saw the grand lot of bunches with which Mr. Jones that year took nearly every first prize offered for Grapes at the Bishop Auckland show will not forget them, nor the lesson they taught those who believe that roots of Vines will not stop in inside borders if they can get outside. With such instances as those just named, and plenty more that might be added, did I feel at liberty to do so, "J. S. W.," I think, will see that if he cannot manage to get Vines to root equally in an out and inside border, there are people who can. T. Baines.

Watering *v.* treading fruit tree borders.—There are two ways of watering a border; one is to give it a good deluging at long intervals, and the other is to keep the soil moist by frequent

and gentle applications in such a manner as to resemble natural rainfall. It is not generally known, I believe, that heavy and frequent waterings tend to settle the soil of a border and to make it hard and close more than any amount of treading on it with the feet will do. We all know how a pot of sand is settled by a good watering, and the same thing takes place in a Vine border. I am not aware that this fact has been alluded to before, but I had my attention drawn to a remarkable example of the effects of watering the other day by the men who were trenching and adding to an old inside Vine border. For years this border has been trodden on the surface by the feet, but when it was turned over the trodden portion was found to be in much the openest and best condition, while another strip running the whole length of the vinery, and on which a foot had never been set, was remarkably hard and close for 3 feet down; the difference could be easily seen by the eye and readily felt with the spade. The only reason I can assign for this portion, nearly in the centre of the border, being so hard and solid is that three rows of hot-water pipes lie over it from end to end, and owing to its always being the driest part it got more water than the rest of the border, many a potful being poured on there when none was given elsewhere. At all events it was much the hardest part of the border, and I leave the subject to the reflections of those who believe in deluging newly made borders with water at certain times.—J. S. W.

RENEWING OLD FRUIT TREES.

The common plan adopted by the inexperienced when making changes in their fruit houses and gardens is to root out old trees and substitute young ones. In the case of useless varieties, this is the best plan; but with good sorts, with which no fault is found except perhaps that they are in a weak state or unfertile, such summary measures should not be adopted without due consideration. Old trees can be renewed to a considerable extent by judicious management, because, owing to their habit of growth, they put on new tissue every year, and by promoting vigorous growth through generous treatment a new layer of bark soon accumulates and restores vitality. It is surprising what strides an old Peach tree, for example, will make in the course of a few years if well nursed root and top and allowed to develop additional shoots and leaves. The old bark-bound branches and limbs take a fresh lease of life, and swell and crack with distension; new bark will be seen to form in the rents, and this is the first sign of renewed vitality. Every fresh addition of tissue in this way acts as a further leverage of growth in the future. Old Vines, long restricted to one short cane, if allowed to extend, will double their growth in a short time, unless they are very old indeed; but the ancient Vine at Harewood House, which fills a large vinery from end to end, responded in this way to the fresh start given it a number of years ago when its roots were lifted and replanted, and it is now, or was lately, a fine fruitful Vine. In the case of old trees, therefore, we say renovate rather than replant, unless things are very bad indeed, and no fear need be entertained as to the result. I have seen and heard of the good effects of renovation so often that I offer this advice confidently. A house is sooner filled with bearing wood by restoring old Vines or Peaches than by planting new trees, provided the suicidal plan of cutting down the trees to the bottom is not adopted at the same time, in which case new ones might as well be planted. Eighteen years ago the vigour and fertility of Vines here were renewed by the simple process of draining the border afresh, top-dressing, and giving the branches more room; and now no one would believe the Vines to be the same, so strong is the wood and heavy the crops. In another case an amateur came into possession of an old Vine that almost any gardener would have cast to the rubbish heap at once, so weak and miserable had it been for some twelve or fifteen years; it was, however, retained, partially lifted, and well seen to, and the crops it has borne for three out of the four years since it was operated upon have been a marvel. Old Peaches behave just in the same way. The roots travel far, and get down among the drainage and sub-soil; the border gets worn out; accumulated top-dressings laid one upon another annually, probably quite out of reach of the roots, soon tell a tale, as indicated by the increasing debility of the branches; but lift these same roots in autumn, lay them near the surface in sharp good soil, thin out the shoots and regulate the others, and give them the proper degree of heat, and the result in one or two years will strike the most casual observer. With moderate cropping, one season's growth under such conditions will work wonders, and the tree will be saved and the house retained full of fruitful branches, the future health and welfare of which will depend on treatment alone. Old Apples and Pears answer to such treatment in just the same way. With trees radically diseased, gummed, or cankered, it is another matter; but for trees that are only poor and weak, or unfruitful, there is every hope, and they should not be discarded. The great point in such cases is generally to find the roots and treat them judiciously. Strong doses of manure are of little use, unless the roots are where they can make use of it. Feeble old roots need lifting and laying in a generous light mixture of loam, sand, and refuse, peat, or leaf-mould in equal quantities. In this they soon root afresh, producing multitudes of young fibres where there were none before, and afterwards they can be nourished by stronger diet.

S. W.

FRUIT-PACKING FRAUDS.

TO THE EDITOR OF THE GARDEN.

Sir,—Allow me to address fruit growers for market upon a subject closely connected with the success or otherwise of their calling, viz., that of fruit packing. The dishonesty, for it is nothing else, displayed in the style of packing home-grown fruit for Covent Garden Market is simply shameful. Passing through that market recently, I observed some Apples being overhauled, and was surprised to see the rubbishy fruit that was concealed in the middle of the package. It consisted of small specked Apples, quite worthless from a mercantile point of view. In the same market last week there was a bushel of Apples well topped with fine fruit, apparently worth about 6s. a bushel. Some which I measured were 9 inches round. Of these there were about two layers, perhaps a peck; then came half a bushel or more of rubbish—Apples small, specked, and half rotten, none of them being larger than Walnuts, while at the bottom of the basket were a few more about as good as those on the top. For this basket, as offered for sale, any ordinary buyer would have been led to have given about three times its actual worth. This season, owing to the scarcity of the American crop, English growers have the market pretty much under their own control; but such practices as those to which I have just alluded are not likely to bring home-grown fruit into favour. American barrels of Apples are all through alike good, and buyers know exactly what to give for them, but on our English produce no such confidence can be placed; that has to be carefully inspected. Deception of the kind to which I refer is simply suicidal, and the sooner such matters are mended the better.

A Middlesex Fruit Growers Son.

5129.—**Canker in Apple trees.**—From my experience with Apple trees I am convinced that canker oftener arises from the presence of insects on the bark than from the roots being in soil that they do not like, although this latter is generally supposed to be the cause of the evil. From close watching and examination, I find only those trees subject to canker that have been attacked by American blight or other parasitical insects that live on the bark. The latter must be kept clean if the plants are to be maintained in good health. There are various ways of doing this, one being to syringe them periodically with fresh limewash used when hot immediately after slaking; it then does its work effectually, clearing off Moss, Lichen, and insects that are on the branches, and leaving them bright and polished after being well washed by the rain. For American blight I know of nothing better than paraffin, mixed in the proportion of a pint or so in four gallons of water, and applied to the bark or places in which the insects lurk. The paraffin is so searching and penetrating, that it dissolves them at once, and destroys all eggs that may be in the crevices where the old brood lurks. For the last two or three years we have depended on the fumes of burning sulphur as an insecticide and cleanser of fruit trees, and nothing can answer better; it is sudden death to all parasites, and does not in the least injure buds or bark, but quickly improves the appearance of the latter and restores the trees to health.—J. Sheppard.

Trebbiano Grape.—A few weeks ago I saw and tasted samples of this Grape grown by Mr. Gilbert at Burghley. I was informed that it was his favourite winter white Grape, and the fact is not surprising, as under the high condition to which this variety has been brought at Burghley it would captivate anybody. The smallest of the bunches would weigh 3 lbs. They were well shouldered, and tapered nicely to the point. The berries, too, were large and plump as those of Hamburghs in June. The colour was of a beautiful golden tint, and their flavour most pleasant and refreshing. Altogether, as grown at Burghley, it is a charming and most satisfactory Grape in January, and one which may safely be recommended.—Cambrian.

5130.—**Digging among Strawberries** is a practice which is most injurious; it breaks and destroys the roots, the most active portions of which are generally to be found near the surface, and these ought to be encouraged and fed by top dressings of old soil or manure; at this season the latter should be short and decomposed, and put on so as not to bury up the crowns while it is made to lie snugly around them. Applied in this way it encourages the formation of fresh feeders at the base of the plants, which, as Strawberries grow so much out of the ground at that point, is a great help to them when sending up their blossoms and perfecting their fruit. This is the reason why spare rich soil is so good for them during the winter, and not only is that and the manure highly beneficial in the manner stated, but they protect the plants greatly from cutting winds and hard weather, the combined influences of which often cripple them sadly and weaken their powers for growing. Another thing that affects Strawberries injuriously is the stripping off their old foliage (their winter's dress), which should be left to shelter them, and this, when it is allowed to remain, it does in a way nothing else can do, as the young leaves gradually push up under and find their way through when they get a little hardened and can take care of themselves.—S. D.

SHORT NOTES.—FRUIT.

5133.—**Brown scale on Peach trees.**—If the trees are trained to a trellis or nailed to a wall undo the whole of the branches, and carefully hand-wash them with a sponge and soft soapy water. In this way all the scale can be washed off.—Ilford.

Blenheim Orange Melon.—Permit me to advise growers of this favourite Melon to take care to obtain it true, seeing that a spurious and very inferior kind is in the market, thus causing vexatious disappointment, as well as damaging the reputation of so good a Melon.—C. M.

5133.—**Fermenting material in Peach houses.**—Stable manure fermenting in a Peach house while the trees are in blossom would most likely cause the whole of the blooms to drop off. It will be better to rest satisfied with present conditions and wait a few weeks longer for the crop to ripen than hasten it in the way proposed.—J. D. G.

Peaches on open walls.—After visiting some of the largest and best managed gardens in Ireland, from Cork to Dublin, I met no gardener who has fully succeeded in growing Peaches under any management or with any aspect satisfactorily against an open, unprotected wall. If success could have been secured in this way, I believe Mr. Osborn, Fota Island, Queenstown, a grand situation and aspect, would have had it; yet he assured me that he is going in for protection against spring frosts. At Minella, a 150-foot Peach wall yields thousands of fruit with a temporary sash protection during the setting; without this failure would be certain as elsewhere.—W. J. Murphy *Clonmel.*

Melons for preserving.—Where ripe Melons are required for preserving whole I can confidently recommend Scarlet Gem. For such a purpose large fruit is not required. Fruits weighing from 10 ounces to 14 ounces are more valued than larger ones for preserving, and Scarlet Gem, if properly managed, is just the variety to supply them. We have grown it for the last two years, and if we had required many ripe fruits we should have had no difficulty in getting seven or eight from an ordinary sized pit light. Bottom heat is, of course, necessary, and if the plants are put out early in May, and allowed to set the required number of fruits all at one time, there will be no difficulty in getting the whole of them ripe within a few days of each other. This variety is also as well suited for the dessert table as preserving, its flavour being excellent.—J. C. C.

Shrivelled Grapes plumping up again.—"J. S." says I am mistaken in saying that Grapes which have shrivelled through the roots being too dry will not plump up again however much water is given them, and instances some Lady Downes under Mr. Thomson's care that were allowed to hang on the Vines until spring, and which then plumped up when the sap rose. This case, I need scarcely say, is outside the question. The Lady Downes doubtless shrivelled in the winter through the length of time during which they had hung, while the Grapes of which I spoke shrivelled in the autumn, not through evaporation of their juice, but through sheer want of water. The effects of the flow of sap in spring, and those of the application of water when the Vines were dormant, are two very different matters.—T. Baines.

—— Since I wrote on this subject last week it occurred to me to put in practice an experiment that had before suggested itself to me, but to which I never had occasion to resort. A week ago I cut a partly shrivelled bunch of Grapes hanging near the pipes in our late vinery, and bottled it in the usual way, inserting the shoot in charcoal and water, but instead of placing the bottle in a dry cool place I hung it on a beam in our plant stove, at the warmest end, and have had the satisfaction of seeing the berries fill up again to a considerable extent, while no decay has manifested itself. Since I hung the bunch up another party, who has seen it, informs me that Mr. Henderson, late of Alden Abbey, Watford, put the same plan in practice with the most successful results. After all there is not much to be wondered at in a shrivelled bunch of Grapes plumping up, since it is well known that both shrivelled bark and drooping leaves of plants are revived in the same way. A curious question arises, too, as to how long Grapes will keep under such treatment, which is radically different from the cool and dry system under which the Grapes rot when they do decay. We must not forget that a ripe bunch of Grapes is not a dead thing, but a living piece of tissue, and no doubt susceptible of the influence of heat and moisture like any other part of the plant.—J. S. W.

5138.—**Fermenting material in Peach houses.**—If "T. S." (p. 51) uses fermenting material in his Peach house to aid the heat, he must not take it in till it has undergone a sweetening process, so as to throw off the fiery gases and rank vapour of ammonia, which, if they escape in the house after the buds start, will destroy the bloom and damage the young leaves. The way to make the manure safe is to throw it in a heap, and after it has become hot to turn it over, casting the outside into the middle, when after a few days the same process should be repeated. This will let out the dangerous fumes, and then it may be wheeled in and made use of with safety. But why not add another pipe, if there are any now in the house; or, if none, put some? as in the end that will be the cheapest and most satisfactory way of forcing; there is but little labour required in attending to a fire, and not much fuel required to keep a Peach house at work.—J. Sheppard.

5133.—**Scale on Peaches.**—What I have written (p. 81) in reference to Apples will apply in a great measure to Peaches, except that in their case it will not do, if appearances are studied, to use lime, but paraffin and water at half the strength mentioned for Apple trees may with safety be applied, and if all the branches be wetted it will bring the scale off. To get the oil to mix with the water it is best to use the latter at a temperature of 100°, and to keep it agitated the whole time, so that the mixture may be of uniform strength when syringed over the tree. Nicotine soap is also a most excellent remedy for scale, and is a safe insecticide to use, as it does not hurt the buds nor damage the paint, but cleanses the bark and does a tree good. The sulphur cure is likewise safe in a house up to a certain time, but it must not be used after the buds become forward, and before that care should be exercised not to overdo the thing by having the trees subjected to the fumes too long, as, with the lights closed, half an hour or so will kill any insects there may be in the house.—J. Sheppard.

Garden Flora.

Plate 425.

Lilium speciosum Melpomene.*

If a concensus of opinion among Lily fanciers was taken with regard to the respective merits of the half-hundred species belonging to the genus Lilium now grown in English gardens, it is probable that the old speciosum, the commonest and best known of Japanese Lilies, would head the poll. For our own part, if limited to one Lily, we would choose it in preference to all others, notwithstanding the fact that it is one of the tenderest for open-air culture in this country. We have been familiar with it for over half a century, and as yet it has been unsurpassed—not even by the much-bepraised auratum, which, though a grand and showy Lily, lacks the refined elegance of growth so much admired in speciosum. Moreover, the wealth of variety existing in L. speciosum adds much to its importance as a garden plant; indeed, no other cultivated Lily is so variable. About a dozen or, perhaps, a few more named varieties are more or less distinct, but there are many intermediate forms continually cropping up among consignments of imported bulbs that possess equally well-defined characters as those that have received names. Among the new, or rather little known, varieties is that illustrated in the accompanying plate. This has been named Melpomene by Mr. C. M. Hovey, of Boston, Massachusetts, with whom it originated among several others a few years ago. This variety is one of the very finest of all as regards the size and form of the flowers as well as in colour, which is extremely rich and bright—so much so, indeed, that the colour printer has been unable to reproduce the brilliancy of the carmine-crimson, the flower itself being several shades deeper than the tint represented in the plate. The size of the blossoms when produced on well-grown plants exceeds that of any other variety—in fact they are almost as large as those of Parkman's hybrid; the form of the blossoms, too, is most elegant, and each reflexing petal has a conspicuous and well-defined margin of white, which greatly enhances its value. Some seem to doubt whether the Melpomene variety is really distinct from rubrum, but those who have seen the two forms growing side by side have no hesitation in considering the two absolutely distinct. Mr. G. F. Wilson, of Heatherbank, Weybridge, than whom we could not instance a higher authority on all that concerns Lilies, says: "The bulbs kindly given me by Mr. Hovey were flowered in a pot in a cold orchard house. I almost doubted that it would be much superior to the true old form of L. speciosum rubrum, but it proved to be much finer, having the same rich crimson with the clear white margin to the petals, while the flower was much larger. When exhibited by me before the floral committee of the Royal Horticultural Society it was greatly admired, and a first-class certificate was awarded to Mr. Hovey, the raiser of it."

The accompanying plate was drawn from one of the plants to which Mr. Wilson alludes in the Heatherbank garden during the first week of last October. These plants were superbly grown, being from 5 feet to 6 feet high, furnished with broad, luxuriant foliage, and profusely laden with blossoms. In order to form an adequate idea of what speciosum Lilies really are when well grown, they must be seen in such perfection as Mr. Wilson grows them in deep pots in his cool orchard house, forming, as they do, a striking contrast to the poor half-developed specimens not more than a yard or so high that one generally sees.

Other varieties of L. speciosum that should be grown on account of their distinctiveness and beauty are rubrum, in the way of Melpomene, but with the flowers scarcely so large; roseum, of a delicate rose-pink tint; album, white, or nearly so; Krætzeri, a beautifully shaped flower, with pure white petals, each having a medial band of green; punctatum, white, with rose-coloured spots. These represent the principal varieties of L. speciosum, though there are others, such as Schrymakersi, purpuratum, macranthum, that may be grown in a full collection besides those with fasciated stems, known in catalogues as corymbiflorum.

Culture.—As regards the culture of Lilium speciosum and its varieties, the following are instructions given by one of the best cultivators: "This Lily is one of the best plants that can be grown where there is little or no glass accommodation, and were it more generally known how easy it is to cultivate we should see it in almost every garden. It is not everywhere that this Lily grows well in the open ground, but everyone may grow it well in pots, and with but little trouble and scarcely any expense. In order to be successful in its pot culture, it is necessary in the first place, as soon as the flowers fade, to lay the pots on their sides in rainy weather, and so insure the bulbs against excess of humidity, from which they are liable to suffer when exposed to the heavy autumnal rains. As soon as the stems decay, the soil, having from the time the leaves commence to turn yellow, been allowed to become quite dry, should be shaken away from the bulbs, and the young ones, which generally form when the treatment has been right, separated from them. The large bulbs are then potted, either singly in a 6-inch pot or several together in a pot of larger dimensions. A gentle watering is then given and the pots are stored away in an outhouse, there to remain until growth commences, when they should be placed in a sheltered situation in the open air, being brought into the dwelling as they expand their blooms. The small ones are potted five or six together in a 6-inch pot, and may be treated in the same manner as the flowering bulbs. This simple treatment, besides the frequent sprinklings in hot weather and occasional waterings with liquid manure, is all that is necessary, and it will be easily seen that it lies in the power of anyone having a few square yards of garden to achieve equally good results.

"The great point in commencing is to obtain good sound bulbs and pot them early. Cheap im-

* Drawn in Mr. G. F. Wilson's garden, Heatherbank, Weybridge, October 4, 1883.

ported bulbs are apt to grow weakly the first year, but will generally yield good results the second season if properly handled. It is, however, a fact that many imported bulbs are irretrievably injured before they come into the grower's possession, so that a first failure is not always to be attributed to a want of cultural skill.

"The compost should be fairly light and very free and porous, for this Lily cannot flourish where the soil is retentive and drainage bad. Peat and loam in equal parts I recommend, adding to it a little coarse silver or river sand. Give good drainage, putting a little fibry material thereon, and a thin layer of soot on that, which will keep the worms

Lilium speciosum, showing habit of growth.

at a distance when the pots are in the open air. Pot tolerably firm, covering the bulbs with about 1 inch of soil, leaving in the case of a 7-inch or 8-inch pot quite 2 inches of space from the rim of the pot to the mould, which space about June is to be filled up with rotten manure, the effect of which will be to draw fresh roots from the stem and feed the plant generally. The best place after potting is a cold frame, plunging the pots in ashes or light mould quite to the rims, and keeping the soil just moist. There they may remain until June, giving plenty of air on all favourable occasions; in fact, from the time they commence to grow the air should never be taken off, removing the lights on fine days and on mild nights. This treatment will induce a vigorous growth, at the same time sturdy and luxuriant, so that they will be in good condition for the open air by the time that all danger from frost is over.

"The very same situation that suits hardy Ferns will agree with this Lily. The north side of a hedge or wall where plenty of light and but little sun comes will suit it to a nicety. A cool moisture-laden atmosphere is what it revels in, and imparts to the foliage that deep glossy hue which indicates perfect health, and which serves to show up the delicate and refined tints of the flowers to great perfection. In hot weather frequent syringings are beneficial, and copious waterings are needful, as when any deficiency in this respect is experienced the under leaves are apt to turn yellow. About three good bulbs in an 8-inch pot will produce a handsome specimen large enough for any purpose, but for indoor decoration the best size is 6-inch pots, a single bulb in a pot. As soon as the flower-stems begin to expand, remove the plants to an airy greenhouse and shade during the blooming period, allowing them to remain there until they die down, as they will ripen better under glass than in the open air."

Lachenalia Nelsoni.—It may interest some of your readers to know how I fared with the above plant, and it will be interesting to me to know if the same experience is general. In October of 1882 I obtained one bulb, for which I paid 3s. 6d.; it was a poor-looking investment—small, soft, and bruised looking. However, I potted it, and took good care of it. After a while it grew, and, judging by the tuft of leaves, I knew that the bulb had split up into several parts; it did not flower, and in due time ripened and went to rest. Last October I took it out of the pot, and repotted the produce of that single bulb. The result is, that I have now, just expanding into bloom, thirteen full-sized bulbs and seven which are too small to bloom. If this is the ordinary rate of increase, I marvel how the plant seems still rare and certainly still expensive. I may add that Lachenalia aurea rosea, obtained at the same time, has behaved very differently, having made no increase at all.—Frederick Tymons, *Clogharan, County Dublin.*

SEASONABLE WORK.

FLORAL DECORATIONS.

The pendulous blossoms of Thyrsacanthus rutilans look bright and attractive just now suspended around the edges of trumpet vases. They could be advantageously used in conjunction with Calanthe vestita around the edges of any tall vase or epergne as a central arrangement to a dinner table, filling up the centre of the same with spikes of Calanthe Veitchi, a few blooms of Lælia anceps, and the same of Eucharis amazonica around the last named Calanthe. This would give an effective centre-piece that no lover of choice exotics would despise. Another change as a centre-piece for a moderate sized table or for the drawing-room may be made by choosing a well variegated example of Pandanus Veitchi as good as it can be had in a 4-inch pot; from this it may be removed and placed in the centre of a soup plate for want of a better receptacle. Fill with a little sand to keep the plant steady, and finish off either with good Moss or some fresh Selaginella into which may be inserted a few bulbs of Tulips in flower, say, for instance, Due Van Thol, scarlet and white, allowing the former colour to slightly predominate. With these the Pandanus will show itself to good advantage. As a finish a few plants of a durable kind of Fern (Davallia, for instance) would greatly improve it. This would prove a lasting arrangement and be well adapted for a room kept at a maximum temperature. Of hardy subjects the pendulous blossoms of Garrya elliptica are now most attractive. A few sprays of these would associate well with the bronzy-coloured points of Berberis Aquifolium and Jasminum nudiflorum. Rhododendron Nobleanum in the open air has developed several trusses of flowers; these look well arranged by themselves with their own foliage. The smaller flowered kinds of Azaleas, as amœna, obtusa, and the various hybrids raised therefrom, are useful in a cut state, lasting longer than many of the large flowered varieties. They all answer well for specimen glasses, and can oftentimes be better arranged therein than in larger receptacles, owing to the necessity of allowing only a short stem, especially in the case of small plants. For button-hole bouquets the various kinds of Epacris are very useful. Erica melanthera also looks well used with the former, and both possess greater durability than many forced plants.

FLOWER GARDEN.

Spring flowers.—The weather still continuing mild, these are springing up in every direction, and being so forward, a severe frost would be likely to do much injury. It would be impracticable to protect all, but the most valued should have that attention. Hyacinths and Tulips are most liable to injury, and the neatest of all protections for them is Cocoa-nut fibre refuse. Where, however, the bulbs are planted in a groundwork of Sedum or Saxifrage, this protection cannot be employed; therefore, under such circumstances, a covering of Yew or Laurel boughs must be used. The ground being so moist, the slightest frost will be sufficient to raise or rather to loosen autumnal planted spring flowers; therefore their well-doing will be best assured by well firming the soil about them after frost, should it occur. Over our reserve stock of such plants and dwarf hardy summer bedders planted on warm borders in the kitchen garden we run a light roller as soon as the state of the ground after frost will

permit, an operation that seems to be doubly beneficial, as it firms the plants and apparently conduces to their more rapid lateral extension. Certainly this is the case with such plants as Herniaria glabra, Mentha Pulegium, Cerastium arvense, Sedum lydium, Thyme, dwarf Veronicas, and various Stonecrops.

Herbaceous plants.—Many kinds of these are also too far advanced in growth for the time of year, but that should serve as an incentive to get all removals and rearrangements completed as soon as possible, for, though they may with safety be transplanted at almost any season, it is but reasonable to suppose that they will do better if moved before growth has become too active, not to mention the importance of their roots getting well established in the fresh soil before dry weather checks root action. The reaction in favour of this class of plants still continues; intending planters should therefore select kinds only of real merit As to the best mode of arrangement, tastes vary, some preferring to plant single plants in straight lines, the tallest at the back of the bed or border, and the dwarfer in front, and for a formal border this plan has some merit; we, however, prefer planting them in groups or clumps of moderate size, say three plants in a group of Pyrethrum uliginosum, double Sunflower, and similar growers, five or seven plants of Spiræa Aruncus and Anemone japonica, and in still larger numbers of the dwarfer growing kinds. We would then advise the filling in of every vacant space possible with surface-rooting plants, and particularly round those varieties that are least furnished with foliage. The carpet thus formed adds greatly to the general effect of the arrangement.

INDOOR PLANTS.

Ferns.—These are best potted a short time before they commence growing, for if their roots are subjected to the disturbance unavoidable in repotting after growth has commenced, the first fronds produced afterwards are sure to be deformed. In the case of Ferns, the habit of the species has much to do with the pot room required. Tree kinds of a strong, vigorous character have often much more root room given them than they need or should have, the result being that the fronds grow to such a size as to become too large for the houses in which they are located, and when overgrown they never look well, and often injure smaller sorts that usually have to be accommodated under them. There are no plants that can be kept so long in a healthy state with limited root space as Tree Ferns. They will continue to thrive and look well even when their roots have so filled the pots or tubs that there literally seems scarcely any soil remaining. Under such conditions they should, however, be regularly supplied with manure water during their season of growth. Those that are of a spreading habit, like the Gleichenias and Davallias, must have sufficient space for their creeping rhizomes to extend, or they are sure to get injured, their surface stems being forced to break back, which they usually do weakly. Ferns possessing this habit of growth should not be divided into too small pieces, or they suffer considerably. This is especially the case with Gleichenias, the creeping stems of which appear to be incapable of forming fresh roots when they have assumed a hard woody state. Species of a close tufted habit, such as the Adiantums, will bear dividing into much smaller pieces if required. Where

Ferns are in beds and on imitation rockwork it is equally important that they should not have more root room than is sufficient to support them in a healthy state. If care is taken in preparing the places where each is to be planted, it is an easy matter to confine the root space for them proportionate to the requirements of the individual plants. Ferns are not so particular as to soil as many plants; most of them succeed in either peat or loam. As a rule, however, they make the best growth in peat, but those intended to be grown for cutting, such as Adiantums of the cuneatum section, and the different kinds of Pteris that are adapted for this work, are best in loam, as in that the fronds usually stand better in a cut state. Whichever is used the soil must be kept open by a sufficient addition of broken crocks or coal cinders, the latter being quite as good as the former. In all cases Ferns ought to have a thorough cleaning from insects, such as scale or mealy bug, before being potted, as the mature growth will bear a stronger dressing with insecticide than could be used later on when the young fronds have made their appearance. Where thrips have been numerous it is a good plan to dip the fronds in strong tobacco water or to syringe them with it, as even if none of the living insects are present, there are almost sure to be eggs that will come to life when there is an increase of heat.

Palms.—Such of these as require a warm house to grow in are rarely quite at rest even in the winter season, unless the temperature is kept so low as to check all growth, and the most dormant time should be chosen to pot those that want it; but Palms, like Ferns, do not need so much root room as is often given them. When too much root space is allowed the strongest growers in particular overshade everything near them, and unless the house in which they are grown is of unusual height, when the roots are not kept within limits the leaves grow to such a size that they seem to be always struggling to get through the glass. Palms will succeed in almost any kind of soil, but heavy loam, almost approaching the consistency of clay, is the material which they like best. For all purposes where plants with green foliage are required there are none superior to Palms, inasmuch as, with the elegance of Ferns, their leaves possess a stout texture, which enables them to bear without injury the wear and tear of frequent removal when used for grouping with flowering and other plants in halls, corridors, or rooms. A still further recommendation which Palms possess is that a good many species which come from warm countries may be kept for a considerable time in a much lower temperature than that in which they are indigenous. Even such elegant kinds as Leopoldina pulcher (Cocos Weddelliana) will bear keeping through the winter in a temperature from 48° to 50° without showing any ill effects therefrom, the only difference being that so treated their growth is comparatively slow, but that will generally be looked upon more as an advantage than otherwise. Chamædorea gracilis, C. graminifolia, C. glaucophylla, and Areca lutescens are beautiful habited species that will bear a lower temperature than the countries from which they come would lead one to suppose. If at all affected with insects, an effort should be made to get them clean whilst in a small state, as the work involved is much lighter than when the plants get large.

ORCHIDS.

East India house.—Whatever may be said against the unseasonable state of the weather as regards outdoor vegetation, it is certainly very suitable for Orchids under glass. Get the potting of all the occupants of this house done that require it. The largest proportion of Orchids require as potting material either Sphagnum alone or mixed with turfy peat. In either case a liberal proportion of broken bits of charcoal and clean potsherds should be added. Many, too, do not pot firm enough—especially if Sphagnum only is used. The best grown Vandas and Aerides ever seen perhaps were in pots quite three parts filled with drainage, with the Sphagnum pressed very firmly on the top. The Moss should be well washed before it is used, and all extraneous matter should be picked out of it. After washing we lay it out to dry for a few days, but it must not be dried so much as to kill it. In potting with peat added to the Sphagnum, this is also pressed together rather firmly. It ought also to be noticed that some plants have the roots clinging so firmly to the pots that they cannot be turned out without either causing great injury to the plants, by breaking or lacerating them, or breaking the pot. The latter course we take rather than injure the roots. Now that repotting and surfacing are finishing, and most of the plants are pushing fresh roots, a rather moist atmosphere and also a higher temperature are desirable. With the fresh Moss, small snails may have been introduced, and it will be necessary to watch for them every night with a good lamp, as, though small, they soon eat the ends off the young rootlets, and they also get at those immediately under the surface, where they are not readily observed. This is a good time to repot Cypripediums requiring a warm house. C. Dominianum seems to require a good shift every year; considering what the parentage of this is, one would not expect that it would succeed best in the warmest house, but that is the case. We have also repotted C. niveum, using a liberal proportion of turfy loam in the compost. C. Lowi, C. lævigatum, and C. Stonei we also grow in the warmest house, and as a rule it is best to turn them out of their pots and repot them annually.

Cattleya house.—Cattleyas that require repotting should now receive attention. Where plants of these are doing well, a large proportion of the roots will be growing over the sides of the pots, the insides of which will also be well furnished with roots. In a case of that kind it is quite necessary to break the pots in order to preserve the roots. In potting such plants as may have made a quantity of roots outside we would not cover them with compost; on the contrary, we would have at least the greater portion of them outside the compost. We have noticed sometimes that when such plants have had all their roots potted in peat and Sphagnum they have not done so well as previously. Miltonias in some cases are now started into growth, and they are also making young roots; therefore, such as require repotting should be seen to at once. M. candida requires much the same treatment as Cattleyas. It should be repotted in peat and Sphagnum, removing the old rotten compost; we keep the roots moist all the year round. The section of which M. Moreliana and M. spectabilis are the type does not require so much depth of compost, and should be potted in pans, or if pots are used, they ought to be filled to within 3 inches of the surface with drainage, and it may be necessary to secure them to the compost with pegs. The peculiar yellow tint of the foliage of these Miltonias lead many to believe that they are not in good health, but this sickly hue is common to most of the species, and is most apparent when the plants are in a light position near the glass. Newly imported Cattleyas should be potted in clean crocks without any Sphagnum or peat. The crocks should just be kept moist with tepid water, taking care not to wet any part of the plant above the drainage. When fresh roots issue from the base of the last-formed pseudo-bulbs a portion of the crocks should be removed, and some of the usual potting material substituted. If Cattleyas arrive in pretty good condition, and have not been caught by the frost, they soon become established. Lælia purpurata and Cattleyas of the elegans and guttata type are included amongst those requiring the treatment just recorded. There ought now to be a good many Dendrobiums in flower, and a succession of them should be kept up from now until midsummer. Those still out in cool houses must be kept dry at the roots, and it is best to gradually inure them to a higher temperature, as if transferred from a low to a high temperature suddenly some of the species will lose their flowers prematurely.

Cool houses.—Repotting ought also to be proceeded with in this department while the weather continues favourable. We have potted all our Masdevallias that were not potted last summer. These very speedily make large specimens, but when grown on for seven or eight years without being divided the amount of flowers produced is not in proportion to the foliage. We have plants of that age that have now been divided into eight or ten parts, and each of them has been potted in 4-inch or 5 inch pots. M. Harryana is the most vigorous grower, and, taking it altogether, certainly the best of them. They also vary very much in colour and form of flowers. M. Veitchiana when well grown is also a very fine

species. It does best divided and potted like the other. The leaves ought to be carefully sponged over with soapy water to clear them from dust and to prevent the attacks of thrips. We find in repotting the Odontoglossums that nearly all of them are just starting to make fresh roots; therefore all requiring repotting have received attention in that way. We would rather repot when the young growths have started a little, but where there is a large collection it is not possible always to repot or to in any way attend to plants on the very day when they require it. In instances in which any of the plants had flower-spikes in course of development it was thought best not to repot them until they had passed the flowering period. O. cirrhosum is either in the state in which the growths are completed, or nearly so; the flower-spikes are in course of development, and therefore only a few could be repotted. The flower-spikes of Oncidium macranthum, which luxuriates in the coolest house, are also in course of development; a few of this species were potted; but the others will not be done until the flowering period is over, probably in August. Slugs are very fond both of the flower-stems and the succulent roots of this Oncidium, and therefore must be carefully watched, and when found destroyed. This species succeeds well in pots with rather more drainage than is required for Odontoglossums. It will also thrive on a block of wood, but in that case more care is necessary as regards watering.

PROPAGATING.

This is a good time to make the principal sowing of Fern spores; when sown now they have the whole of the growing season before them, whereas if sown in summer they frequently fall a prey to damp during the ensuing winter. The most critical time with seedling Ferns is when they require pricking off for the first time, which will be as a rule in about a couple of months from the time of sowing. Old plants of Chrysanthemums intended for spring propagation must be protected from frost, should it occur, but should have all the air possible, or a weak growth and consequently puny cuttings will be the result. Chrysanthemum cuttings put in a month ago will need attention in the way of removing decayed leaves; if the foliage is much inclined to damp, give air for a little time each day till the damping is arrested. Where it is desired to increase the stock of Bamboos, such as Fortunei, Metake, Simonsi, and Maximowiczi, the Eulalias, and similar plants, they may now be divided and placed in a frame, where out of the way of frost and heavy rains they will start into growth in spring without a check. If not already done no time must be lost in securing pieces of the roots of any plants that are propagated in that way, such as nearly the whole of the hardy Primulas, especially the varieties of Sieboldi. Senecio pulcher increases readily in this way, all that is necessary being to cut the roots up into pieces about 1 inch in length and dibble them in well-drained pots in a perpendicular position with the upper part just below the surface of the soil. Placed in a gentle heat, they will break freely and grow satisfactorily. Stock plants of any subjects that it is desired to propagate largely in view of the coming summer should be introduced into heat to push them into growth, and thus get an early supply of cuttings. Cuttings of most things required for summer decoration strike without much difficulty, and where there is not a propagating house for the purpose a close case can easily be fixed in any house which is kept at a sufficient temperature in which such as Fuchsias, Bouvardias, Heliotropes, Lobelias, Alternantheras, Verbenas, Coleus, and the like root readily. For such bottom heat is not necessary, provided the temperature of the house is kept up to a sufficient height. For spring propagation we employ the following method with great success: In a stove there is a stage about 4 feet wide in a good light position near the glass; on it is placed a good layer of ashes or Cocoa-nut fibre, over which the propagating cases are set. They are made the width of the stage, and resemble miniature three-light pits, so common everywhere; the sloping lights obviate drip, and a width of 4 feet is very convenient for closely examining the cuttings. The cases may be made very light for the convenience of shifting them about when required. Pelargonium cuttings are much better on a shelf than where moisture condenses on them.

KITCHEN GARDEN.

Potatoes are now being planted in pits and frames, and where Radishes are in great demand these are sown thinly either between the rows or over the whole bed. We do not recommend sowing Radishes with Potatoes, however, if sufficient can be grown elsewhere. All our earliest seed Kidney Potatoes are stored on their ends in shallow boxes, and all side shoots are either rubbed off or picked out with the point of a knife, as we prefer to depend entirely upon the strong central sprout. Those intended for the earliest plantings are plunged thinly in boxes of leaf-soil and placed in a gentle heat to sprout. They root strongly into the leaf-soil, and can easily be moved and planted into the warm soil of the pits and frames without experiencing the slightest check. Glazed unheated pits are prepared for them by first securing a depth of about 3 feet of well-turned heating material; on this is placed a layer of short manure, finishing off with a depth of 10 inches of compost. Any light soil is suitable, but our favourite compost consists of old Melon and Cucumber soil and finely sifted old potting soil in equal proportions. Out of such a mixture we have turned some of the cleanest and best Potatoes we have yet seen, and fit for any purpose. The frames we use for early Potatoes are about 27 inches deep at the back and 18 inches deep in front, and for these the beds are made about 4 feet high at the back and a foot less in front. As it is necessary to have the growth as near the glass as possible, we sink the frames into the bed to about half their depth, and otherwise prepare them similar to pits. The frames can be raised whenever the haulm gets dangerously near the glass. Potatoes should not be planted till the trial stick, which ought always to be plunged into the centre of the beds, can be borne comfortably in the hand. The drills are drawn with the hand —three to each light, or about 18 inches apart— from the front to the back and 8 inches deep. The tubers are disposed 8 inches apart and only slightly moulded over, preferring to level the bulk of the soil drawn out about them as they advance into growth. But little air is given in the first instance unless the heat is very moist. In that case a little air should be constantly given. Later on air must be given freely whenever the state of the weather permits, always guarding against cold winds, the aim being to secure a sturdy growth. The soil should be kept in a moist state till ripening commences. The frames may be closed early in the afternoons, but it is not advisable to damp the foliage, as this may be the means of inviting disease. The earliest crops should be covered up every evening, and the later ones whenever frost is imminent. We have tried several varieties of Potato, but for frames we now rely entirely upon the Improved Ashleaf. Those who prefer a round variety should grow either First and Best or Early Border. We tried a few of the latter last season and have formed a high opinion of its merits.

FRUIT.

Pruning and manuring orchards.—The pruning of all fruit trees should be completed before the sap is in motion if we except Nuts, which are usually left until the tiny little female blossoms can be discerned; then all useless spray is cut, and a Kentish Filbert or Cob Nut bush looks almost as bare as a Vine when pruned, yet the crops gathered testify to the soundness of the practice. In counties in which Filberts are allowed to grow on the extension system the fruit is neither so numerous nor so fine. All young Apple, Pear, Plum or Damson trees are now having their strong leaders cut back; the trees require strength of branch to carry a crop as well as willingness to do so, and the only way this can be secured in the case of young trees is to stop the erect shoots at least one-third of their length. We have ample proof of what the result is when this is neglected. The trees rush upwards instead of filling out laterally; the first crop bears them down so much that the limbs have to be supported, or they inevitably get broken off, and nothing is gained as regards quantity or quality of fruit. If the rampant erect shoots are checked in their upward career, the weakly undergrowth comes into bearing far more quickly, and the fruits are finer. Market gardeners look to quality as much as quantity, and if pruning did not pay they would not do it. One sieve of good high-priced fruit is worth two or three of seconds, and the expenses of transit and commission are the same in each case. Manuring is also on a liberal scale; where are the orchards attached to private gardens that are supplied with manure at the rate at which they are by market growers? A garden half starved is bad enough, but a starved orchard is worse; it can yield nothing. There are more reasons than ungenial seasons for barren fruit trees; and if we would but take that old advice, viz., "I will dig about it and manure it, and look for fruit another year," we might yet find that the seasons were improving, at least as regards fruitfulness. Some growers have had plenty of fruit, even in bad seasons, some none; moderate pruning and more than moderate manuring is the secret in the case of those who are successful.

Cherries.—When the trees in the early house show signs of opening their flowers fumigate with tobacco paper on a calm day; repeat the following morning if necessary, and syringe well to free the buds from insects. Examine the borders, and give sufficient tepid water to keep them in a satisfactory condition until the fruit is set. Discontinue syringing during the time the trees are in flower, and let external conditions regulate the damping of walls and other surfaces, as Cherries, like Peaches, set best in a well ventilated house free from stagnant moisture, but at the same time not so dry as to shorten the flowering period by causing the petals to drop prematurely. With the thermometer now standing at 50° in the open garden the most gentle circulation through the pipes with liberal ventilation will suffice, but in the event of a change to colder weather 40° at night to 50° by day will be quite high enough. The succession house started early in this month may be brought on by warming the pipes for an hour or two every morning, by syringing with tepid water when the temperature begins to rise, and by closing from three to five o'clock every afternoon. If late kinds in pots and tubs are still out-of-doors get them housed, and place nets over the open ventilators. Young trees may still be taken up and potted in strong virgin loam. Let the pots be clean and well drained, ram the soil firmly, and plunge in a warm, airy situation out-of-doors where they are to remain during the season, unless house room is plentiful and not better occupied.

Plums.—In many places these are grown with the Cherries, and they do very well through the early stages, but the time comes when the latter require more air and less moisture than would be good for the Plums, and on this account it is best to keep them separated by means of a glass division placed across the house, and to have the ventilating gear made to work separately in each compartment. If kept clean and brought forward in a low temperature with plenty of air, the Plum is one of the most prolific and interesting fruit trees that can be selected for growing under glass, but anything like hard forcing at any time will prove fatal to the crop. When grown in pots the trees soon become very fruitful, and unless timely thinning of the flowers is attended to, the uninitiated may find the favourite at the outset the least profitable at the end of the race. Where glass is plentiful, the cost of fuel being trifling, a whole section should be devoted to that king of

dessert Plums—the old Golden Drop. In cold districts or bad seasons it does not always lay on its fine amber colour, without which it never attains its proper flavour, but with a glass roof over it every fruit becomes a sweetmeat, and may be kept hanging for weeks and months after it is ripe.

Figs.—With the weather all in favour of rapid progress, the fruit on early pot Figs is now swelling fast, and the young tender leaves are beginning to expand under the genial warmth which mild, sunny days enable us to secure without having recourse to sharp firing. Old trees which have filled the space allotted to them will soon require stopping and thinning in order to insure an even spread of foliage without crowding, as it is more than useless having more leaves than can be exposed to the action of sun-heat and light. Young trees having space to fill may be allowed to extend in every direction, when the firm, short-jointed growths so made will produce a succession of fine fruit after the earliest crop is gathered. The temperature of this house may now range from 58° on mild nights to 70° by day, when air must be admitted and taken off in time to run up a few degrees higher on fine afternoons. Pay particular attention to watering, and while guarding against clogging the fresh compost before it gets filled with new roots, see that the trees do not receive a check through becoming too dry. Syringe backwards and forwards twice a day when fine, and damp the floors only on dark, dull afternoons when there is danger of the foliage remaining wet after nightfall.

Succession houses started at the commencement of this month may be kept at a temperature of 50° to 55° at night, with a corresponding rise by day. Syringe well and see that the inside borders are brought into proper growing condition before the terminal buds burst into growth. Economise fire heat by the use of fermenting material placed on the borders, and set ammonia at liberty by turning it at short intervals. Give an abundance of air to the latest houses and wall cases. Prune, or rather thin out, the shoots and wash well with soapy water, but defer tying and nailing in for the present. Put in eyes or cuttings and treat them as Vine eyes. If cuttings are preferred, the buds should be removed from the base, otherwise they will give much trouble by throwing up suckers after the trees get established. Also pot on young stock, using rich calcareous turf with a liberal admixture of old lime rubble and bone dust, and place the plants in an intermediate house for fruiting through the late summer months.

Strawberries. — The early forcing of Strawberries, like Cherries and Plums, requires great patience and unremitting attention to details. Where forcing is commenced in November, many good plants are sacrificed for the sake of a few Strawberries, which neither give credit to the grower nor pleasure to the consumer; while by deferring this work until the end of the year, a better supply of finer fruit would be secured until Strawberries are ripe in the open air. For the use of town-going families, April and May are the months in which a good supply of the finest kinds, including the old British Queen, should be in force, and in order to secure this supply, plants of two or three sorts should be selected from the cold plunging pits, every ten days properly prepared by washing the pots and top-dressing with rich loam and manure, preparatory to placing them in the pits or houses in which they are to be brought forward. In this dark, variable climate it is difficult to give the exact temperature at which the forcing pit should be kept. At the present moment plants in the open air are in a state of excitement; last year at this time we had 30° of frost, two facts which show that the successful forcing of all kinds of fruit must be conducted upon the give-and-take principle, by running up to 55° or 60° on mild afternoons, and allowing the temperature to descend to 40° on cold nights. When the first batches of Héricart de Thury begin to throw up their flower-stems, a little extra warmth may be given to them through the day by shutting up early with solar heat and moisture, furnished by the syringe, but air must be admitted at night, otherwise the foliage will become drawn and incapable of performing its proper functions when the fruit begins to swell. When in flower, remove the plants to the lightest and most airy part of the structure, and discontinue syringing, but keep them regularly supplied with tepid water, choosing the early part of the day for the operation. Remove weak side blossoms and fertilise with a small brush when the day temperature has reached the maximum.

Hardy fruit.—A continuance of unusually mild weather is beginning to tell unfavourably upon all kinds of fruit trees, particularly the early excited Peach and Cherry against walls and Currants and Gooseberries upon open quarters; and although the latter are regarded as of less value than the former, it is questionable if the loss of the crop of bush fruit would not be quite as severely felt as that of the Peach and Cherry. Under these circumstances, steps should be taken to keep everything as backward as possible, as well as to have protecting material of various kinds ready for use when the proper time arrives. Peaches and Nectarines are, of course, unnailed, pruned, and securely supported by means of stakes and ties some distance away from the walls, and in this position they must remain until we have a change in the weather, or the rapid swelling of the buds press on the annual tying or nailing in. In the absence of frost, a little extra care in washing the walls and trees of all kinds to free them from the larvæ of insects will be well repaid. For stone fruit trees after they are nailed in, a barrel of soapsuds from the laundry, with two or three pounds of sulphur and a like quantity of soft soap added, will make an inexpensive wash, which may be applied freely without fear of injury to the most tender buds. If Gooseberries have not been pruned, the sooner they are done the better, as a crowded state induces early growth, and pruning checks it. An idea prevails that birds are not so likely to spoil an unpruned tree, but it matters little whether the tree is pruned or unpruned if a pair of bullfinches find their way into it. The safest and best way is to prune and dress with a mixture of soot and lime reduced to the consistency of cream, and passed through a fine sieve to admit of it being taken up and discharged by an old syringe. If time admits, trees in orchards should be thinned out and divested of Moss which may have gathered on the stems and branches by scraping with a piece of hoop iron. When this has been done, wash with the composition recommended for Gooseberries, and top-dress the roots with fresh soil, road scrapings, or rotten manure. Select clean ripe shoots from healthy trees for grafts, and lay them in under a north wall to be ready for use in March or April. For large standards which have been headed back, two-year-old shoots are generally used by experts in this country, and it rarely happens that a graft fails.

Street flowers.—It would be a great advantage to buyers if street flower sellers of other countries could arrange their wares after the manner of the Florentines, and with plenty of greenery. A bunch of Paper-white Narcissus, as sold for fourpence, is tied up with twigs of Ilex; when untied and put in a glass flowers and foliage form a perfect bouquet. Besides Ilex, Box and Alexandrian Laurel are commonly used. The value and beauty of flowers is greatly increased by the addition of suitable foliage, and when both are sold together it is a great convenience to the buyer, while to the seller it should have the advantage that fewer flowers are needed to make a much more attractive bouquet, and the individual flowers, supported and kept asunder by the rather stiff foliage, do not suffer by jamming together as do the unhappy flowers in our street bunches. The flowers now sold in the streets are Paper-white and Pseudo-narciss Daffodils, Carnations, Tea Roses, Pansies, white and grey Roman Hyacinths, Chimonanthus, and Neapolitan Violets.—G. J., *Florence*.

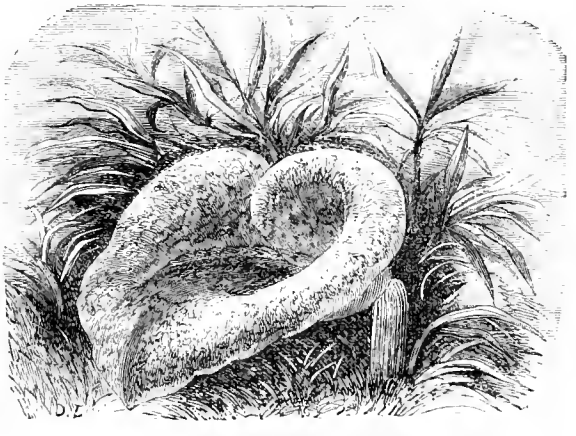
Indoor Garden.

Forcing Snowdrops.

It has been asked, can these be forced? Well, I cannot give much encouragement myself, for I have tried and failed several times to force Snowdrops to my satisfaction; but, as we sometimes learn more from failures than successes, I shall be pleased to be told as to how I failed—or rather, how others have succeeded, for in the whole catalogue of floral gems there are none that I prize more than Snowdrops; and, as someone has truly said, we never see a garden too full of them. At Linton, in Kent, we had them by hundreds of thousands; in fact, they had been multiplied by division for many years by digging them up when at rest, and dibbling them into the grassy slopes, banks, and edgings of woodland walks, especially under clumps of Lime trees, where Grass grew thinly, and where the soil was kept annually enriched by falling leaves in autumn. The bulbs were planted in little patches of three or four together, 6 inches apart; and, in order to show how rapidly they increased, I may state that in a very few years they formed solid masses of bulbs that in their season of flowering were like beds of driven snow. With the view of lengthening the season of their flowering, I have tried various expedients, but with little success. I have at the present time Snowdrops in flower under glass: but although constantly under the same conditions since they were potted in October, they are scarcely any more forward than those in the open ground exposed to rain, hail, frost, and snow. The system I adopted was the same as that which I have usually found to answer with Crocuses and other bulbs that do not stand rapid forcing. In October I prepared a quantity of 3-inch and 4-inch pots by filling them three parts full of good soil, and then putting from fifteen to twenty Snowdrop bulbs in each pot, covering with soil of the same description. This being moist, no water was given until the bulbs were well rooted. The greater part of them were set under a slate stage in a cold fernery, where the temperature ranged from 40° to 45°, and where they soon filled the pots with roots, and the tops looked as if they would be in flower by Christmas. Some of the most forward were moved into very gentle heat, but they were the latest to flower: and some were put into an unheated house, and came fully into bloom the first week in January; but at the same date those in open borders were expanding their blossoms, so that, as far as forcing is concerned, I can give but little hope of the Snowdrop figuring as a Christmas decorative plant. At the same time, it has a pretty and chaste effect in pots amongst bulbs of brilliant hues, for these little pots, now full of blossoms, look extremely well plunged in Lycopodium, or set on stages with very dwarf Ferns. In addition to growing them in pots, I planted a border in a cold, unheated Peach house at the same time by scattering the bulbs broadcast on the surface, and covering them with 2 inches of fine soil. On this I put a covering of Sedum acre elegans. These have flowered equally satisfactorily as those in pots, but very little in advance of those out-of-doors. The only ones that failed were a few put into heat; so that, thus far, my experience of Snowdrop forcing is not encouraging. J. G.

Winter blooming Flax.—This shrub, the Linum trigynum of botanists, has been known as a winter blooming plant for nearly a century. It is generally found in a half starved condition, in a greenhouse temperature, producing only a few straggling flowers; but no plant better repays good cultivation, and if well grown, it will reward the cultivator with a profusion of its clear bright yellow flowers in the dead of winter, when few plants are in bloom. Early in March secure good strong cuttings of it: these can be easily had if, when done flowering, the plants are partially cut back. In a brisk heat the cuttings strike root quickly, and when well rooted they should be potted singly in 3-inch pots, taking care to pinch the points of the shoots, so as to cause them to

break back. When they have taken hold of the fresh soil and started freely, they should be gradually hardened off in an intermediate house. They should be kept potted on as required and well pinched back; watering at this stage must not be neglected, and the plants should be kept well syringed, as they are subject to red spider. By June, if the cuttings were rooted in the latter part of March, they will need their final shift, and if large plants are required, 8-inch pots will be none too large. A fortnight before they are moved into their flowering pots they should be stopped for the last time, and when they have got hold of the fresh soil they should for a time be placed in a cool frame, setting them on ashes or some moisture-holding material. Keep them a little close till hardened off; afterwards give all the air possible, but shade from bright sun. As the pots get nicely full of roots weak manure water should be given freely, and they should be kept well syringed twice a day on bright days, closing the frame early in the afternoon, which will greatly help to keep down spider and promote sturdy growth. When the nights begin to get cool, which will be in September, they should be moved to an intermediate house, or where the temperature does not fall much below 55°, so as to ripen the wood, as upon this depends whether there will be much flower or not. The soil I find suitable is good fibry loam two parts, and leaf soil one part, with a good admixture of quarter-inch bones, and sufficient sand to make the whole porous.—R. A.



Helicodiceros (Arum) crinitus in flower.

CULTIVATED ARUMS.

The family of which our native Wake Robin, Cuckoo Pint, or Lords and Ladies, is a well-known representative consists chiefly of plants whose attraction is their quaintness or singularity of form rather than what one would call beauty. Although not a true Arum, the plant herewith figured has a very close relationship to that genus, in which it was for a long time placed, but from which it is now removed and called Helicodiceros crinitus, the name adopted for it in that standard work on generic distinctions—the "Genera Plantarum." In some Continental gardens this plant is called H. muscivorus, and now and then one meets with it under the name of Arum Dracunculus. In Schott's "Aroideæ" there is a fine coloured figure of this plant, and another in the *Botanical Register*, t. 831. It is a native of the islands of the Mediterranean, and is plentiful in Corsica, Minorca, and Sardinia. It was introduced into this country in 1777. Mr. Bentham sent tubers of it to the Royal Horticultural Society's Gardens at Chiswick from Minorca exactly sixty years ago, and it was from these that the figure last mentioned was made. In this country H. crinitus requires protection from severe frost, and is perhaps best cultivated on a cool frame, although in a well-sheltered position under a south wall it thrives well out of doors in the south, requiring only a covering of Cocoa-nut fibre to shield it from the cold in winter. The flowers are produced in April. The tuber is large and fleshy, like that of a Caladium, and produces annually a growth of leaves, the sheathing bases of whose petioles form a sort of stem some 18 inches in height. This stem is smooth, shining green, and spotted all over with dull olive. The leaf-blade is pedate or divided into three principal lobes, the upper one of which is hastate and entire, the two lower ones being again divided into three lance-shaped segments which are twisted in such a manner as to give the whole leaf a curiously distorted appearance. The spathe is produced on a stalk 8 inches long and is rolled together at the base so as to form a ventricose tube, from which the limb widens out into the form of a pig's ear and measures almost a foot in length. The colour of the outside of the spathe is the same as that of the leaf-stalk, while that of the inner is of a livid purple, becoming paler towards the tip. The whole of the inner surface is covered with purple succulent hairs, which near the throat are thick and spiny-like. The spadix or tail is about 8 inches long, and is also clothed with fleshy hairs. The male or female flowers, which are borne on the lower end of the spadix, are separated by several rows of these thick spiny-looking hairs, which are hooked like Rose thorns. When the flower first expands a powerful and disagreeable odour is emitted, but after a day or two this disappears.

Of the Arums proper we have, in addition to A. maculatum, the Wake Robin of our hedgerows and ditches, and A italicum, the only locality for which in this country is the Isle of Wight, but which is a common European species; also A orientale, A. palestinum, A. longispathum, and A polyphyllum, which are about all the true species of Arum represented in gardens in this country, although the genus proper comprises some twenty species. The whole of the above named may be grown in a sheltered position out-of-doors, or, if grown in pots, treated like Lachenalias. They are all worthy of a place in the garden, possessing as they do, in a more or less modified form, the singular characters just described as belonging to their near relative, the Helicodiceros.

The Arisæmas, Arisarums, Biarums, and Typhoniums are equally interesting, and some of them at least really handsome flowering plants. The Arisæmas especially contain some strikingly beautiful, as well as several curiously-formed flowered species. A. speciosum, with its urn-shaped spathe and long-tailed spadix, and its fine green red-edged foliage; A. galeatum, whose flowers are emerald green with white stripes; A. utile, sometimes called A. Hookerianum, with a large-hooded spathe, which in form caricatures the Darlingtonia pitchers, and in colour is a rich purple; A conciunum, A. præcox, A. papillosum, and several others are all remarkable for beauty of colour and singularity in the form of their flowers. Arisarum vulgare (the Friar's Cowl) is a common spring flowering plant in Southern Europe, where it is seen in great abundance in moist and shaded places during the first two months of the year. A. corsicum (sometimes called Arum pictum) is another charming plant, a native of the same region. The hooded spathes of these plants resemble the pitchers of Sarracenia variolaris, whence the name Monk's Cowl. The Typhoniums, being natives of the Tropics of the Old World, require more warmth than the above. Of these the finest is T. Browni, introduced a few years ago, but now lost—at least, so far as I have been able to ascertain. T. divaricatum produces large purple-coloured spathes, which would be worthy of admiration did they not smell so unpleasantly, one flower being sufficient to render the atmosphere of a large stove almost unbearable. The flowers of the Stapelias smell badly enough, but their odour is not perceptible unless one sniffs at them, whereas the Typhoniums disperse their disagreeable scent over many yards of space. OUDE.

HARDY PLANTS UNDER GLASS.

The extent to which a conservatory can be furnished with highly ornamental hardy plants without what is called hard forcing, or indeed forcing at all, during the winter and spring months, is hardly realised, nor has the subject ever been much discussed. With people living in the north of England and in Scotland, spring flowers are, as a rule, seldom in bloom till May; hence, unless they have a good indoor supply, a long season of barrenness is experienced. If, therefore, in every garden where a good collection of hardy spring and summer flowers existed, a certain portion of them were each season set aside and put into pots about the beginning of winter, and set in a cool house, they would afford a bright show of flowers during the early portion of the year, when there are none outside. Numbers of hardy border plants not only do well under glass, but do far better than outdoors, and show a delicacy in the colour of their flowers, and a beauty of foliage and habit, that only those who have seen the plants under such circumstances could believe. In the following remarks, therefore, it is proposed to give a few directions as regards the preparation of hardy plants for flowering indoors.

Among the shrubby class adapted for the purpose, Roses stand first, because they are more at home in such quarters than out-of-doors, and afford such a long display of flowers of all colours. Rambling kinds, like Gloire de Dijon, Maréchal Niel, and Cheshunt Hybrid, or any of the free climbing sorts, of which those named are among the best, may be planted out in either an inside or outside border, and trained up the roof or walls with the certainty of their growing and producing thousands of flowers in February, March, and April. Roses soon cover much space under glass, and bloom freely the first year. The great secret of their culture is to keep them free from insects, an easy matter in a cool house by fumigation, and pruning as little as possible. Gloire de Dijon, Maréchal Niel, and Cheshunt Hybrid (respectively yellowish blush, bright yellow, and deep crimson) all make fine long growths, extending to yards in a single season, and such growths will bloom their whole length, and extend as well; hence the error of severe pruning, one of the worst practices imaginable with such free-growing subjects—in fact, Maréchal Niel will not endure such treatment. Climbing Roses in a cool house such as I am contemplating are far better than Roses in pots, ten times more easily managed, and when they can be planted out, it is useless troubling with pot plants at all.

Before enumerating other subjects, I may state that in a hardy plant house Camellias would succeed extremely well, and so would Chinese Azaleas planted out, and all the fine greenhouse Rhododendrons, such as the old free flowering Gibsoni, ciliatum, Countess of Haddington, and all the newer and still finer hybrids belonging to the jasminiflorum breed. Among

outdoor shrubs that stand taking up from the ground to force, and putting back again about June or July to recoup in the open air for a season, are common Azaleas, Rhododendrons, Deutzias, Laurustinus, flowering Currants, Weigelas, double and single Thorns, and other ordinary-growing spring-flowering shrubs. Any of these taken up in November with a little care, and put in pots in common and rather light soil (it need not be rich), will flower freely after the new year and onwards. But the best way to manage such plants is to keep them permanently in pots plunged in the borders or shrubberies, to display their flowers there till they are wanted indoors, when they only need to be lifted out of the ground, and such roots cut off as are coming through the bottom of the pots or over their rims. This is the best way in which to keep shrubs for forcing, using one lot one year and another the next, or any two or three years. The majority, however, lift out of the ground and force at once, especially Rhododendrons and Azaleas. These shrubs, and the Camellias and other things alluded to would form a background to a cool house. Fill up the body of the space, and for the rest dependence would have to be placed upon the following hardy subjects: Hyacinths, Tulips, Crocuses, Snowdrops, Narcissi, including any of the common Daffodils, which succeed beautifully under glass; the white Wood Hyacinth is a fine subject; Lilium candidum, Anemone fulgens and A. japonica alba, Spiræa japonica (white), Spiræa palmata (pink), Forget-me-nots (blue and white), Arabis, Iberis corifolia, and others: Phlox procumbens, Saxifraga Wallacei, and others of the same habit; early Phloxes, Iris, Pæonies, Stocks, Asters, Dielytra, Potentillas, Violets, Pansies, Carnations, Primroses, Auriculas—in fact, all free-flowering spring and summer flowers of a not too rampant habit.

Crocuses, Snowdrops, Daffodils, and other early bulbs should be taken up out of the ground early in the autumn and potted; and most of the other things should be potted and housed by November or December. Nearly all strictly herbaceous subjects, however, like the Spiræa, Phlox, Iris, and Dielytra, whose stems die down in winter, lift easily and flower well, and may be managed by any intelligent amateur who is careful in lifting his plants to get good roots with them—not a difficult matter. Large pots must be avoided; if they are sufficiently large to hold the roots and allow a very little soil in and around them, they will do. Small pots should be the motto. All such plants are ready for forcing as soon as taken up, and need no preparation. Shrubby subjects, like Iberis, should be propagated by cuttings. A few young tops put in under a handlight or cloche will make neat little flowering tufts, and the Arabis and other dwarf subjects like it may be managed in the same way. Primroses and Auriculas of all sorts may be taken up in October and potted, and these alone will make an exceptionally fine show and afford much variety. Spiræa japonica and S. palmata lift in clumps with the spade in winter, and are not checked in the least. The Anemone japonica alba, unless it can be got in good masses, is better potted a season and left in the border in the pots. It is well worth the trouble, for when grown in a pot in a window or under glass it is a noble subject, producing abundance of large white flowers far clearer and more perfect than out-of-doors. The red kind should also be prepared in the same way. Phloxes are also pretty, and produce perfect spikes of flower under glass; only the dwarf early sorts should be used, and they will lift and force well. The Dielytra is even more accommodating, and is one of the most ornamental plants that can be grown, but all named are suitable.

Any one having a house or pit ready for such subjects, say in December, should then have all his plants potted and placed in it. I would not advise him to push the plants at first, but after the new year he should take advantage of all fine days to husband the natural heat; and if the house be heated, which would be better, he could keep the temperature up to 50° or 55° by day, which is sufficient to set everything on the move. Early plants would flower first, and the others would follow in succession just the same as outdoors. In March, April, and May the house should be gay with flowers. It is not needful to have a large house for such plants, but whatever its size, it should be well filled. By midsummer the display will be over, when the house can be devoted to other purposes till wanted again; and the plants can be turned out of doors, and each kind treated according to its need. Those who have vineries, Peach houses, or greenhouses may, of course, use them also for growing hardy plants while the trees or other inmates are at rest, or not far advanced, but most success will attend those who can devote a house to the plants themselves. J. S. W.

PROPAGATION AND CULTURE OF BOUVARDIAS.

Of all plants which can be grown in a cold frame in summer, and flowered in an intermediate temperature in winter, Bouvardias are the choicest and most beautiful, and their usefulness, especially in a cut state, is beyond all calculation; here we grow many dozens of them to bloom from the end of September till March. Some of them are young plants, the produce of cuttings put in in the spring, and a good many of them are old plants grown on year after year. Our stock is always maintained by means of cuttings. When the plants cease to flower they are placed in a cool frame and hardly any water is given them; this induces them to go to rest for a time and then all the foliage drops off. After resting they are introduced to heat in any house or pit in which there is a temperature of from 60° to 70°. Here they soon begin to push young shoots all over the branches, and it is these young growths which we use as

Cuttings, and the best of all cuttings they make. They are taken off when from 2 inches to 3 inches long—not cut off, but broken off by being drawn downwards, so as to cause a little piece of the old wood to come away with them in the form of a heel, and with this attached, or, indeed, without being cut in any way, they are inserted. If treated in this way and dibbled round the edge of a 4-inch or 5-inch pot filled with a mixture of leaf-soil and sharp sand and plunged in a bottom-heat of 70° or thereabouts, 90 per cent. of them will be found to have formed a quantity of roots in three weeks' time. As soon as they are fairly rooted they are withdrawn from the bottom-heat and placed on a shelf in the propagating pit. Here they remain for a short time until they have gained a little strength and the roots have become harder than when plunged. At first the young plants are potted singly in 3-inch pots. These are well drained, and the soil used consists of a little loam and a good deal of leaf-soil and sand. When newly potted they are kept in a close, warm place until they begin to get established and make fresh top growth, and after that they grow away freely. Air is gradually given them, or they may be shifted into cool frames by degrees until by July they have become quite hardy. At this time some plant them out in open borders and allow them to grow there for two months or more, but in this treatment I have no faith; at least I could never get such good and useful plants in that way as by growing them always in pots, and this I now do. As the young plants become too large for the pots they occupy they are shifted into larger ones, and the main thing to try for by the end of October, or earlier, is to have the pots well filled with roots and plenty of shoots, which should be hard and matured through exposure to sunshine; then blooms in profusion will be produced almost naturally during the whole of the winter.

Old plants, when out of flower in spring, may be allowed to rest for a while, cutting back the straggling shoots like those of a Fuchsia, starting them in a gentle heat and growing them on in frames afterwards like young ones. The best time to repot old plants is just when the young growths are a few inches long. Firm potting agrees best with them, and when growing they must never suffer from want of water. Green fly, mealy bug, and scale will feed on them if they get a chance, but there is no reason why they should do this, as they are easily kept clean by an occasional syringing or sponging; the best way of all is never to allow these pests or any other to gain a footing on them, which is easily done under careful culture. Plants grown in the manner here indicated will flower freely throughout the winter in a temperature of 60°, and a quick succession of shoots and heads of bloom will be produced in 70° of heat.

Margam, Taibach. J. Muir.

NEW PLANTS OF 1883.

New plants of the best class that made their appearance last year are fewer than those of 1882. In that year those that were certificated amounted to no fewer than 386. These in a great measure consisted of florists' flowers, Dahlias and Pelargoniums alone mustering together 77, while last year they only amounted to 19; of Cyclamens, Chrysanthemums, and Rhododendrons there were only 11 last year, while in 1882 32 were certificated. Now, although florists' flowers certainly deserve encouragement, their existence is comparatively of but short duration, and the wisdom of bestowing so many certificates on them may be questionable. For instance, it would be interesting to know how many out of the 47 Pelargoniums certificated in 1882 will be in cultivation two or three years hence. The same may be said of the 30 Dahlias upon which in 1882 similar distinctions were conferred. A reaction, however, seems to have set in, as this last year eight Dahlias only were considered worthy of first-class certificates, foremost among them being a pure white variety surpassing even White Queen in purity, and named Duchess of Westminster. It produces its flowers in great abundance; they are perfect in shape and have broad, thick recurved florets, which, overlapping each other, thus form a perfectly circular flower. The habit of the plant is also good. D. Dr. Moffat, Cetewayo, and Negress all show improvements of some sort on older varieties, but the new variety Bedding Gem is probably the plant which stands the best chance of holding its ground; although its flowers are not quite perfect, being rather starry and of small dimensions, they are very showy, their colour being a very brillant vermillion. It is, moreover, very dwarf in habit and an exceedingly profuse bloomer.

Amongst Pelargoniums eleven only last year came up to the required standard of quality, against forty-seven the previous year. The most striking amongst them were Mrs. H. Little, a distinct variety belonging to the show section; its beautiful flowers, which are very finely shaped, are of large size, and possess striking colours, the lower petals being white, while the upper two are of a deep maroon-crimson. A very curious variety, named Dresden China, is also worthy of special notice; it belongs to what is termed the decorative class; its rosy pink flowers are curiously streaked and spotted with white and very effective. In the Ivy-leaved section great improvement of late years has been made. Abel Carrière bears massive trusses of double flowers of a glowing rose colour, and is undoubtedly the finest of its class. Then there is Jeanne d'Arc, with double flowers of a delicate mauve tint, also produced in large trusses. Future Fame has blossoms of a larger size and better shape than those of most varieties; their colour, too—a brilliant amaranth-purple—is very effective.

Of Chrysanthemums, only two varieties were certificated. One, C. Aurora, is extremely floriferous, and continues to expand its lovely Pompone-like blossoms, of a rich yellow colour, far into the winter. It is a double-flowered form of the well-known C. coronarium. The other, undoubtedly the finest of its colour among early-flowering kinds, is named C. Alexandre Dufour, and is also a wonderfully free-flowering plant, beginning to open its beautiful large flowers about the middle of September. The blossoms consist of long,

narrow florets, which, being of a bright amaranth, are very attractive.

Carnations.—Of these nine received certificates, which they well deserved. Among them are the excellent habited and sweet-scented Sir Beauchamp Seymour, a border variety of great merit, with large and full flowers of a fleshy tint, the petals being edged with red. Royal Purple, another border variety of sturdy growth, has finely-shaped, large flowers, of a rich plum colour. Field Marshal and Henry Cannell, both bright scarlets, are also acquisitions.

Auriculas have had a prominent share in the awards of the past season, no fewer than fourteen certificates having been allotted to them. They nearly all possess the deep golden centre so dear to all lovers of them. A. Bayard is, however, an exception; it has a white centre, and is of the alpine class. Ajax is a very bright, large, grey-edged flower, and a kind which deserves a high position in its class. Last, but not least, is a very pretty double-flowered variety named Delicata, a kind with rosette-shaped flowers of a soft creamy yellow tint.

Begonias seem to have received considerable attention, no fewer than thirty-two of them having received first-class certificates last year; and yet, with the exception of B. gogoensis and Novelty, which are entirely fresh types, nothing strikingly new has been produced. The former has shield-shaped leaves of a rich velvety tint, measuring about 6 inches across; they are vinous purple on their under surfaces and of various shades of green on the upper sides. The latter is a hybrid between lineata and Davisi; it is of dwarf habit; its leaves are peltate in form, 3 inches or 4 inches across, of deep ground colour, and copiously spotted and suffused with silver-grey. It also produces pretty small flowers of a bright cherry-rose colour. All the others belong to the tuberous class, which has been so altered by cross-breeding that very little is left of the original typical B. boliviensis. Some possess flowers of a very large size, such as Marchioness of Bute, undoubtedly the finest of the bright rosy pink sorts; Countess of Rosslyn has very large flowers, almost circular in outline and of a warm orange colour; Orange Giant, a very showy variety, has unusually large blossoms of good shape and of a bright vermillion-scarlet; and Black Douglas, possibly the darkest variety in cultivation, has large circular single flowers of a very uncommon black-crimson colour. Among the many double forms brought out last season there are certainly some good kinds, foremost among which may be named Madame Grody and Virginalis, both with flowers of ivory whiteness and very double; they are both very floriferous and of good sturdy habit. Goliath has very large flowers, each of which forms a compact and perfect rosette some 4 inches in diameter; Dr. Duke has large double blossoms of a brilliant crimson colour, and there is a very pretty yellow-flowered variety called Canary Bird.

Rhododendrons. — Of these all that received certificates last year belong to the comparatively new greenhouse section, known as Javanese; they are all hybrids, whose parents were produced by the intercrossings of R. Lobbi, R. jasminiflorum, and R. javanicum, and it is not too much to say that the few plants which received first-class certificates last year surpass by a long way anything of the same kind previously brought forth. Even now, at this particularly dull time of the year, they are flowering of their own accord, and contribute effectively to the decoration of our greenhouses and conservatories. They are of easy culture, and will, no doubt, when propagated in sufficient quantities, become very popular. R. Brilliant—a very fine variety—bears large trusses, well furnished with finely-shaped blooms, each measuring 2½ inches across; they are of a bright scarlet colour, somewhat inclined to orange-red; this kind is distinct from most other hybrids, on account of its foliage, which is broad and shining, indicative of a good constitution. Princess Christian has flowers of a charming rosy pink colour, quite 2 inches in diameter and furnished with broad, overlapping petals; Triumphans, also a first-rate variety, has handsome showy flowers of a brilliant crimson-scarlet colour. They measure 2½ inches across, and are produced in massive trusses. The great drawback to the culture of these Javanese Rhododendrons is the difficulty one generally experiences in getting them to grow into compact-shaped plants, but that disadvantage may possibly yet disappear, for there was exhibited this last season a Javanese species under the name of R. Curtisi, which, besides bearing exceedingly pretty, though small, purplish flowers, possesses also an excellent dwarf and bushy habit.

Azaleas.—Amongst white-flowered kinds of Azaleas, nothing can be compared to Deutsche Perle, whose lovely double blossoms measure 3 inches in diameter, and are as white as snow. It certainly is the finest of double whites yet raised and is of irreproachable habit. It also forces well, as has been amply proved in different establishments during the early part of this winter. Baron N. de Rothschild also bears large double blossoms, but they are of the finest and richest plum-purple, a shade quite new among Azaleas. There is, moreover, amongst the most meritorious novelties Souvenir de Prince Napoleon, a variety excellent in habit and a profuse bloomer. Its fine large flowers, of good form, are of a rich salmon-pink, spotted with crimson and edged with white; their margins, too, are prettily crisped and waved.

Amaryllises have also been much improved of late years—a fact acknowledged by all who had the good fortune, in March and April last, to see Lady of the Lake. It has flowers of irreproachable shape and size; its petals are unusually large and of good firm texture. With the exception of a few faint streaks and dots of crimson, this beautiful flower may be said to be pure white. Adolphus Kent, although producing flowers of medium size only, is nevertheless one of the most noteworthy novelties on account of its colour, which is an intensely deep crimson, evenly distributed over the whole surface of the flower. It surpasses in richness even that of A. Ackermanni pulcherrima. In Tennyson we have a grand flower of a uniform brilliant scarlet, and measuring nearly 9 inches in diameter; the shape is particularly symmetrical on account of the segments being very broad and nearly overlapping each other. George Gordon produces handsome flowers from 6 inches to 7 inches across, and of a particularly striking shape, though its segments are broad and reflexed; these are a bright scarlet, and the centre of each division is ornamented with a white band running its whole length. The above are a fair selection of a comparatively new strain, which comprises tints of crimson and scarlet of various shades, carmine-magenta and crimson-carmine, besides pencilled, striped, and tipped flowers of different colours.

Orchids.—As regards these the last season may safely be said to have kept pace with its predecessors. It is not every season that such plants as Vanda Sanderiana come to light. Flowers of it developed under cultivation measure between 4 inches and 5 inches in diameter, and possess a very curious combination of colours; the upper three sepals are of a lovely pink, while the two lower ones are much larger, and of a fawn colour, pencilled and striped with brown, and the dull vinous purple colour of the very small lip contrasts singularly with the tints which surround it. The growth of this Vanda greatly resembles that of V. cœrulea, and its handsome flowers are produced in large clusters of some fifteen or eighteen at a time. V. insignis Schroederiana is another acquisition; the colours of its delicately tinted blossoms are so changed from those of the type that its habit is about all that is retained. Its flowers, like those of V. insignis, are produced on axillary spikes, and measure about 1½ inches in diameter, the edges of the sepals and petals being very wavy and of a pleasing lemon-yellow ground, mottled all over with buff, while the broad lip, shell-like in form and with incurved rim, is pure white and of waxy texture. A new and valuable Calanthe has also made its appearance, and has been much appreciated; it is called C. Regnieri. Although of growth and habit similar to those of the well-known C. vestita, its flowers are quite different; they measure about 2 inches across, have reflexed petals and sepals, which are white, lined in the middle with carmine-rose. The trilobed labellum is of a deep rose, marked with a deeper colour in the centre. These flowers, which in shape are shorter than those of other Calanthes, are borne in a somewhat crowded spike on the upper part of the stems, which are about 18 inches long, and they come in after those of nearly all other Calanthes are over, thus prolonging the flowering season of the genus. In Dendrobium Dearei we have also a new species, which has already proved a favourite wherever it is cultivated. It is floriferous in the extreme, and its lovely blossoms of snowy whiteness, with the exception of a blotch of delicate green on the lip, are of extraordinary duration. It has been reported from different places where this Dendrobe exists, that individual flowers of it have lasted from twelve to fourteen weeks in fresh condition; they are also produced so abundantly that it is nothing uncommon to find five spikes with from six to ten blooms each produced from a single leafy stem. It is a robust grower, making bulbs from 2 feet to 3 feet high, and the same bulbs year after year produce crops of flowers. Distinct in its genus also is the curious Masdevallia Schlimi, whose flowers, contrary to those of all, or nearly all, other known kinds, are produced on spikes about 15 inches high, each bearing five or six flowers, set closely together on their upper part; the flowers are of a reddish brown, and their three sepals have long yellow tails, sometimes measuring 4 in. in length. It is equally distinct in foliage, which is erect and of a thick, leathery texture. In addition to the above, many other kinds, also deserving of attention, have been brought out during last season; as, for instance, Cattleyas and Odontoglossums in profusion, principally variations of crispum, which seems to indicate that in their native habitats the seedlings of this exceedingly useful class of Orchids are not much more constant than those of Pansies and Snapdragons.

Fine-foliaged plants.—A few Ferns have been introduced, which well deserve to be added to any collection. Adiantum Weigandi is a neat, compact grower, whose general appearance suggests a variation of A. decorum, or it may be a hybrid between that species and A. daphnitis; for the plant in question, although retaining the shape as regards the fronds of A. decorum, has the pinnæ deeply cut, of a bright green, and overlapping each other. Whatever its origin may be, it is certainly very distinct from any other known species or variety. Cyathea microphylla will also be a very welcome plant, as its handsome fronds from 2 feet to 3 feet in length, and produced from a very slender stem are very finely divided and of a lively green colour. In Selaginella canaliculata we must also acknowledge a most valuable addition to an already extensive genus, and the new comer is in no way inferior to any of its associates: it is one of the caulescent species, the stems of which grow to an indefinite length. Then there is the noble Bornean fan-leaved Palm (Pritchardia grandis); this, though said to attain naturally large dimensions, is under cultivation dwarf and compact. Amongst new plants with

Coloured foliage, the most striking, and probably that which is most likely to become popular, is the Ficus elastica albo-variegata, a fixed variation of the well-known India-rubber Plant, with foliage handsomely mottled with various shades of creamy white, yellow, and green. There are also several Caladiums, all very beautiful, the most striking being C. cardinale and Luddemannianum. The former, which is of comparatively dwarf habit, belongs to the class with semi-transparent leaves; these are large, and have a reddish pink ground colour traversed by numerous veins of a deeper tint. Those of the latter attain a larger size, are borne on long stalks, and are of a rich pea ground colour, blotched all over

with reddish crimson and white markings, which make the plant highly ornamental. Another interesting coloured-leaved subject is the curious Columnea Kalbreyeri, a plant of most singular growth, with leaves about 12 inches long by 3 inches wide, situated one above the other on thick, fleshy, erect stems. Their upper surface is metallic green, while the undersides are of a vinous purple.

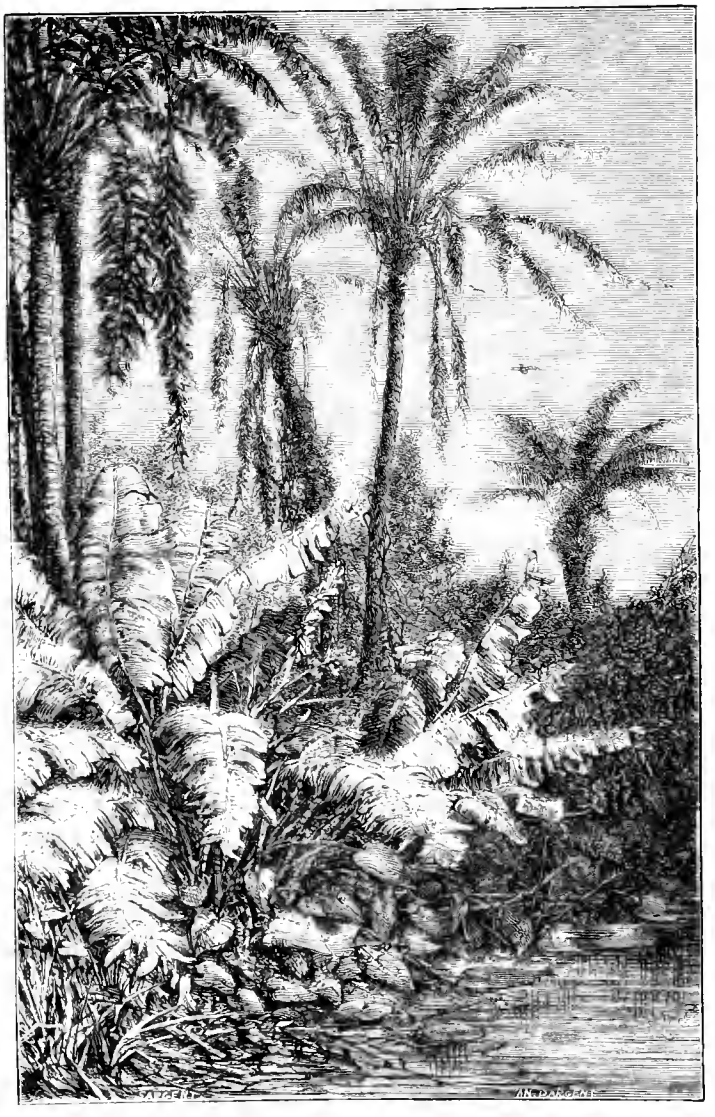
Hardy plants.—A few of these have also been introduced. Yucca gloriosa variegata, for instance, is a finely striped form of the common hardy Yucca from which it differs only in its leaves being marked with longitudinal bands of yellow and rosy pink, shaded with green, as in the greenhouse variety, Y. quadricolor. Prunus Pissardi, undoubtedly one of the best and most interesting hardy novelties of the last few years, is a very ornamental deciduous tree. Its abundant foliage, which as far as size and form only are concerned resemble very much that of the ordinary Plum, is particularly remarkable on account of a coppery purple tinge which it retains throughout the season. In Acer polymorphum variegatum we have also an exceedingly pretty variety of this very variable Japanese Maple, which has already produced an endless quantity of sports, this new acquisition has elegantly cut foliage, variegated with various shades of green and white. Amongst plants grown for the beauty of their flowers only we may mention Spiræa palmata alba, a variety of the well-known species already in cultivation for years, and which every season gains in popularity. The new form, which is of exactly the same bushy habit and with foliage similar to that of the type, differs from it on account of its flowers being of snow-whiteness. A very handsome evergreen hardy little shrub from California, named Leucothoe Davisiæ, will also be found to be an acquisition. It has small foliage, of a deep green colour, and an abundance of small white blossoms produced in clusters at the tips of each of its branches. The pretty little Andromeda japonica will also be welcome. It produces long branching spikes of white blossoms, and has pretty evergreen foliage.

As will be seen from what has just been stated, that if the past season has been prolific in producing flowering plants, the same cannot be said of plants cultivated for the beauty and elegance of their foliage; for in the whole list there is not a single representative of either Croton, Dracæna, Aralia, Maranta, Dieffenbachia, &c. Is that a sign of the times? Is the love of coloured or other ornamented foliage plants on the wane? Are there no more to introduce, or are those already in cultivation so eminently good that they cannot be beaten by new comers? These questions will most likely be answered when, in a twelvemonth's time, a careful analysis is made of the present year's hidden treasures.

Miscellaneous plants.—Besides the plants just enumerated, there are also others which will undoubtedly prove really good and useful, such as the charming new Zanzibar Balsam (Impatiens Sultani), a plant of neat, compact habit and easy culture, and one which blooms at all seasons of the year, according to the treatment which it receives and the time at which it has been propagated. Medinilla Curtisi is another grand introduction—a plant sure to become in time extremely popular; it is in all respects different from the well-known M. magnifica, having, instead of large, coarse foliage, small ovate, pointed, sessile leaves of coriaceous texture: its habit is dwarf and bushy, and its numerous white flowers, produced in terminal panicles, are of wax-like consistence and borne erect; it is extremely floriferous, young plants only a few inches high flowering freely, its white blossoms being set off by a central tuft of purple stamens. A rival to Anthurium Andreanum has also made its appearance. It is named Anthurium ferrierense, and is a hybrid, the parents of which are Andreanum and ornatum. Its spathe, which in colour partakes of that of both parents, is heart-shaped, about 6 inches long and 4 inches wide. The spadix is erect, of ivory whiteness and about 4 inches long. It is a robust grower and a free bloomer. Eucharis Sanderiana is a welcome addition to the somewhat limited list of winter white flowering plants. It is neat in habit, its foliage being smaller than that of E. amazonica, and it is also more floriferous. Its flowers, which are not perhaps quite so large as those of that species, are more cup shaped, and the interior crown noticeable in other species is absent in this, with the exception of a little yellowish tint in the throat, the rest of the flower being pure white. S. G.

TROPICAL VEGETATION.

The richness and variety of vegetation within the Tropics has often been the theme of the traveller in those regions of luxuriant plant life, where scenery such as one sees occasionally depicted in books is to be met with almost on every side. While it is stated that, in spite of all the charms of tropical regions, there is rarely to be met with an effect of colour as rich and as beautiful as that afforded to an Englishman by a copse full of Bluebells—"that seem the heavens upbreaking through the earth"—there is nevertheless a variety in form and foliage which more temperate climes cannot aspire to rival. One characteristic of tropical scenery is the great predominance of trees and shrubs over herbaceous plants. Families of plants, such as the Rubiaceæ and Malvaceæ, which in countries without the Tropics are represented by (often more or less weedy) herbs, find their representation in tropical countries among the shrubs and trees; while such orders as Cruciferæ and Caryophyllaceæ, which consists mainly of herbaceous plants, and form so large a proportion of the flora of temperate regions, are hardly to be met with in tropical climes. Whole groups of plants—such as Palms, for example—are almost entirely natives of the Tropics, and impart to those regions much of the characteristic appearance of their vegetation. The order Melastomaceæ, again, finds its headquarters in the Tropics, especially in Brazil. The



A glimpse of Madagascar vegetation.

forests of the last named region present a bewildering spectacle of rank luxuriance, the great variety of the trees being the first thing that strikes an English traveller, accustomed to the monotony, beautiful though it be, of the Oak and Beech woods of his native land. Another very striking feature of tropical vegetation, especially in South America, is afforded by the climbing plants which abound in the forests, and to which the name of Lianas is popularly given. Belonging to various natural orders, among which the Bignoniaceæ is perhaps the most prominent, these Lianas climb to the tops of the tallest trees, interlacing and spread-

ing in every direction; some hang in festoons from one tree to another, twining round them and forming a vast confused mass of leaves and flowers; others are twisted in large spirals or hang in streamers from the loftiest branches. Perhaps a wild Clematis, when growing in an open space in some wood in the south of England, gives a better idea of the mode of growth of these Lianas than any other plant which we are likely to meet with. Another family which is greatly changed when viewed in its tropical aspect is that of the Grasses. We are so accustomed to tread the Grass under our feet, or at most to see it breast-high in the waving cornfield, where the importance of the family Graminaceæ is practically and obviously set before us, that we are surprised to learn of other Grasses which attain the height of forest trees with branching stems and large leaves; and yet illustrations of this are furnished in considerable abundance by the various species of Bamboo which are among the most striking of tropical or subtropical plants. The various Tree Ferns, again, though not absolutely confined to the Tropics, are very conspicuous in those regions, reminding us by their appearance of the Palms rather than of the lowly plants which represent the Filices in the European flora. B. J.

KITCHEN GARDEN.

TOMATOES IN POTS.

At one time it was necessary to advocate a more extended use of Tomatoes, but now the demand during the greater part of the season exceeds the supply. As a rule, however, I find that London is better supplied with them than provincial towns, and it is to the latter I would recommend surplus fruits to be sent. As to varieties, I must say that we are getting too long a list, and this list includes many which are of little or no real value. As a rule the smooth, round sorts, although preferred on the exhibition table, are inferior to the ribbed or corrugated kinds. Absence of seeds in the former is sometimes spoken of as being in their favour, but their flavour is altogether inferior to that of the ribbed sorts with plenty of seeds. Pulp, not core, is required in a Tomato. The old dwarf Orangefield is still one of the best flavoured sorts which we have and a good cropper. Unfortunately, it is seldom to be procured true; growers should, therefore, select and preserve their own stocks of it. For market purposes, in addition to home use, the Large Red, or any good selection of it, is preferable to the Orangefield, being heavier, and therefore more profitable. Conqueror is also a heavy cropper and grows to a good size, but the colour, a rich vermilion, is not always well brought out, and then its appearance is against it for market purposes. The smooth, round-fruited sorts when first introduced from America were the most attractive, but several novelties which I have lately received from that Tomato-loving country are doubtful improvements on several which we already possess, and which were raised in this country. Among the latter, Dedham Favourite proved well adapted for pot culture; its fruits are of good size, handsome, and fairly good in quality. It replaced Hathaway's Excelsior, and in its turn, unless I am much mistaken, will be superseded by the new Hackwood Park Prolific. Judging from what I saw of this variety when exhibited at South Kensington, it fully deserved the certificate which it received, and I have no doubt as to our ability to secure equally heavy crops as those grown by Mr. Bowerman, the raiser of it. I can also recommend Trentham Fillbasket for pot culture.

Raising the plants.—Those who have room in forcing houses of any description for a few plants in pots either on back shelves or trained up the roof should lose no time in raising plants of some approved sort for that purpose. Sow the seed thinly in pans or pots filled with fine light soil, and plunge them in a hotbed or place them on the warm bench of a forcing house. Directly the seedlings appear transfer them to a warm shelf near the glass, the aim being both then and subsequently to keep the plants as dwarf as possible. When in rough leaf, that is to say when the first pair of leaves following the seed leaves are forming, pot off either singly in 4-inch pots or in pairs in 6-inch pots. Use light loamy soil which has been previously warmed, and sink the seedlings into the soil up to the seed leaves. Do not press the soil heavily about them, as they are easily bruised; all that is necessary is to lightly shake down the soil and fix the plants with tepid water. Sinking the plants into the soil, besides shortening the stems, also strengthens them through the emission of new roots. Shade them from sunshine for a short time, but directly the seedlings recover from the check sustained in transplanting return them to the warm shelf; avoid crowding them when growing rapidly and support them if necessary with short stakes. Never allow them to flag from want of water, and shift them into their fruiting pots before they become root-bound and weakly. No particular compost is necessary, but I prefer a mixture consisting of two parts roughly broken turfy loam to one of partially decomposed manure and a sprinkling of bone meal. Prior to being used it should be warmed to the same temperature as that of the house the plants are in, and it is not advisable to take the plants out to a cold potting shed in order to give them a shift, that operation being easily performed on the floors of most houses. A single plant to perfect a heavy crop should be placed in a pot not less than 10 inches in diameter, and pairs do well in 12-inch or still larger sized pots. Pot deeply, but do not fill the pots more than three parts full of soil, thus leaving room for a liberal top-dressing when the crop begins to swell. Transfer the pots to the fruiting quarters, and never let the plants suffer from want of water, especial care being taken to keep the small balls of soil moist without saturating the surrounding fresh and as yet unoccupied soil by roots; never syringe overhead.

Setting and perfecting the crops.—Pinch out all side shoots as fast as they form, but carefully preserve the leaves, as they will grow to a great size and materially strengthen the stems. The first bunches of bloom on well-grown plants are usually produced at about a foot from the pot, and can be easily converted into large clusters of fruit. Two other rather smaller clusters will generally exhaust the plants, or at any rate be as much as it will prove profitable to reserve them for, younger successional plants being preferable. We usually stop beyond the third cluster of fruit. It is frequently necessary to artificially impregnate the blooms, this being especially the case with the smooth, round-fruited sorts. Near midday on fine sunny days, or after the houses have been ventilated a short time, a smart tap will circulate the pollen sufficiently, but under less favourable circumstances the fertilising parts of the flowers should be lightly rubbed together or touched over lightly with a camel's-hair brush. At no time should the plants suffer for want of water, water, and this should never be given colder than the temperature of the house in which they are growing. They ought to have abundance of liquid manure when the crops are swelling off, nothing I have yet used being better for the purpose than that obtained from a farmyard. Peruvian guano is also suitable, and this may safely be used at the rate of a handful dissolved in a three-gallon can of water. Moderate and frequent supplies of any kind of liquid manure are preferable to occasional strong doses. If large handsome fruit fit for exhibition purposes are desired, thin out the young fruit freely, selecting those that are of the best shape. The much-fasciated central blooms are seldom worth retaining unless size be the primary object, as they are generally followed by very ugly fruit. Should cracking take place, and the smooth sorts are very liable to do this, it is best prevented not by drying off at the roots and lowering the temperature of the house—thereby checking the growth of the successional fruits—but by cutting the fruit when fast changing colour. If cut at this stage of ripening and hung up, or placed on a dry shelf in the same or another heated house, they ripen without being injuriously affected, either as regards colour or taste. It is a mistake to long delay using Tomatoes, as they thereby lose their brisk acidity, and therefore their greatest attraction. For my part I prefer them rather under-ripe than over-ripe. For the encouragement of beginners or owners or those in charge of a comparatively large amount of house room, I may further add that early Tomatoes may be grown in any fairly light position in a house maintained at an ordinary stove temperature—this ranging from 55° to 60° by night and 65° to 70° by day, with a further rise of 10° with sun heat. Much, too, may be done with boxes, such as old wine cases, instead of pots, and they may well share a house with Melons, Cucumbers, and such stove plants as we sometimes see enterprising amateurs successfully growing together in the same house. Nothing is gained by crowding Tomato plants, yet it is by no means uncommon to see a dozen grown where six plants would have been ample. W. I. M.

SOME GOOD VEGETABLES.

Beans.—Among these I would recommend Beck's Dwarf Green Gem, which is the earliest, and as it only grows a foot high it may be sown in rows that distance apart on any warm border or at the foot of a wall, and a gathering made in May. The one most desirable to succeed this is the Seville Long-pod, which comes in before the old Mazagan, and is altogether a much larger and finer Bean, and of superior quality cooked. To succeed this and yield a summer supply there are none equal to the Windsor Improved, which has closely-filled pods, containing large flat Beans of a mild and excellent flavour. The sorts of French or Kidney Beans are very numerous, and among them is a new aspirant named Ne Plus Ultra, which gained a first-class certificate at the Chiswick trial, and deserved that distinction, as it is a remarkably fine and prolific kind that will be much grown both indoors and out. Another first-class Bean is the one called Longsword, which, as its name implies, has long sword-shaped pods, and the plants are very free in their habit of bearing. The old long-podded Negro still holds its own, and is a fine summer kind, and to succeed this and carry the supply on there are none equal to Canadian Wonder, to do justice to which and grow it well, the rows should be a yard apart, as the plants are strong and require plenty of room. Among the Scarlet Runners the Champion is the best: this has all the good qualities of the old variety and bears much longer pods.

Beets are best represented by Dell's Crimson, which is a medium-sized kind, having deep coloured crimson-fleshed roots and highly ornamental leaves, which make it worth growing amongst other fine-foliaged plants in a bed. Borecoles or Kale are not very numerous, and only two or three are deserving of much attention, the most desirable being the Tall Green Curled and the Asparagus, the latter of which is late and delicious in spring. Broccoli should be divided into three sections, and among the earliest winter sorts I should place Snow's as the most valuable, provided it can be obtained true, and next to it Backhouse's and Osborn's, the only fault of the last named being that it is a little more tender in the foliage than the others, and after severe frosts apt to rot or damp, else it is a fine dwarf self-protecting kind that produces compact heads almost as white and delicate as those of a Cauliflower. To succeed the above-named few if any are better than Veitch's Spring White and the Penzance Early, the latter being the kind that is so extensively grown at the Land's End, in Cornwall, and brought in such quantities to the London and other markets, where its fine heads fetch a good price. Cattell's Eclipse is a fine hardy late sort, and so firm and woody is its short stem that frost has little effect on the plants, which I have had stand when nearly all others have been killed by the cold. With all these good qualities, this variety has one drawback, which is that the heads are not so white as some others, and it is likely to be superseded by Model, which is the perfection of a Broccoli, and stands hard winters well.

Brussels Sprouts are best represented by the old imported kind, that is when a good select strain can be had, as the Spronts, though small, are solid, and very mild and delicious in flavour. Those who desire a larger sort for show will find Veitch's Exhibition and Scrymger's Giant good, but to have Brussels Sprouts at their best they must be sown early, so as to get the plants strong, and to grow them in this desirable state they must likewise have rich, deep ground and plenty of room. Cabbages vary much in size and quality, the best for early work being Wheeler's Imperial, which has small, compact hearts, and is of a mild, Marrow-like flavour, and the first to turn in for use. To succeed it Enfield Market is superior to any, and for autumn cutting the Rosette or Colewort is worth growing, but if Wheeler's is sown early in July it will come in about the same time, and yield much finer heads. Couve Tronchuda is a most delicious vegetable, and is not half as much grown as its merits deserve, as there is nothing equal to it for delicacy of flavour at its proper season. Chou de Burghley is a valuable autumn and winter Cabbage, and though it has had detractors, it will in all probability outlive them and increase in public favour.

Two sorts of Carrots are enough for any garden, the French Horn being specially desirable for growing in frames or on borders for drawing and using young, and James' Intermediate for sowing in the open quarters for soups and affording a winter supply, for which purposes it is far better than the Surrey, as it is short and thick and of a capital colour. Cauliflowers are likely to be scarce during the early part of the season, unless provision be made against it by sowing some of the early kinds at once, as plants raised last year at the ordinary time are likely to "bolt," owing to the very mild weather, or if they do not head prematurely, the chances are that they will get killed, as they are full of growth and exceedingly tender. One of the best to turn in quick is Veitch's Extra Early Forcing, and to succeed it Early London should be sown at the same time, and if this is now done in gentle heat and the plants are nursed on and kept well up to the glass, they will be fine and strong for planting out about the middle of March, at which period a bed of Autumn Giant should be sown and another of Walcheren, which will come quickly after the two just named.

Of Celery there are many kinds, but for salads and eating uncooked, none are better than the Sandringham Dwarf White, which is crisp and of a fine nutty flavour. Among the red sorts, Major Clarke's is the best, and stands well and late without running to seed. If I were only growing one sort of Cucumber, it would be Lord Kenyon or Sion House, which are the same, as no other variety I have ever tasted is so juicy and tender in the flesh, and for show, few, if any, are equal to Telegraph, which is a fine long handsome kind. Lettuces vary according to the season, but for summer, nothing better than the old Paris White Cos can be had, and to succeed that and stand the winter, the Bath and Hick's Hardy Green are the best two sorts to get. If the Cabbage kinds are grown, All the Year Round and the Neapolitan should be chosen, but for salads the Cabbage Lettuces are far inferior to the Cos, as they are soft and flabby and lack sweetness and flavour.

To have Onions the whole year through, several sorts must be grown, the best for sowing in March being the Reading, Brown Globe, and James's Keeping, the latter of which hang sound and good till quite late in the spring. For standing the winter Giant Rocca is the most preferable, as it is hardy and mild, very large, and of fine showy appearance. To afford nice little bulbs for pickling, the Silver Skin still keeps the favourite, but to have them of uniform size, they must be sown thickly in poor ground on a hard bottom, and if so managed, they come little bigger than marbles. As a garden Parsnip I prefer the Student, which forms nice shaped roots, smaller than the Hollow Crown and of superior flavour. Radishes are best represented by Wood's Early Frame and the red and white Turnip, and the way to have them good is to sow small quantities frequently, so as to be able to pull and use them while young. To keep up a supply of Spinach three kinds are necessary, the common Round for early summer, the New Zealand for the hottest weather, and the Prickly for winter.

Tomatoes are numerous, but one or two sorts are quite enough, the best being Hackwood Park and Hathaway's Excelsior, both of which are very smooth-shaped fruit, and attain a large size. Among Turnips I find Snowball best for early sowing and Veitch's Red Globe for general crop and late, as it stands the heat without getting stringy.

Peas keep multiplying, and new varieties are constantly coming to the front, some of which are decided acquisitions, and others not so good as many that have been in cultivation for years. For first sowing, I prefer Kentish Invicta and William the First, and to succeed these Day's Sunrise and Advancer (both of which are of the Marrow class and rich and melting in flavour) to follow on. Veitch's Perfection is the next best, and is altogether a grand Pea, but should be sown thin and have plenty of depth of soil, or it suffers from drought. Among the tall kinds none are equal to Ne Plus Ultra, the Peas of which are of a deep green colour, very large, and of exquisite flavour. To come in before this superb kind, Telephone is desirable, and for the latest supply I still like the old British Queen, which is of robust habit and withstands mildew well. The way so grow it is to dig trenches and heavily manure the bottoms, when they should be filled in and the seed sown by the middle of June, and when up the ground mulched by the sides of the rows, which will keep the roots moist and encourage a quick, healthy growth. S. D.

Books.

THE BOOK OF HEALTH.*

The garden is the first and readiest means of counteracting the effects of work which exercises the nervous system at the expense of the muscular, often to the destruction of both, and any notable attempt in the way of books to help towards the same end is not so much out of our province as may at first sight appear. This is a remarkable book, and quite apart from too many that have been written with a like aim. It is a book which seeks to put before the public the principles of health rather than the causes of disease, and, by teaching what is natural, endeavours to spread the belief that to live according to the laws of health is the only way to attain it. Even a little physiological knowledge is useful, and the more such knowledge is diffused in the community the more may we expect good results to follow. It is meant, as stated in the preface, to teach how disease can be prevented, and it contains among the contributions of its various authors much that is valuable, and some of its matter is of really great merit. The introductory article by Mr. Savory is a very lucid view of the general question. Dr. Lauder Brunton's treatment of "Stimulants and Narcotics" is at once elaborate and broadly philosophical in tone. It cannot be read without producing a deep effect on the thoughtful reader. Anyone in doubt as to whether it is to Nature or man we owe such an interesting disease as gout may, with profit, read Dr. Lauder Brunton (p. 232 and others). As gardeners are so often exposed to the weather (we will not say to temptation), we cannot help quoting a passage which bears on alcobol in relation to exposure, showing that while it may seem to have a pleasant and warming effect, during prolonged cold there was a disagreeable reaction:—

> During the intense cold of a Canadian winter, lumbermen are engaged in felling trees which are afterwards dragged over the snow to the nearest river. They are then made into rafts and floated down the current to the large towns in the ensuing spring. These men are fond of spirits, and when they reach the towns in spring generally give way to intoxication; but in winter they are strict abstainers. They know the danger of indulgence, and know also the strength of the temptation, they refuse to have spirits in the camp, and if a keg of whiskey happens to find its way there they will deliberately destroy it. There is other evidence of the same import, and we learn that the experience of all arctic travellers tells the same story—that indulgence in alcohol is almost certain death when the external cold is great.

The article by Dr. Crichton-Browne on "Education and the Nervous System" is one of the ablest and perhaps the most useful in the book, especially at this present time, and for an adequate notice would require a long review by itself. With an extensive and thorough knowledge of the physiology of body and mind and much experience, the author shows how the latest results of scientific research and thought in this direction may possibly be brought to bear on the education of youth, and his clear exposition goes far towards dissipating the erroneous notion of antagonism between theory and practice. We are shown that the real educator should take into consideration the nature of the material on which he works, and adapt his methods thereto, bearing in mind the primary fact that the material is not stable or fully formed, but in a state of rapid change and development. Dr. Cheadle, too, and Dr. Dukes (of Rugby School) have contributed papers of merit and immediate utility on "Health in Infancy and Childhood" and "Health at School," respectively. The special articles devoted to the ear, the skin, the eye, and the throat, voice, &c., might have been advantageously curtailed to a large extent. There is much that is valuable in the last two of these, but too much that is more fitted for a scientific treatise. As to the excellent, though short, article on the teeth, it is very clear and good, and Mr. Tomes may be credited with a highly practical and instructive paper. The book ends with two chapters of much interest on "Health in India" and "Climate and Health Resorts," by Sir Joseph Fayrer and Dr. Weber respectively. The experience which informs these articles will render them of great use to those whose occupation or misfortune compels them to leave their homes.

The chapter on "Exercise" is long and excellent. We have never before met with so much sound and interesting matter on "The Influence of Exercise on Health" as in the paper by Mr. James Cantle. The eighty full pages given to this would make a very useful little volume.

The only chapter that seems to us to lack force and thought is that by Sir John Risdon Bennett on "Food and its Uses in Health." This seems a commonplace reflex of the common knowledge, or rather ignorance, of nutrition. To say that everything in dietetics is about right as we know it now is manifestly absurd in the face of the many Professors Holloway on the one hand, and the legalised pill men on the other. How to escape from the plots of the cook, the devil, and the doctor is a serious question for many a sufferer from the trio, and it is a pity some real and fearless student of dietetics did not handle this subject. The publishers are to be congratulated on producing a really useful book, potent for good in many parts.

* Cassell & Co., London.

Gloire de Dijon Rose.—Fifteen years ago Canon Hole pronounced this grand Rose to be the best Tea variety in cultivation, and his words have been amply confirmed, for anyone who possesses a few plants of it need never be without Rose blooms. Some Roses will not do well on their own roots; others must have a certain stock on which to develop their blossoms; but this one goes on growing and blooming regardless of all such conditions. It will succeed as a dwarf, a standard, against a wall, or in a greenhouse or conservatory. It will flower in the open air in many situations from January to December. When other kinds of recent introduction are showing no signs of floral life, Gloire de Dijon is in leaf, with buds and blooms showing in abundance. Out of doors it will succeed on a north, south, east, or west wall, and reward its cultivators with a perpetual supply of blooms. Indoors, if going up a pillar, covering a roof, or the end of a house, it will produce a perfect mass of bloom in March and April, and similar crops at short intervals throughout the whole season. Here we have this Rose

planted in the inside end of a Peach house, in the conservatory, against the church and in several places elsewhere, and still we are planting more of it.—J. Muir, *Margam, Taibach.*

Trees and Shrubs.

NEW TREES.

The following new trees are of Italian origin and are thus described in the *Revue Horticole*:—

Platanus liriodendrifolia.—This is remarkable on account of its fine foliage, which much resembles that of Liriodendron Tulipifera, for which it might be mistaken. It is of very rapid growth, and suitable for the quick formation of avenues. Raised by M. Angelo Longone, nurseryman, Via Melchione Gioja, 39, Milan.

P. quinquelobata (Longone).—This Plane tree is also of fine habit, bearing large five-lobed shining leaves, producing a grand effect either isolated or in groups.

P. asplenifolia (Longone).—This is a magnificent variety, and quite distinct from all others, the fine foliage being very elegantly and symmetrically divided. It is of a fine green, and has a wonderfully good effect. Suitable for isolation on the Grass.

Tsuga canadensis globularis erecta.—This Fir, obtained by N. Zanoletti, nurseryman, Corso Loreto, 15, Milan, is dwarf and of very pleasing appearance. The parent plant, now fourteen years old, is many-stemmed, and is but little more than a yard high and some 6 feet through. In form it is spherical, slightly conical, the branches being arranged in thick, close bunches, growing at first upright, but eventually drooping gracefully. Foliage, light green, narrower and closer together than that of T. canadensis. Its hardiness has been fully proved. In addition to the above are described a dwarf variety of Abies globularia, a small form of Pinus Strobus named pumila, and which is stated to be of high merit, and a variety of Euonymus fimbriatus named foliis marginatis argenteo-maculatis. Of this it is said "that it is without doubt the finest variety of variegated Euonymus hitherto obtained, being vigorous, forming a shrub with fine, dark, shining foliage, regularly and broadly margined with cream, often spotted with white, and changing to bright red." J. Cornhill.

The Almond.—Of hardy flowering trees there are not many that flower earlier in the year or that are more acceptable than the Almond; it is one of those subjects that thrive in any kind of soil or position; it is most effective when grown as a standard, but I have seen it fairly well grown in the form of a large bush. In that case it requires some cutting back just as it goes out of flower, for the purpose of keeping it in proper form. When grown as a standard, it is best allowed to grow in its own way, without any pruning.—J. C. C.

Notholæna Lemmoni has been successfully grown during the past year in the conservatory of the Golden Gate Park, San Francisco, and in several other conservatories in the same same city, and also in Oakland. It proves to be quite hardy and makes much larger fronds than in its habitat on the Santa Catalina Mountains. The fronds are 12 inches to 15 inches high and 2 inches broad, and the broad, dark border of fruit contrasts very finely with the silvery whiteness of the powder beneath. It is becoming a very popular Fern.—*Torrey Club Proceedings.*

Old Cypress tree.—In the pleasure grounds at Haines Hill there grows an aged and venerable example of Cupressus torulosa. It is 36 feet in height, and has a circumference of 10 feet 6 inches. Judging by the old hollow trunk and the position of branches (now decrepit), I should think when at its best it had not its rival as regards beauty of form. In the end of September I layered the lower branches of this tree. On their under sides a cut was made, and the bark removed a foot each way from the cut. The branches were then bent to the ground, firmly pegged down, staked so as to assume an upright position, and they were also covered with sandy soil to the depth of about 2 feet. This may be termed a rough-and-ready method of layering, but the result is that now each branch is an independent tree, and will soon be removed to be planted elsewhere.—John Jones, *Haines Hill, Twyford, Reading.*

Birds and Cotoneaster berries.—"Alpha" states (p. 70) that birds seem less partial to the fruit of Cotoneaster frigida than to that of other shrubs, but on this point my experience is diametrically opposite and contrary to his, as though the exceptional mildness of this winter has afforded plenteous food for small birds, they have more than a month ago eaten every berry off two large bushes of Cotoneaster frigida in my shrubbery, while they have not touched one of the rather brighter coloured and more attractive, but I conclude not so savoury, berries on the bushes of C. Hookeri and C. Simonsi growing close alongside.—W. E. G.

Bignonia radicans.—This is one of the most showy and striking of all hardy climbers, but although that is so, it does not appear to be much grown or known, as it is seldom one meets with it anywhere; and yet where it succeeds it is, as I have said, one of the finest plants that can be had for covering a wall. The best specimen I ever saw was at Bowood, where, many years ago, it was during the late summer season a notable object, and commanded the admiration of all who saw it spreading over the front of a building in the garden, which it clothed with singular beauty. Although not so large as that just referred to, we have one here that covers the south end of a shed and greenhouse, from which we could cut every autumn as much bloom as a man could well carry. Unfortunately, the flowers soon drop when severed from the plant; but when undisturbed there is a constant and continuous succession, as the ends of all the young growths become crowded with buds. In colour the blossoms are a reddish brown, and long and tube-shaped, after the manner of a Gloxinia, which they greatly resemble in form. As this Bignonia is not over hardy, it is necessary to plant it in a sheltered situation fully exposed to the sun, as its ability to withstand the sharp frosts of winter depends much on how the young wood and stems ripen and harden; if these are mature, they seldom get killed so far back as to prevent the plant from breaking again and growing on as before. To make sure of the main trunk and base being kept safe, it is a good plan to protect those parts by tacking a mat up in front; the crown should also have a heap of half-rotten leaves laid close around, as, being excellent non-conductors, no frost can get through to injure that vital part or the roots.—S. D.

SHORT NOTES.—TREES AND SHRUBS.

Propagating Oleanders.—The different kinds of Oleander (Nerium) will strike root readily in water during the growing season, or if put in soil as ordinary cuttings are they need more water than most subjects.—H. R.

Fruiting of Chimonanthus fragrans.—Flowers of this sweet-scented shrub are common everywhere at this time of year, but I am not so sure that it fruits everywhere. Perhaps some of your readers will kindly say if they have seen it in fruit.—J. C. Clarke.

Fruiting of Magnolia conspicua.—After a hot summer fruits are frequently produced by a large plant of this Magnolia which we have here. They are very singular in form. The seeds are bright red when fully ripe, and about the size of a kernel of Indian Corn.—J. C. C.

Magnolia purpurea.—A tree of this in the neighbourhood of Primrose Hill measures 40 feet in height, and has a stem 1 foot 6 inches in diameter. Its head covers a space of at least 20 yards. Have any of your readers seen or heard of a larger specimen of this Magnolia?—I

Magnolia parviflora.—I am pleased with your plate of this Magnolia, although it does not show the opened flower in which the colour of stamens and pistil shows its great beauty. The interior of the petals are of a pure creamy white, and the flower possesses exquisite fragrance. Credit should have been given to Mr Thomas Hogg, to whose enterprise is due its introduction and placing it in our hands for propagation.—S. B. Parsons, *Flushing, N. Y.*

Rhododendron Nobleanum.—In a sheltered bed this Rhododendron was in flower on the 15th of January, a circumstance not altogether unusual, for in other mild winters I have known it to flower equally early. Its flowering so early is, however, worth recording, and, what is of more importance, is the fact that if the present mild weather continues it will remain for some time a bright bit of colour that is most acceptable. R. Nobleanum is bright red. There is another variety of Rhododendron, with light pink flowers, which blossoms about the same time, but it is not so effective as Nobleanum.—J. C. C.

QUESTIONS.

5141.—**Weeds on lawns.**—What is the best way of destroying tap root weeds on a tennis ground?—E. J.

5142.—**Mushrooms.**—Is there any way of growing Mushrooms in the open air by spawn or other artificial means?—B. J.

5143.—**Lichens on Pear trees.**—What is the best remedy for Lichens on a plantation of Pears? Would paraffin oil, brine, or a solution of copperas be safe?—F. H.

5144.—**Moss under trees.**—Can anyone tell me how to make Moss grow under large trees where Grass will not live? Can it be sown the same as Grass? For any information on this matter I shall feel grateful.—E. B.

5145.—**Scale on Palms.**—Would any practical gardener kindly inform me as to the best means of cleaning large greenhouse Palms infested with white scale? Sponging takes up too much time.—Foreman.

5146.—**Cymbidium aloifolium.**—I have this potted in turfy loam, peat, and cow manure, and kept continuously moist. It annually makes strong growths, but they fail to flower. Any good practical hints as to its culture will be thankfully received.—Young Gardener.

5147.—**Plants for a conservatory.**—Will any reader of The Garden assist me in the selection of plants to furnish a lean-to conservatory which I am now constructing, 25 feet by 15 feet? As this is my first venture in glass, I should naturally be most grateful for a few hints. I am warming the new house with two 4-inch pipes all round and its aspect is south-east. I have constructed it with a view of using the centre for sitting in, and propose to make a 2 feet to 3 feet bed along the back wall. I should also like advice on the subject of plan for staging and width of the same. The only feeler I have is a set of three frames on brickwork with hot-water pipes through them. I want names and sorts of plants, Roses, climbers, &c., best adapted for my purpose. I should specially like to know when to plant in it some four dozen Eucharis amazonica bulbs I have in my frames.—Essex, *Ripple, Woodford.*

5148.—**Worms on lawns.**—Can any of your readers advise me as to the best treatment of a lawn under the following circumstances? The turf is exceedingly fine, having been constantly mown for 150 years; the soil is gravel, very firm and hard. Of late years lawn tennis courts have been marked upon it—too frequently in the same place—with whitening; this whiteoing has manured the turf, which has consequently grown faster and stronger along the lines than elsewhere. The moisture retained by this more luxuriant Grass has softened the soil beneath, and the worms have accordingly been attracted to these lines and are gradually working away the soil, thereby forming quite a series of narrow ditches in the level lawn. The destruction of the worms is probably the first and most important part of any remedy, but how can this be accomplished without damage to the turf? and what other means are there to preserve this lawn, which has hitherto been one of exceptional beauty? If lime water or other chemical mixtures are recommended, the exact proportion of ingredients is a most important point.—E. L. M.

5149.—**Vines outside or inside.**—A gentleman in my vicinity is erecting a vinery (a lean-to) with a southern aspect, and so situated as that there is no possibility of want of drainage, the back wall somewhat more than 12 feet high, and the front about 5 feet. Viewing the work with him to-day and some gardening friends, it appeared the making of a large Vine border in front would divert the course of an old-established walk, interfere with established fruit trees, and mar previous garden arrangements. Under these circumstances the question cropped up as to the merits and demerits of keeping the roots inside, outside, or, by means of arches, half inside and half outside. The house is broad, and in this connection the point further arose as to confining the roots, if planted inside, to a limited breadth, say by a dwarf wall reaching a few inches above the central walk. As there was a difference of opinion, would one of your correspondents kindly give the benefit of their experience? Variety not a *sine qua non.*—W. J. M., *Clonmel.*

*** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title and number of each query answered should be prefixed to each answer and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

NOTES OF THE WEEK.

Sale of Cattleya Percivaliana.—Two enormous masses of this Cattleya imported by Messrs. Sander & Co. were sold at Protheroe & Morris's auction rooms in Cheapside, on the 25th ult., and realised £105 and £126 respectively. Each mass was compact, and numbered over a hundred bulbs, all in admirable condition. One had flowers upon it, which showed it to be one of the finest varieties that has yet flowered in this country, and the other mass was warranted to be of the same variety.

International forestry exhibition.—The executive committee of the forestry exhibition to be held at Edinburgh this summer have obtained a site in every way suitable for their purpose in the grounds of one of the large hospitals which form conspicuous features in the suburbs of the town. The exhibition building will be erected in the park in front of Donaldson's Hospital; while the outdoor exhibits will be displayed in the grounds immediately adjoining, which belong to the governors of Heriot's Hospital. The tramway line from Edinburgh to the favourite district of Murrayfield runs directly in front of this ground, and there are two railway stations within five minutes' walk.

Sirop.—The *Pall Mall Gazette* lately had a note on a kind of fruit jam made under this name in that part of Belgium which lies between Liége and Aix-la-Chapelle, and which is known as "The Country of Herve." The "sirop" was highly praised by the correspondent of the *Pall Mall*, and recommended as a substitute for butter. M. Moren, of Liége, kindly sends at our request a specimen of this sirop, and it seems really good in quality and distinct from our own jams, not being so sweet. It is said sugar is not used in its composition. Since then a note has appeared in the *Pall Mall Gazette* on its manufacture, which we subjoin:—

I have received letters from members of various charitable societies in England requesting me to forward our recipe for making sirop. They all write that it would be such a boon to the British workman could it be adopted in England. The recipe is of the simplest character, and could be carried out in any cottage home in the event of no enterprising person undertaking to manufacture it wholesale. I have much pleasure in giving it: Place a large copper vessel over a small furnace and brick it round. Throw in the fruit, Apples and Pears mixed (unpeeled), about 200 pounds at a time, with about six or seven quarts of water; let this boil until it is reduced to the consistency of marmalade. This takes generally from six to eight hours, but would, of course, vary a little according to the quality of the fruit and the fierceness of the fire. When this is done, put it in a coarse cloth, into a very large colander, and press it well, so that all the juice is thoroughly extracted, and then replace this juice on the fire to boil for another six or seven hours until thickened and of a dark brown colour; 1000 pounds of fruit give about 150 pounds of syrup.—EMILE DE LAVELEYE, *Liége*.

The benchers of the Temple have lately wakened up, says the *Pall Mall Gazette*, to an appreciation of the value and cheapness of trees as decorative objects. Last spring the dreary greyness of Essex Court was broken by an experiment in plantations, which became last autumn a leafy success. This week Pump Court—the dreariest of all the Temple "quads"—has been slightly planted with the same hardy bark-shedders (Planes?), and we may probably soon look for more important plantations. The benchers, however, must not only plant, but uproot. Five or six years ago a hideous stucco fountain, stated to be Renaissance, but very suggestive of the New Road, was put up at great expense at a spot whence from time immemorial the water used to shoot. This hideous erection was protected with waterworks, with iron work, and with stone work. But, happily, our London roughs or idle errand boys have managed to batter it about. Of the three terra-cotta cranes or geese or swans two have been decapitated, and the surviving fowl looks altogether in a poor way. The fountain cannot rest as it is. Something must be done, and good taste would suggest that it should be in the direction of simplicity. Not so long ago there used to be a plain iron pipe, from which the water shot up into the air. It was inexpensive and inoffensive. That at least could be restored. The substituted improvement had plenty of taste about it, but it was all bad taste.

Sale of Orchids.—There was an unusually large attendance of Orchid growers at the monthly sale of flowering Orchids at Messrs. Protheroe and Morris's sale rooms, Cheapside. Some 400 lots were put up at auction, including some very choice kinds, some of which realised good prices. The following plants fetched the best prices: Lycaste Skinneri alba, with three flowers, 21 guineas; Oncidium superbiens Enoi, an extremely rare and handsome variety, 18 guineas; Odontoglossum crispum Dormannianum, best described as an extra fine guttatum variety, 19 guineas; another very fine variety of O. crispum, with large overlapping sepals, fetched 15 guineas; Epidendrum Wallisi, a good variety and a grand plant, 19 guineas; Lælia anceps Percivaliana, 10 guineas; a hybrid Odontoglossum from Mr. Bonny's collection, apparently Wilckeanum, 10 guineas; Cypripedium villosum, a fine specimen, carrying nearly half a hundred flowers, only fetched £5. Besides these the room was crowded with choice specimens of Cattleyas, principally of the Trianæ group, Dendrobes, Odontoglossums, Lycastes, and Lælias; in short, it was quite an exhibition of flowering Orchids.

ORCHIDS IN FLOWER.

Odontoglossum adspersum.—Messrs. Thomson & Son have sent us from their Tweedside Nurseries, Clovenfords, a flower of this new Odontoglossum, described in THE GARDEN last week (p. 54). As in the case of Messrs. Sander's plant, it cropped up among an importation, but in Messrs. Thomson's case there have been several plants instead of a solitary plant.

Odontoglossum Roezli.—Some flower-spikes of this Orchid and its white variety (album), sent to us by Mr. J. Bonny from his nursery at 88, Downs Park Road, Hackney, shows admirably what a superb plant it is when grown in perfection. Some of the spikes bear five and six flowers amidst foliage as much as 15 inches in length. We hardly know which to admire most, the typical form or the white variety. The white is extremely chaste, but the large, deep crimson blotches on the flowers of the type make them very attractive. The perfume of this Orchid is delicious, but it varies in the individual plants, some being much more powerfully scented than others. It is pre-eminently an Orchid for cutting, as it is so graceful, and the flowers last such a long time in bloom.

Percival's Cattleya.—Additional evidence of the high merits of this Cattleya is afforded by a spike of three blooms sent to us by Mr. Percival's gardener (Mr. Beddoes). The spike is cut from a plant that bore eleven flowers, and if as fine as those sent, the plant must have been a beautiful sight. The orchidists to whom we have shown the blooms all pronounce it to be the finest forms they have seen of the Cattleya. The flowers are much larger than usual, with broad sepals of firm substance, which causes them to stand out boldly. The colour of the sepals is a deep uniform lilac. The labellum is prolonged considerably; it is of a bright orange in the throat, then comes a blotch of maroon-crimson, while the exquisitely frilled margin is pale lilac. Such a form as this should, we consider, be regarded as typical of best varieties of Percival's Cattleya.

Ipsea speciosa.—This is a yellow-flowered terrestrial Orchid from Ceylon, where it is found growing amongst the long Grass on exposed hillsides at an elevation of 4000 feet to 5000 feet. We have seen this plant exceptionally well managed at Burford Lodge, and also in Mr. Bockett's garden at Stamford Hill. A few years ago we saw a nice pan of it at one of the Regent's Park exhibitions, where it received a first-class certificate. Along with the closely-related Spathoglottis and the true Bletias, this plant requires an abundance of water and light during its growing season, and a long season of complete rest until the flowers are borne. After flowering, the curiously compressed pseudo-bulbs should be repotted into a compost of sandy loam and peat, and on the appearance of the growth water should be liberally supplied. In short, a successful Pleione grower cannot do better than treat the Ipsea, and Spathoglottis also, as he treats his Pleiones. The long slender flower stalks of the Ipsea bear from one to four lemon-yellow flowers, which measure about 2 inches across. The lip is three-lobed, the front lobe being ridged; the inside of the lip is striped with purple-red. A handsome stove Orchid, and is now in flower at Kew.

Cattleya speciosissima.—A three-flowered spike of this magnificent Cattleya has been sent to us by Mr. Marshall's gardener (Mr. Lucas) from Belmont, Taunton. It is without exception the finest variety of this Cattleya that we have ever met with; indeed it is among the most splendid Orchids with which we are acquainted. The outspread petals measure fully 8 inches across and nearly 3 inches in width; the colour is a deep lilac, and the labellum is truly gorgeous. Its neck is of a deeper shade of lilac than that of the sepals. The throat is a lemon-yellow, heavily pencilled with crimson, while the lip itself is almost circular in outline and exquisitely frilled at the margins. Its ground colour is pale lilac, on which is a delicate tracery of rich amaranth. The resplendent hues of this Cattleya are simply indescribable, and we could wish that it were oftener met with in bloom than it is. Its perfume, moreover, is delicious and quite powerful.

Lygodictyon Forsteri.—During the past winter a plant of this elegant twining Fern was shown at one of the Royal Horticultural Society's South Kensington meetings. In general appearance it resembles the well-known Lygodiums, but possesses a freer habit of growth, attaining greater size. It is a beautiful plant, with the decidedly distinct look more or less present in Ferns, which, in addition to their fertile fronds, produce others that are sterile, the difference in the character of these being usually such as to give the plants a well-marked character. It is well suited either for pot culture, trained as a specimen, or planted out, or grown in a pot, as occasion requires, and employed to clothe a pillar or wall, for which purpose it is thoroughly adapted where there is sufficient warmth to keep it in healthy condition. It comes from the Polynesian Islands, and, although not a new plant, is not nearly so well known as it deserves to be.—B.

OBITUARY.

Mr. Thomas Brittain, a Lancashire botanist, died a few days ago at his house at Urmston. He was a prominent member of the Manchester Field Naturalists and Archæologists' Society, of the Manchester Mechanics' Institute, and of the Manchester Microscopical Society, of which he was president in 1882. He was a great collector of botanical specimens.

Stove climbers (*H. A. S.*)—In addition to those you name, procure the following half-a-dozen, viz.: Passiflora vitifolia and princeps, Jasminum Sambac fl.-pl., Bignonia venusta, Ipomœa Horsfallie, and Petræa volubilis.

Names of fruits.—*S. M.*—The Apple sent is not recognised at Chiswick; therefore it is probably a local variety.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*R. T. Martin.*—Cypripedium insigne.——*H. A. S.*—1, Passiflora princeps; 2, Cyperus alternifolius; 3, Adiantum hispidulum; 4, A. Sanctæ-Catherinæ.——*H. H. A.*—The red flowered Orchid is Ornithidium coccineum; please send more complete specimen of the Fern—a frond with spores if possible.——*J. K.*—Fern is Asplenium Adiantum nigrum; Orchid is Odontoglossum pulchellum.——*K. A. S.*—We have not received the plants to name.——*W. B.*—1, Cattleya Trianæ (fine variety); 2, Maxillaria melanopus; 3, Odontoglossum maculatum; 4, Oncidium unguiculatum.——*Enquirer.*—Eucharis candida.——*Xero.*—Oncidium Forbesi (average size)——*C. M. G.*—Apparently Olearia Fosteri, but should like to see another specimen before we can determine it correctly.——*Anon.*—1, Heath like plant is apparently Gnidia capitata; 2, small-growing Orchid is Epidendrum; 3, we cannot recognise the "Oncidium from Brazil."——*A. J. H. Ewell.*—Apparently Tecoma australis, but cannot be certain without seeing flowers.

No. 638. SATURDAY, Feb. 9, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LETTERS FROM INDIA.—No. 1.

LAST December I was on the mountains collecting Orchids and other plants for my garden, and having a day or two to spare, I visited the Government Cinchona plantation at Mungpoo, near Darjeeling. The road from the last-named place skirts the hill of Sinchel, and passes through a fine forest of evergreen Oaks and Magnolia Campbelli. I should mention that I was here in March, and that the hillsides were complete masses of the magnificent rosy flowers of this Magnolia. Where this plant thrives in England, I should advise the greatest care being taken with it, for here it really constitutes the beauty of the upper mountain forest. Our road to the Cinchona plantation led through a grand mountainous country, densely shaded, every tree and bush being covered with Moss and Orchids, the branches of the huge trees being perfect masses of Cœlogynes, Cymbidiums, and other genera. The ground, banks, and rocks about the mountain streams contain in themselves almost perfect collections of Hymenophyllums and Ferns of many orders. Several species of Tree Fern abound; one which I measured was over 40 feet high; one sort, probably Alsophila Oldhami, has branching stems.

THE RATTAN CANE is a fine sight, growing as it does in one or two places along the road, creeping up, or rather clinging to, the tops of the highest trees in such masses, that any animal would have great difficulty in getting through it. I spent about seven hours on the sixteen miles of road between Darjeeling and Mungpoo, arriving in the evening. Here I met old friends and gardeners, one justly celebrated for his success in Cinchona growing. Near the superintendent's house is a fine grove of young Cryptomeria japonica, planted, I believe, about ten years ago. Now the trees are upwards of 50 feet or 60 feet high. I wonder the Indian Forest Department does not plant the old used-up Cinchona plantations with some useful kinds of timber trees. I have been told that Tea does not succeed if planted after the Cinchona, but surely some use might be made of the thousands of acres of already cleared waste hill-sides. I noticed Broussonetia papyrifera planted in one place, but I imagined it was too high up. Cinchona trees are raised both from seeds and cuttings, and established in shaded nurseries in beds, planted out thickly. When about 9 inches high they are planted on the already cleared hill-sides. Planting is done during the rains. New ground is taken in, or, as a planter would say, "extensions" are made every year. Trees and jungle are cut and burnt, and the ground dug and sometimes terraced ready to receive the young plants when the rains occur.

OLD PLANTATIONS are cut down and thinned, young trees are pruned, and all the bark is scraped off into baskets to be dried, ground, and made into what is called febrifuge; other bark is sent to England for the manufacture of quinine. I went several excursions into the jhovas, or mountain streams. I passed down one where, two years ago, Vanda Cathcarti was to be seen in abundance hanging over the roaring torrent in an almost perpetual moisture bath. This time, however, I could not see one. Collectors from Darjeeling and London had swept this species off completely. Other Orchids were plentiful in some places, but very difficult to get, being far out of reach on the highest trees. Although a collector myself, I never take away all the plants of one species. I do not agree with making such a wholesale clearance as has been done in the case of this Vanda. Calamus leptospadix and other species were abundant near the rivers in sheltered places. Pandanus were grand, and one particularly fine Aralia spread out its leaves almost like a Tree Fern. Bird's-nest Ferns, hanging in masses with a long-leaved Asplenium, gave one an idea of how to arrange them in a conservatory. Of these I brought away several for my own garden. In some nooks in perpetual shade, and dripping wet owing to innumerable waterfalls, were masses of several species of Hymenophyllum and Selaginella. Places like this are so charming to a man fond of plants, that I almost wished I could live there always; they are, however, most unhealthy and dangerous, even for a day's trip in the best season of the year. C. MARIES.

NOTES FROM THE RIVIERA.

CANNES this winter has been far less favoured than other places from Genoa to Nice, and also the damage done by last winter has not been repaired as fully, because the frost has left traces that will take years to blot out. Thanks, however, to the abundant water supply and careful gardening, the grounds of many villas are now very beautiful with the masses of Acacia dealbata in full flower, shining as bright as any Laburnum in May with us. Acacia longiflora and A. cultriformis are just opening their first blooms; Acacia floribunda is charming as ever; and Salvia gesneræflora, Bethelli, Heeri, and leucanthema make bright beds where they have escaped frosty winds.

From some unknown cause the strain of both Primulas and Stocks seems less good than usual, the purple Stocks alone being really beautiful, and free from an overwhelming proportion of singles. Anemones as yet are not in beauty; the only good double ones are the pale flesh-coloured ones, with green or pink centres. None of the pavonina or fulgens type are to be seen as yet. Saxifraga ligulata is in great beauty at the foot of clumps of Bamboo, a situation that sets it off to particular advantage, the pale green feathery sprays contrasting so happily with the Saxifrage's dark green massive foliage and spreading heads of flowers. Pyrethrum fruticosum Halleri deserves notice as a really constant-blooming variety of the green-leaved section of the Nice or Paris Daisy, and will, I think, prove itself far the best for our English climate, where all such plants are apt to make too much growth at the expense of flower. There is a pretty fashion here of training the long shoots of any free-growing Rose up a stake for some height, and then making a garland or coronal of them; the effect is far superior to that of a standard Rose, and in this climate the shoots are renewed annually, just as we treat Raspberry canes. How rarely is Eucalyptus colossea seen, and yet how much more beautiful is it than the well-known Blue Gum, E. globulus. The leaves do not hang vertically on the small branches, but the broad, clear, green leaves spread out, like those of a Laurel, on each side with perfect regularity. After the luxuriant bushes of Heliotrope and glowing Bougainvilleas, that scent and brighten the more sheltered parts of the Riviera, the stunted and frost-nipped specimens seen here contrast but sadly; how happy, then, the distribution of gifts, for here the various species of Acacia grow with a luxuriance and beauty unknown in other soils and situations, earning for the gardens in this fair bay a name that now outbids even Alphonse Karr's once celebrated garden at Nice, where, as he boasted, you might plant your walking stick, and next year you would find a fine shady tree!—Phytolacca dioica, no doubt, being the (walking) stick he planted.

E. H. WOODALL.

SALTING WALKS.

IN THE GARDEN for November 24, "S. D." has given us his experience of salt when used for the destruction of weeds on walks; but his instructions would have been more valuable had he told us what is the best proportion to use per square yard of surface. This is a point of great importance, because a needlessly large quantity of salt would be expensive; and, on the other hand, if applied niggardly it would act as a manure, and instead of destroying the weeds would only promote their growth. I have found a slight top-dressing of salt, applied in July or August, improves the flavour of some kinds of roots, such as Carrot and Beet; and I am told that even sheep have been known to find out any place in a field of Turnips that has been manured with salt. Many years ago, when the subject of salt as a manure was being discussed in the *Agricultural Gazette*, I resolved to try it on a small scale in my kitchen garden, and to note down the results. The memoranda are unfortunately lost, but I have a distinct recollection of the manner in which the experiment was conducted. A border, divided into four equal and measured squares, was sown with white Turnip seed, with a carefully weighed proportion of salt in each, which was scattered over the borders and raked in with the seed. The first square received a very light dressing of salt, and in the second square the quantity was increased so as to correspond with that recommended in the paper just referred to. The third had double the quantity of No. 1, and the fourth double that of No. 3. In which of them the seedlings appeared first I cannot remember, but all came up in three of them within a very few days; but in No. 4 the salt appeared to have fairly killed the seed, and I thought I had got to the end of my experiment. However, greatly to my surprise about six weeks after I noticed a Turnip plant appearing here and there, and in a week or ten days most of the seed had germinated. I also tried the effect of salt on a few rods of ground in a field infested with Couch Grass or Twitch, as it is called here, and I found that to destroy it, or even to keep it down by means of salt dressings, would not only be too expensive, but would also render the ground unfit for general crops for a long period. Asparagus, it is well known, will bear a dressing of salt strong enough to destroy all kinds of weeds; and ordinary vegetable crops would hardly be safe with even a third of the quantity that could with perfect safety be disposed of on Asparagus beds. In the use of salt, therefore, whether for the purpose of destruction or repression, as a fertilising agent, judgment and experience are needed. It is evident that, until enough of the salt has been washed through by the rain, seeds will not germinate, and I think it would be found the same with gravel walks, and that unless the salt be supplied in sufficient quantity the weeds would begin to appear long before the flowers in the borders had been cut off by the frost. B. S.

Dividing Aubrietias.—There are some who are very successful in striking Aubrietias from cuttings, but there are others who fail to do so in a satisfactory manner. Where the latter is the case, the stock of plants may be kept up in a very simple manner, *i.e.*, by dividing some old plants. As we use the Aubrietia rather largely for decorating the flower garden in spring, we raise a fresh stock of plants every year and throw the old ones away. Either in the autumn or spring we select a dozen or more of the most compactly grown plants and pull them to pieces, being careful to get a bit of root attached to as many pieces as possible. The pieces thus divided are then planted out in good ground; the distance allowed

between them is 12 inches each way. They require to be pressed rather firmly in the soil, or worms will draw them out before they a good hold of the soil. In order to encourage them to grow the soil should be Dutch-hoed two or three times during summer; by the autumn they will be large plants. For our purpose we find A. purpurea and A. Campbelli two very suitable varieties; the last named has a neater habit than the other and is two or three weeks later in coming into flower.—J. C. C.

PLANTS IN FLOWER.

Victoria French Anemones—I send you some flowers of Anemones raised from seed sown last year. They are very fine, I think; the semi-double white and the Carnation-striped specially so.—Wm. Baylor Hartland, *Temple Hill, Butlintemple, Cork.*

*** Very fine flowers indeed, and, as Mr. Hartland observes, the semi-double white is particularly beautiful and distinct from the ordinary single race.—Ed.

Orchis Robertiana.—Mr. Kingsmill has sent us two flowers of this rare terrestrial Orchid gathered from plants in a cold frame. One flower represents the ordinary form of the plant; the other is larger, of higher colour, and probably a better variety.

Roses and Anemones from Nice.—From Mr. E. H. Woodall we have received a boxful of Crown Anemones and Cloth of Gold Roses from Nice in fine condition, indicating the sunny clime whence they come. The Anemones were, however, not finer than some which we received a short time ago from an Irish garden. The Roses were indeed lovely, and we could wish that the old Cloth of Gold were more grown with us than it is.

A pretty Violet.—I send you a few more pale blue Violets. I think you saw them before, but now they are in better order. I wonder what they are?—not that it much matters once one knows them to have good qualities. Somebody said, single Neapolitan, but I am pretty sure they are not that. The leaves are quite different, and these have not got the rather Wallflower-like smell of the Neapolitans, but more of the smell of the wild white.—G. J.

*** A pretty little plant with a delicate odour, deep-hooded flowers, and graceful habit; not at all of the monstrous sort. It seems a distinct variety of the sweet Violet.—Ed.

Crocus Imperati.—I send you a bunch of this Crocus, cut this morning, quite in bud. Their stalks were wrapped up moist to keep them alive, but during the journey you see they have become full blown. I send them, as I think it most interesting to gather flowers in bud and see them unfold their beauties in a room; so many more flowers are amenable to this treatment than people think, that I venture again to call attention to it.—H. Stuart Wortley.

Rhododendron argenteum.—A flower cluster of this Sikkim Rhododendron from Messrs. Dicksons' Pilrig Park Nursery, Edinburgh, shows well what a noble species it is. It has thick, leathery leaves, from 6 inches to 9 inches long, and of proportionate breadth, and very silvery on their under surfaces. The flowers, borne in huge terminal trusses, are bell-shaped, of wax-like texture, and white, except the base, which is stained with blackish crimson. Such a handsome plant as this well repays good culture, and those who can afford house room, this and several of its congeners equally beautiful might well be grown under glass. Messrs. Dicksons' nursery is one of the few in which fine plants of these Himalayan Rhododendrons may be met with. They are far more worthy of a place in large conservatories than half the commonplace plants which one sees there.

Seedling Hellebores.—A gathering of these have been sent to us by Mr. Ware from his nursery at Tottenham. They appear to be all descendants of the colchicus, olympicus, and guttatus types, and these having been evidently intercrossed, a considerable variety of tint has been obtained. Some have flowers as deep in colour as colchicus, some are intermediate between the latter and the white olympicus, while others again have the spotting of guttatus in a marked degree. One, we observe, is profusely spotted on a deep ground, and might be appropriately named colchicus punctatus. The forms of this section of Helleborus are now becoming so numerous, that it is difficult to apply names to them or even class them under their several types. Nevertheless, they are important winter flowers, following as they do closely after the genuine Christmas Roses.

Salvia elegans.—I send you sprays of this Salvia, which is one of the most distinct and charming of all the group, so good in habit and so very free flowering, and at the same time so distinct in colour; in fact, if the flowers never got beyond the bud stage the plant is well worth growing. It is, moreover, a late bloomer, and, associated freely with Eupatorium grandiflorum, blooms of which I also send, the effect is very nice.—T. Smith, *Newry.*

*** Apparently an elegant plant, but all the flowers had dropped before the spike reached us The foliage is scented like that of S. rutilans, which is called the Pine-apple-scented Sage. The Eupatorium is the finest of its kind we have seen, the feathery white flowers being borne in broad, flat heads. Salvia albo-cœrulea is also sent; it is distinct, and that is all that can be said in its favour; it may be better later in the season.—Ed.

Hardy plants in flower.—The following are among the more noteworthy of the hardy plants in bloom in the Hale Farm Nursery, Tottenham—viz., Ranunculus anemonoides, the new alpine Crowfoot figured in The Garden (Vol. XXII.); Saxifraga Burseriana, one of the most beautiful of all the alpine Saxifrages, forming as it does dense cushions of white flowers; Scoliopus Bigelovi, no great beauty, but an interesting North American plant in the way of a Trillium; Iris reticulata purpurea, a variety apparently synonymous with Krelagei, the earliest flowering form; Corydalis Ledebouriana, a new Fumitory, an interesting plant for early spring; Triteleia uniflora lilacina; Narcissus juncifolius and monophyllus, both gems among Daffodils, the one a rich yellow, the other a spotless white. Besides these there are Hepaticas, hardy Cyclamens, and Hellebores in great variety, likewise the two early Squills, Scilla bifolia and sibirica.

Early Sulphur Daffodil.—Some flowers of a charming Daffodil, bearing the somewhat lengthy name of Narcissus Pseudo-narcissus pallidus præcox, have been sent to us by Messrs. Barr & Son, King Street, Covent Garden, who have imported this variety from South Europe. It is by no means a new plant, having been in cultivation in Parkinson's time, and was figured by him in his "Paradisus" under the above name, though probably it has been lost sight of for a few generations. It is a grand addition to our list of hardy spring bulbous plants, and as a variety is distinct from any among the hosts of Pseudo-narcissi now grown. The flowers are somewhat larger than those of the native Daffodil, with a longer and wider trumpet, and the sepals, moreover, do not lean towards the trumpet, but are sufficiently firm to stand at nearly right angles to it. The colour is a uniform soft canary-yellow, or perhaps more nearly a sulphur shade. It has been in flower a fortnight in the open air. When better known it will undoubtedly be a favourite.

Primula floribunda.—This neatest of new Primulas is sure to be a favourite with all who are interested in the genus. Few can vie with it in the depth of its golden colour, which is deeper far than that of P. verticillata sinensis, and for brilliancy and clearness of tint we place it beside the well-known P. rosea. If the flowers are small they are not few, and being in four or five whorls, tier upon tier, the plant well merits the name which it bears. It is scarcely more than 6 inches in height, and from its naturally dwarf and compact habit it seems well adapted for culture in pans. This novelty has the merit of being quite distinct from any of its predecessors in cultivation, and it flowers in winter when gems of this kind are always welcome in the greenhouse. It has a woody rootstock, from which proceeds a tuft of spreading ovate or elliptical leaves, soft, with glandular hairs. The scapes, which are slender, with broad, leafy bracts, bear the flowers on slender pedicels; the corolla is half an inch in diameter, and opens quite flat. This species was figured last year in the *Botanical Magazine*, where it is said that the small section to which it belongs is remarkable for inhabiting comparatively very low elevations in warm countries. In hardiness this plant will be found probably to equal its near ally, P. verticillata sinensis; we have found it apparently happy on a shelf near the glass in a cold greenhouse. It occurs along the whole division of the range which extends from Kumaon to Kashmir, at an elevation of from 2500 feet to 6500 feet, and appears also in Affghanistan. It is flowering now in the Cambridge Botanic Garden. For its introduction we are indebted to the Royal Botanic Garden, Edinburgh.—R. I. L.

Toxicophlæa spectabilis.—Whether grown as a climber for the roof of a house, or a trellis, or as a small specimen plant, this Toxicophlæa is valuable in early spring. Handsome little bushes of it grown in a cool house all summer, then rested for the first month or so in winter, and brought into a warm house in January, bore in a short time a fine crop of their sweet-scented white Bouvardia-like flowers. There are several varieties in cultivation, some of them small-flowered and rather shy bloomers. There are three or four plants now flowering in the Palm house at Kew, one of which is a first-rate form, the flowers being large and very sweet-scented. The poisonous nature of the sap of these plants was well known to the Bushmen of South Africa, where the Toxicophlæas grow wild, and was used by them for poisoning their arrows.

Salvia boliviana.—This species is well worth notice now, when greenhouse Sages are somewhat popular; in foliage it is finer perhaps than any of its better-known compeers, and the brilliance of its scarlet flowers cannot be surpassed. The leaves are wrinkled, bright green, and have broadly heart-shaped blades, which attain a length of about 8 inches. The flowers are many in a whorl, forming dense racemes, which afford a long continued succession and produce a fine effect. Than this there could be no finer Salvia if these racemes were produced rather more freely at one time, but even as they are it is one of the best. In order to produce a satisfactory result it is necessary to be content with a few strong stems, and this consideration is more important than in the case of most Salvias. It is supposed to be a native of Bolivia. It is now in flower in the Cambridge Botanic Garden.—R. I. L.

Flowers from Gorey.—I send you blossoms of the white form of Crocus Imperati, which, though less pretty than the type, is interesting from being so rare. This, with other Crocuses sent to us from Italy the year before last, did not flower the first season. Crocus aureus is usually amongst the earliest, as well as the latest, of our spring flowering kinds. I also send C. stellaris and C. sulphureus striatus, as perhaps still prettier than the better-known Cloth of Gold Crocus. Erica carnea alba and herbacea have been in blossom most of the winter. E. mediterranea is flowering earlier than usual. There will now probably be an uninterrupted succession of hardy Heaths in blossom till late in the autumn. The chief secret in their successful culture seems to be layering the branches every second year and occasional replanting, thus preventing long leafless stems being formed and keeping the plants dwarf and compact. Flowers of Rhododendron dahuricum semperflorens are also sent.—C. M. Owen, *Knockmullen, Gorey.*

*** Of these flowers the most remarkable were those of the white Crocus Imperati, which is indeed a lovely variety. Its flowers are quite as large as those of the type; the three inner sepals are pure white, while the outer are a soft creamy yellow, deeper at the base. We have never seen this Crocus before.—Ed.

Indoor Garden.

HAKEA LAURINA AND OTHER SPECIES.

Although the largest genus belonging to the Protea family, the Hakeas are about the least beautiful amongst them, the hundred or more species described containing very few really good garden plants, and perhaps not one possessed of so much beauty as many of the Banksias, Proteas, and Telopeas. Fifty years ago, Australia, the headquarters of the Proteads, was an almost unknown country, and its natural productions revealed so many striking peculiarities, and differed so widely from those of countries better known, that for a time the natural history of Australia almost monopolised everybody's attention. Consequently, for a time, Australian plants were much sought after by plant lovers in this country, and at that time English gardens may be said to have teemed with representatives of the Australian flora. Plant catalogues and books of that period show how popular these antipodean natives were, and perhaps the most popular of all were the Proteads. The novelty and interest attached to these plants having worn off, many of them disappeared, and the operations of the law of the "survival of the fittest" have continued to reduce the number, until we have now comparatively few of these once popular favourites left. So far as regards the larger portion of the lost ones, horticulture has not suffered much by their disappearance, but as regards some of them we may say that there is much to recommend them for cultivation, even in these days of fastidious selection. The Banksias are, many of them, magnificent flowering shrubs; and even when out of flower their leaf characters and habit are far from being unornamental. In Andrews' "Botanical Repository" there is a series of plates of some of the finest of these plants, and the rare beauty and peculiar form of many of their flowers would create quite a sensation if some one could surprise the Royal Horticultural Society with a bunch of them at one of their meetings, as Mr. Green surprised them and all who saw his flowers, with the splendid Waratah (Telopea speciosissima), figured in The Garden last year. To anyone interested, we would suggest a peep into Andrews' book, where the representations of Banksias are beautifully executed, and show what a fine Protead flower really is. Of the Hakeas, Kew possesses some twenty species, and at Glasnevin there is a very fine collection, some of which, such as H. Victoriæ, are not wanting in attractions, even when not in flower. H. laurina, here represented by a small flowering branch, is one of the best known in this country. When well developed it forms a shrub, or even small tree, from 20 feet to 30 feet high. The crimson heads of flowers, borne in the axils of the long, lance-shaped leaves, appear early in spring and last for several weeks. The individual flowers are very similar to those of the nearly allied Grevilleas, but in some of the species they are packed so closely together in clusters as to appear like one large flower rather than a great number of small ones. H. Victoriæ is a stout, erect branched shrub, about 10 feet high when fully grown. The leaves are as large as the palm of the hand, concave like an oyster-shell, and margined with spines. The nervation of the leaves when young is yellowish, becoming orange as they grow older, until when ripe it is almost crimson, which, contrasted with the pale green of the remaining portion, has a fine appearance. The flowers of this species are small; they are developed in the axils of the leaves, which almost hide them from view in their concave blades. At Glasnevin there is a beautiful specimen of this species. H. ruscifolia, with leaves like a Butcher's Broom and small brownish Grevillea like flowers; H. linearis, with small spine-like foliage and white flowers; H. acicularis, and H. corymbosa, along with several others, are cultivated in a few collections, but are not exactly what would be looked upon with favour by most people. The cultivation of these plants is simply keeping them in a dry cool house, giving them little or no water in the winter, and watering and syringing them rather freely in spring. They prefer a peaty, stony soil. As regards propagation, seeds are the only reliable method, as cuttings do not strike readily. H. Victoriæ is certainly deserving of much more favour than it at present enjoys.

B.

Flowering twigs of Hakea laurina; flowers crimson tipped with yellow (natural size). Sent from Cannes, Dec. 21, 1883.

BLUE-FLOWERED GREENHOUSE PLANTS.

Pleroma elegans.—Although the flowers of this have more of imperial purple than blue in their composition, yet when well grown it is a charming plant, and one which flowers abundantly even in a small state. It is easily propagated from cuttings taken off with a heel when the wood is nearly ripe. They should be covered with a bell-glass and placed in a shady part of the greenhouse, where they will form roots in about a month or six weeks. The young plants must be constantly pinched in order to keep them dwarf and bushy. When well established in their flowering pots, they may be kept in the greenhouse through the winter, which is their resting season. In February or early in March place them in a temperature of 50°, rising to 55° as growth progresses, and when the flower-buds are well advanced replace them in the greenhouse. Although the flowers individually do not last long, others open in succession, and thus the flowering period is maintained for a considerable time.

Leschenaultia biloba major.—When Mr. John Fraser, of the Lea Bridge Road Nurseries, was an exhibitor of stove and greenhouse plants, a handsome little specimen of this Leschenaultia was to be found, as a rule, in the front row of his collection, and it aided greatly to place him where he usually stood, viz., first on the prize list. I have not seen this Leschenaultia for some years—not since we grew it in our own garden. It is, however, a plant well worth attention, and one which is easily propagated from cuttings. Young plants raised in this way should be grown on in a light, airy part of the greenhouse; the slender growths should be pinched frequently and carefully tied out into proper form; peat, with just a little loam added to it is the best soil in which to grow it. Thus managed, it will produce a mass of most charming blue flowers in June.

Hovea Celsi.—This is another plant not often seen now-a-days and very rarely well grown. If allowed to follow its own mode of growth it will throw up slender shoots several feet long in a season, and these will produce flowers freely enough at their extremities. Now, it is just possible that some may say, "If such is the way in which the plant grows naturally, why try to alter its habit?" I have tried to tie down the growths, hoping they would break out at the bent portions, but I have not found this plan to answer very well. The best way is to constantly pinch back the young growths. In no other way can a properly-flowered bush be formed. Begin pinching as soon as the young plants are potted off from the cutting pot. Pinch down to the first pair of leaves, and as often as lateral growths are formed pinch them back closely. By thus keeping constantly stopping a good bush

will be formed. After the first bloom is over, cut the shoots back and encourage fresh growths, every one of which will furnish their quota of pretty purplish blue flowers. J. D. E.

CULTURE OF THE BALSAM.

It may be stated, without fear of contradiction, that a fair experience of contemporary flower shows makes it evident that, while in most schedules of prizes there are to be found classes for Balsams, the plants that are exhibited are much too frequently quite unworthy the prizes awarded them. What is more, judges are generally found complaining of the indifferent quality of the examples staged. And yet it is not difficult to grow Balsams well. Exhibitors sometimes say that it is difficult to obtain a good strain of Balsams, and that the plants they raise from seed are of irregular growth and the flowers scarcely semi-double, much less fully double. But it is not difficult to obtain a good strain, and there is reason to believe that charges are laid to the account of the seed which are attributable to bad cultivation. Some are found asserting that it is difficult to grow Balsams well, but surely this is a mistake. Last summer, when looking through some seed grounds I saw growing in the open a batch of very fine and symmetrical specimens of Balsams, representing the strain sent out by our best firms. The habit of growth was perfect, and the quality of the flowers all that could be desired. If such plants as this can be grown in the open air, why not in pots?

When well grown the Balsam is one of the showiest of tender annuals, and, perhaps, saving the tuberous-rooted Begonia, the one best adapted for conservatory or house decoration from July to September, but it is a plant requiring almost daily attention in order to grow it with requisite vigour, and to produce good handsome specimens say 30 inches in height and nearly as much through, with each branch covered with bold double flowers as large as those of a Carnation, and double as those of Camellia imbricata. Such specimens must have good cultivation to get them up to the mark, and it is our endeavour to assist growers by setting forth the following cultural rules, the result of long experience.

It is scarcely necessary to give directions for raising Balsams from seed Perhaps the seed is sown much too early in not a few cases; the best time is about the first week in April The soil should be of a free, light nature, and as soon as the seed-leaves are fully expanded, the plants need to be transferred singly to well-drained pots, and be inserted in the soil so deep that the leaves only appear just above the surface. These young plants should be kept close for a few days in a temperature not exceeding 65°. Then when they begin to grow air should be given, and care taken always to keep the plants close to the glass to prevent them from becoming drawn.

Supposing that the plants are in this stage of growth, we may say that free-growing semi-succulent annuals like the Balsams require -1st. All the light our climate affords, which suggests clean glass, and that the plants, during all the stages of their growth up to blooming, should be kept as near it as practicable. 2nd. A rich, open compost to grow in, through which the roots will readily ramify and penetrate, and rich enough to furnish them with food sufficient to keep the top growing freely. The great demand made on the roots during the period of active growth suggests that liquid manure or one of the useful fertilisers now so much employed by gardeners is a useful and, indeed, indispensable auxiliary to keep up the vigour of the plants, and may be applied freely when the pots are full of roots. 3rd. Bottom-heat to give every encouragement to free growth. The application of a mild bottom-heat from the first stage of the plant's growth till the bloom buds are formed should be maintained. When the buds are all duly formed and any extension of growth unnecessary, the bottom-heat should be allowed to die gradually away, so as to harden the plants to bear the comparatively cool temperature of the greenhouse while blooming. 4th. Air during every stage of growth. The Balsam, being a quick-growing succulent plant, requires a large supply of air, that the plants may not become drawn and slender, but kept short-jointed and of a stocky habit, so as will enable the lateral branches to support themselves without stakes until the blooms expand, when they may perhaps be required to support their weight.

Now, as to soil, one very successful grower of the Balsam makes up a compost of half-decayed turf, calcined clayey loam, half-rotten horse droppings rubbed through a half-inch sieve, and bone dust. He states: "The clayey loam I calcine sufficiently, and it acts as a drainage to the soil. In the absence of this ingredient, soft bricks, broken to the size of filberts, may be used. The turfy loam may comprise rather over one-half the mixture, the manure and drainage material the other. A handful or two of bone dust may be used or not, but it is not necessary until after the first shift or two."

I think Balsams are too frequently starved for want of shifting when they become pot-bound, and this condition is always fatal to the plant. Balsams that are well grown need shifting once a fortnight until they have reached their proper size. Market growers of the Balsam do wonderful things with this plant in 4-in. and 6-in. pots. But the market grower has a special system of culture and special houses in which to grow his plants. He gets them into a certain sized pot, and has neat, symmetrical, well-grown specimens large enough for market and decorative purposes, but not for the exhibition table. As a matter of course, he feeds profusely, and has the plants always under his eye. He has a few varieties bearing flowers of a fully double character, and by means of selection he has secured a strain of compact and stocky growth. Gardeners can scarcely be expected to emulate the market grower, but they can do more with the Balsam than is generally done; and one essential condition is that they give it more attention and bestow more pains on its culture if they would succeed in rearing specimens worthy of a place on the exhibition table.

R. D.

PLANTING OUT V. POT CULTURE.

The pot system of growing plants may be described as a restrictive one, and the planting-out system one which permits of free growth. A plant in the open ground, or in the border of a well-managed conservatory, grows fast, acquires a rich, deep green, healthy colour, and produces its flowers and fruit as soon as it has arrived at the proper age; on the other hand, the same kind of plant, under the same circumstances and under the same management, but kept in a pot and subjected to a course of shifting, although it may be healthy at first, soon ceases growing, and becomes yellow and starved. This latter is the condition of numbers of large stove and greenhouse plants in many gardens. One has only to look at pot specimens of such subjects as the Stephanotis, Camellia, Clerodendron, Dipladenia, Ipomæa, Allamanda, and Passiflora, &c., to notice how such plants are excelled by good planted-out specimens. Some of the most remarkable examples of the plants named, as regards health and flowering, have been planted out. Bougainvilleas and Stephanotis, which I once saw at Lord Wimborne's, in Dorset, growing in the border and having head room on the rafters of the roof, were simply magnificent, and I have rarely seen such clusters of Stephanotis as I saw there, quantities of which were cut for sending to London. Unless the plants must necessarily be portable, and therefore kept in pots, it is the wisest plan to plant out either in small pits, to which the roots will be confined, or in the borders, inside if possible; but many greenhouse and intermediate subjects will thrive well with their roots quite outside the house, like Vines. I once had Acacia Riceana, Fuchsias, Rhynchospermums, and other plants growing in this way, and I have now Allamandas, Clerodendrons, Camellias, and Stephanotis, &c., all of which show what planting out can accomplish.

A remarkable case of Camellia culture came under my observation that bears on this question. For some years the plants—pretty old ones most of them—had been grown in slate tubs. While the plants were young, and had roots enough, they grew freely, and reached a tolerable size; a large house on the ridge-and-furrow principle, and glazed with rough obscured glass, had been provided for them; but in the end they grew so stunted and poor that something had to be done with them, and they were planted out in a prepared border of light loam and peat. I did not see them till a few years afterwards, and when I did I should not have recognised the same trees, they were so greatly altered and improved. This collection, and the quantity of blooms it has borne, has often been commented on in the gardening press. On one occasion I planted a small plant of Allamanda out of a 3-inch pot into an 18-inch one, and the year following into a much larger one, a tub, in fact, deeply plunged in the border, and in two years it had covered the space (20 feet by 4 feet) allotted to it. More room was given it, and it now extends 40 feet in a broad, even arch, and flowers famously for months in succession. It is, indeed, mere waste of time potting climbers and other permanent plants that are wanted to cover walls and rafters. Plant them out in a temperature that suits them, give them the room they require and light and air, and something is radically wrong with the management if they do not succeed. I saw lately a plant of Clematis indivisa lobata covering the roof of a low span-roofed house that was a sight to be seen—the growth of two short years. The flowers were in thousands, and the plant was planted out on the floor. This is the way to grow this plant to have it in perfection. At the same place one of the most remarkable planted-out Stephanotis was also to be seen—perhaps one of the most wonderful examples of culture in the country.

How to plant and train.—Bush plants, like Camellias and the Luculia gratissima (which will only thrive well planted out), need very little attention, except that the last wants spurring close in every winter, but they must have a good bed of soil about 2 feet deep, thoroughly well drained, to grow in. Each bush may be bricked in by itself, if needful; but all should be levelled up full, so as to prevent evaporation from the sides of the division. The Lapageria is a plant that cannot be grown successfully long unless it be planted out, and the way in which it will stand out under such conditions is sufficient to show anyone, contrary to common opinion, what an easy plant it is to grow. When a greenhouse or stove bed cannot all be filled up with suitable soil for the roots of plants, the subjects planted out must be confined to a limited space; a good and ready way of doing this is to divide a square space off by means of flags or slates set on edge, packed round the outside, and filled in with suitable soil. This enables one to know always where the roots are, and, should the plants have to be shifted at any time, it is an easy matter to pull the flags away and get the ball of roots out intact. Bricks may be used as well, but they must be set in mortar. Two feet of soil is a good depth for most subjects, including 3 inches of drainage, but more will do no harm in the case of gross-growing trees. In lofty conservatories, planting out in the open border is the best plan. Under such circumstances a seedling plant of Acacia Riceana, one of the finest of cool house climbers, will grow 50 feet in a few years, and extend laterally in proportion. The strong-growing Fuchsias (pendulous kinds are best) will grow even faster, to 20 feet or 30 feet, and may be pruned in annually like Vines, with the certainty that each year the side shoots will grow 4 feet or 5 feet, droop gracefully down, and bloom profusely. The Tacsonia Van Volxemi will cover a large roof in two years, and by planting several plants at opposite points the largest building may be covered with it in one year, and it is sure to flower. The Maréchal Niel Rose, where it succeeds, and the Gloire de Dijon grow almost

as fast under glass, and so does the Cheshunt Hybrid. The common Heliotrope rushes up in a year to the top of a rafter, and lives for years. Jasminum grandiflorum, white and scented, grows fast also, and the Clerodendron Balfouri and the Stephanotis ramble and grow almost faster than one can find time to train and attend to them. But all depends on planting out and finding room for the tops, and a free, sweet soil for the roots.

What applies to flowering plants applies also to fruit trees, and it is the realisation of the fact that large planted-out trees are far more profitable to grow than pot orchard-house specimens that are continually needing attention that is causing the culture of these to be discontinued. Whenever the purpose is to have crops of good fruit produced soon and with regularity, at the least cost and trouble, planting out is the plan. The trees may be divisioned off, as recommended for plants, but they should be small, and be only divisions of the border, abutting against each other. This plan is most applicable to modern houses of the span-roofed description, which one wonders to see on occasions crowded with pot plants in great variety, and too frequently fruitless, where planted-out trees would succeed excellently. W. J.

TORENIAS AND THEIR USES.

One or two plants of the different kinds of Torenia deserve a place in every greenhouse and conservatory. They may be planted in mixed borders out of doors, using strong healthy plants which have been well hardened off in a cold pit or frame before being planted out. In cold situations after planting I have covered them with handlights at night, and upon cold, windy days for a week or two, until they have got perfectly acclimatised, taking care to remove the tops of the lights during the daytime, and afterwards dispensing with the lights altogether when the plants have got well established. If at hand, a few large bell-glasses will do equally well where there is only one plant to cover, but with ordinary sized hand-glasses four or five plants may be put under each, which will form large patches, and when in flower be very showy. The two best species for outdoor cultivation are the yellow kind called Bailloni, a sort which produces long trailing shoots that are very floriferous, and Fournieri, also a good plant, which produces blue and white flowers upon rather more compact and stronger branches. When planting give a portion of light sandy soil to each plant, *i.e.*, if the soil is stiff and inclined to clay, as their roots are very fine and seldom do well in stiff cold soil. Under glass this Torenia may be had in flower the greater part of the year. It may either be grown from seeds or propagated from cuttings made of the young shoots. I have always found the strongest growing plants to be those produced from seeds, and as a rule they will be found to produce the best crop of flowers. The seeds may be sown either in shallow pans or pots, using plenty of drainage. The best compost is a mixture of turfy loam and leaf mould, using a portion of peat and plenty of sharp silver sand to keep the whole porous. After the pots are ready to be sown, water the soil through a fine rose. The seeds may then be sown and covered lightly with some fine sandy soil. If early in the season, place the pots upon a warm hotbed or in a greenhouse having a temperature of about 50°, but later in the season they will germinate in a cool pit or frame. As soon as the young seedlings are large enough to handle, fill some 3-inch pots with soil the same as that used for the seed pans, prick three young plants round the sides of the pots, water through a fine rose, and place the young plants in the same temperature as that in which the seed pans had been standing. When large enough to pot off singly, use the same compost as before, only in a rougher and lumpier state, and use a less quantity of sand, placing the plants singly in 3-inch pots, when they should be placed in a cool, moist house or pit, as close to the glass as possible, in order to keep them short and stocky. As soon as the plants fill the pots with roots they should be repotted into larger pots, using the same compost, for, if allowed to get pot-bound, they will suffer, and be attacked with red spider. Five-inch pots will be found to be a useful size in which to flower them, and by feeding them either with liquid or some artificial manure, they can be made to produce an abundance of flowers for a considerable time. When large plants are required, some may be grown in 7-inch and 8-inch pots. I have grown plants in 12-inch pots that were very useful in the greenhouse. When grown as specimen plants, the compost should consist of good turfy loam, broken into pieces the size of Walnuts, using one-third fibrous peat, a portion of rotten stable manure, and plenty of broken potsherds as drainage, as the roots of Torenias are very impatient of wet. W. C.

AFRICAN LILIES.

The blue-flowered African Lily, or Agapanthus umbellatus, is not nearly so much grown now as formerly; at one time it was met with in nearly every garden, but now one seldom sees it. The reason for this is difficult to find, as it is a very accommodating plant, needing but little attention, and that only of the simplest kind. For instance, when in the form of large masses, it should be protected during winter by a cold frame, or be placed in a greenhouse, and as soon as all danger from frost is over it may be set or plunged out of doors, and, if copiously supplied with water, will make a striking object about the end of July, by reason of its large globular heads of blue flowers, which continue in beauty for a long time. Though hardy, or nearly so, in some parts, in the neighbourhood of London it needs a certain amount of protection—just enough to preserve it from frost, and nothing more. It is a very free-rooting plant, and flowers best when somewhat pot-bound if plentifully supplied with water when growing. At that time a little weak manure water will be of great assistance to it. When the pots or tubs in which it is placed are full of roots, and the plants are as large as is required, they will stand a great many years without repotting, and be all the better for it. The white-flowered variety is but sparingly distributed, but it forms an admirable contrast with the better-known blue kind either as a conservatory plant or when outside. It is in all respects a counterpart of the blue Agapanthus, except in colour. Blooms of these in a cut state last a long time in water, and the individual flowers of the white variety are very well adapted for bridal bouquets and such purposes, as, from their length of stem, each blossom can be wired singly. Again, for bold arrangements of cut flowers, the entire heads of blossom of either colour are very imposing. The smaller kinds, A. minor and Mooreanus, are also very pretty, and do not require so much room as the others in which to develop themselves. The variegated form of A. minor is in no wise a desirable kind. These plants can be increased so readily by division, that there is no need to resort to any other means for their propagation, but still large quantities of seeds are produced, which germinate freely, and the young plants make rapid progress. This method of increase is, therefore, worth attention, as among the young plants there may be some new varieties. I have flowered a number of seedlings from A. umbellatus, and there is a wide range of colour amongst them, varying from a pale greyish blue to a very deep-coloured form. In habit also the plants differ very greatly. Sow the seeds as soon as ripe in pots or pans of sandy soil, and place them in a greenhouse, or, better still, a slightly higher temperature, till germination takes place, when a greenhouse will be warm enough, and in it they can be kept till they flower, which in my case took three years. H. P.

Anthurium splendidum.—Whatever the conditions may be under which this new Anthurium grows in a wild state, its requirements under artificial treatment seem to be something beyond what is sufficient for most of the Anthuriums. Although the foliage has such a soft, delicate appearance as to suggest that a damp atmosphere would prove fatal to it, yet so far it would seem that the ordinary atmosphere of the stove is far too dry for it, a steaming close atmosphere, such as that used for the propagation of Nepenthes, being the only medium in which this delicate Anthurium appears to thrive. Treated thus, the soft, green, puckered foliage assumes a healthy and attractive appearance. A bell-glass placed over a pan of Sphagnum in which the pot containing the Anthurium is plunged would prove suitable for the cultivation of this plant. In any case, excessive heat is required. So far as is known at present, this beautiful and very distinct Anthurium is likely to prove exceptionally delicate under cultivation.—B.

5139.—**Todeas** do not, as a rule, require potting nearly so often as some other Ferns; a 10-inch or 12-inch pot is large enough to accommodate a plant of T. superba 4 feet across. The best soil for Todeas is good fibrous peat, such as that in which Orchids thrive, broken in pieces as large as hen's eggs, with one-fourth of Sphagnum added and some charcoal or coal cinders and sand mixed with it. Drain the pots well, otherwise the soil will get sour with the saturated condition it is necessary to keep it in. In potting do not disturb the roots further than removing the crocks; put about half-an-inch of Sphagnum over the roots that now exist at the top of the ball, the presence of which is an evidence of the plants being in good condition. As to their requiring potting or otherwise, that depends on the length of time they have been in the pots they now occupy, and the size the plants are in proportion to the pot room they have. Give no more heat than just enough to keep out frost. As a matter of course, to grow them well they must be confined in a glazed case of some sort, so as to keep the atmosphere humid, but do not at any time syringe overhead; they are immeasurably better without this mistaken kindness. I find there is no place that will grow this Todea better or larger than near a north window in an ordinary sitting-room, where there is a fire in winter only, and that not regularly. It is about the best and most satisfactory room plant I know; if placed so near the window that the sun in the afternoons in summer comes round on them, a thin piece of muslin should be laid over them whilst the sun is shining, but not at other times. The pot should be set in a dish or plate on a few pebbles to keep the soil from getting waterlogged. In a moist, close case they will not require water more than once a month in winter; during the time of active growth they should be watered every week.—T. B.

Trichinium Manglesi.—This is generally regarded in the light of a miffy plant with which to deal, and to some extent it is—that is to say, rather more care must be taken with it than with such things as Fuchsias, Pelargoniums, and Begonias; but without one-half of the care and trouble bestowed on some of the Orchids, this Trichinium will flower freely, and remain in full beauty for months. Its large cottony heads, with bright pink blossoms protruding therefrom, are so unlike the blooms of the general run of decorative plants, as at once to attract attention when associated with them, but so situated it is seldom seen. Regarding its culture, it must not be treated in the way that is too often done in the case of plants that flower during summer, viz., placed almost anywhere in winter and early spring, as at that time it is in full growth and the future flowers are formed. Different soils have been recommended for it, but the best results in my case have been obtained by using a good friable loam, full of vegetable fibre, with a fair proportion of silver sand. It should be potted in autumn when flowering is over, and very little of the old compost should be allowed to remain attached to the roots. After potting, the plants should be kept in a cool greenhouse with but little water till growth becomes active in spring, when more water may be given, but at no time should they be overwatered. If it is desired to increase the stock, there is only one course available, and that

is by means of root cuttings; in this way large numbers can be obtained in the following manner: When potting remove any of the larger roots that can be spared; cut them up into bits about an inch long, and dibble them thickly into well-drained pans filled with soil consisting of a mixture of loam and sand, about three parts of the former to one of the latter. This done, place the cuttings in the warmest part of the greenhouse, or the coolest end of an intermediate house, and give no more water than is absolutely needful to prevent drying up till the young leaves make their appearance, when they must be potted off, using small well-drained pots for the purpose. Do not throw away the pans when the first are potted off, as the young plants are generally very irregular in making their appearance, and will continue to come up for a long time if not overwatered. In putting in the cuttings, keep the upper portion just below the level of the soil. —H. P.

NOTES.

On Potatoes.—Mr. Baker's observations are interesting, and it is to be hoped will lead to good results. All our cultivated varieties of this esculent have hitherto originated, as Mr. Baker informs us, from Solanum tuberosum, which grows wild in the Chilian Andes, where for a portion of the year the climate is very dry. Five other wild species are known which yield tubers, and of these five, two are recommended for trial on their own account, or for hybridisation with suitable varieties of S. tuberosum. These two kinds are S. Maglia and S. Commersoni. The last named is synonymous with the supposed new species, named S Ohrondi, recently alluded to in the *Revue Horticole* as having been grown for two or three years by M. Blanchard at Brest, and by M. Carrière in the neighbourhood of Paris. In the lower parts of Chili and near Valparaiso, where the climate is much more humid, S. tuberosum is represented by S. Maglia, while in Brazil S. Commersoni abounds in many varieties. As both these species are found naturally in districts where the rainfall is far higher than in Chili, it is assumed that they may prove even better suited to our moist summer and autumn climate than the varieties of S. tuberosum. Whether this will prove to be the case or not we cannot say, but experiments in their culture and hybridisation are well worth a trial.

Suggestions.—Apart from the mere question of Potatoes—important as that question really is in all agricultural districts—Mr. Baker's paper opens up quite a series of questions as to the antecedents and pedigrees of many other plants valuable to field and garden alike. We all know that Vine culture in America is mainly due to the improvement of native species of Vine rather than to the introduction of the Asiatic species, as with us. Even in the case of Apples—although English or Russian varieties were originally introduced—American growers now rely mainly on varieties which have been originated in their climate. Fine as are our own best seedling Pears, Apples, Plums, Apricots, and other fruits, it by no means follows that an all-round state of perfection is reached, and the introduction of wild types and of varieties from Europe and Northern Asia might lead to still further improvements being made. It is said that the varieties of American Grape Vines are rarely, if ever, attacked by the Phylloxera, and their use as stocks on which to engraft the French seedlings of Vitis vinifera, or "wine Grapes," has been, in some measure, a success. Our present-day Strawberries leave us little to desire in point of size, but we may yet get a little more of the exquisite "Pine" flavour with advantage, and somewhat of that persistent habit of fruiting so characteristic of the alpine kinds. In a word, there is a host of wild species and varieties of fruits and vegetables well worth collection and culture with a view to hybridism or cross breeding.

From Tokio.—The Chrysanthemum is just now November 3, according to a *Daily News* correspondent, brightening up all the highways and bye-ways of Japan, and the sovereign lord, whose family have for centuries worn the flower as their crest, bade some 500 guests to see the show in his palace grounds. Regarded as a flower show, there is none in the world equal to the spectacle. Three single plants, occupying a shed of considerable size, displayed between them over 1200 perfect flowers. One alone yielded 413 blooms, and the others were less only by a few units. In Japan the art of the gardener seems to be guided in the direction of producing a Chrysanthemum of feathery form and delicacy, long slender petals rising in exquisite fringe; of these there were abundant specimens, perhaps nothing rare in colour, but in development of size and graceful form beyond anything dreamt of in the Temple Gardens.

Chrysanthemum reform.—The foregoing paragraph suggests how a little improvement is possible in the culture of this now most popular of winter flowers in our gardens here at home. A specimen with 400 flowers, "of feathery form and delicacy, long, slender florets rising in exquisite fringe," would open the eyes of the average cultivator who delights in globular flowers, stiff, solid, lumpy in outline, and altogether repellant rather than attractive to tasteful and artistic people. The common idea is that Japanese Chrysanthemums are tall, lanky, and shy-blooming, but in Japan the case is evidently different, and "our own cultivators" must find out a plan of improving matters if they will. Florists proper may like to emulate each other in the growth of enormous globular blooms for exhibition, but what most employers desire is plenty of beautiful flowers for cutting for personal wear or indoor decoration. The florist of to-day has lost his power of forming public taste; his mission as a floral schoolmaster is gone—a result mainly brought about by the market growers, who have educated the public to admire flowers really beautiful by producing them in large quantities at a cheap rate. No amount of opposition can stay the movement in favour of Chrysanthemum reform; it can only help the good work onwards.

The Rush Lily is even thus early hanging its shining, satin bells aloft on its slender Rush-like stems. It is sometimes called the "Satin Flower," but those who love its fairy-like blossoms, which sway and toss even thus early in the wind, may call it by whichever English name they like best. The Latin name is Sisyrinchium grandiflorum, and there are both white and claret-coloured forms, the ruby-blossomed kind being considered the typical one. Coming as it has done this season with the golden buds of the Winter Aconite and attended by those "milk-white maids in waiting," the earliest Snowdrops, its flowers are especially welcome. Our soil is deep, sandy, and very moist, especially during winter, conditions which it apparently enjoys, since I note the clumps are spreading and flowering more strongly than ever. Last year we had half-a-dozen pots in the greenhouse where its flowers were much admired, being there seen at their freshest and best, untorn by winds and not rain-bedraggled, a fate which too often befalls them out-of-doors. A few of its Rush-like stalks placed in a specimen glass indoors gradually open their glistening buds and endure fresh for several days.

Calanthe Veitchi.—Little by little our knowledge of Orchids and their vagaries increases. Spotted varieties of Odontoglossum Alexandræ vary in depth and distribution of colour from year to year; and so of this rosy Calanthe, its depth or richness of colouring is in the main dependent on cultural conditions. I thought at one time that there were two or three seedling forms at least sent out originally, and that this might account for some differences of colour. Then we heard of the cone-shaped pseudo-bulbs of one variety and the thin-waisted or constricted bulbs of another, but we have this year had proof of the instability of these distinctions, some of our cone-shaped bulbs having this year developed constricted ones, and *vice versâ*. Strongly grown near to the glass in a hot and moderately airy house, and aided as the leaves attain some size by a little clear sheep manure water, large bulbs and strong spikes are easily obtained. Pale "forms" are quite easily produced if the plants are shaded, but if the bulbs are staged in full sunshine during October and November, something approaching a rosy crimson hue is possible. Well grown, but few other Orchids equal this for show during winter, and but few others are more impatient of cool treatment.

Jasminum nudiflorum.—As a bright and cheerful Japanese wall shrub this is perhaps a little too much neglected. It looks lovely now in contrast with red-tinted Mahonia leaves, or as trained on walls near to bronzy-hued Ivy. Allowed to hang gracefully away from the wall, its long Rush-like shoots are now strung with yellow buds and blossoms. Apart from the pretty way in which it bespangles old walls of soft grey stone or mellow brickwork, its long shoots of yellow buds are very lovely when cut and arranged in tall glasses indoors. If cut with a good long length of stem and simply placed in a narrow-necked vase, you might easily mistake them for a handful of Jonquils, especially if a few of the green flowerless shoots are added to the group. Planted along with Pyracantha or with some of the red-berried Cotoneasters, this plant will afford some pretty effects—in fact, a sparkle of colour quite lovely when lit up by January sunshine. Another pretty way of growing it is on the ground among stones and mossy Saxifrages. In this way it roots freely and rambles about at its own sweet will.

The prices of fruit—It is, perhaps, well-nigh, even if not quite, impossible now-a-days for the fruit grower to dispense with the services of the middleman or commission agent; hence to some extent the great difference observable between the market value and the retail value of all good fruit. The price of fruit to the actual consumer is often ten times that received by the market grower, and yet, as I said before, really fine home-grown fruit is an unknown luxury to all but the very rich. A really good dessert Apple of home growth, if at all comparable with Newtown Pippins or Russets of American growth, costs from twopence to sixpence, often more, to the man who wants it to eat, and a really good Pear costs the actual consumer two or three times as much to procure. I know that inferior fruit is cheap enough, perhaps too cheap sometimes, considering all things, but anyone who cares for really superior fruit, and must perforce purchase it retail, can only do so at the best shops where the above retail prices are the rule. With the wholesale price received by market growers I have nothing to do; all I know is the price I must pay if I want to enjoy really good fruit.

Winter Aconites—In some old country gardens this little winter blooming Buttercup is quite abundant, and very pretty it is when in flower in quantity, whether it be among lowly shrubs or spreading beneath tall trees. It is now in flower in sunny corners, and its golden buds and starry blossoms contrast very prettily with purple Crocus of the C. Imperati and C. Sieberi type. It is a cheery little thing, as hardy as the stones among which it does not object to grow, and is especially interesting to the lover of hardy blossoms at a time when flowers are least plentiful in the open air. It has quite a quaint and jaunty look, each flower being set in the midst of a little green collar (like *Punch's* dog "Toby") or frilling of green leaflets, or rather bracts, for the leaves proper do not appear until the blossoms themselves have faded. Even when the flowers are all over these leaves are ornamental, a tuft of them reminding one of a miniature Bourbon Palm (Latania borbonica), albeit only 2 inches or 3 inches in height. Planted under trees, or in those sparsely herbaged spots where the lesser Celandine is at home, this bright-eyed little Aconite forms a charming companion to the earliest Snowdrops.

"Meads of Asphodel."—"He prayeth best who loveth best all things both great and small," so that there is little need to wonder at Kingsley's love for beautiful blossoms. Writing from Biarritz

in April, 1864, he says: "The hills here are covered with the true Cornish Heath, pale blue vernal Squills, a great white Potentilla (P. verna), and a long lilac flower, which seems to me a Borage or a Bugloss. There are the most lovely sweet-smelling purple Pinks on the rocks here, and the woods are full of Asphodels—great Lilies, 4 feet high with white and purple flowers. I saw the wood yesterday where the dreadful fight was between the French and English, and over the place where all the brave men lay buried grew one great flower bed of Asphodel. So they 'slept in the meads of Asphodel' like the old Greek heroes in "Homer." There were great 'Lords and Ladies' (Arums) there growing in the bank twice as big as ours, and not red, but white and primrose—most beautiful. You cannot think how beautiful the commons are; they are like flower gardens, golden with Furze and white with Potentilla, and crimson with Daphne, and blue with the most wonderful blue flower (Lithospermum), which grows everywhere."

VERONICA.

FLOWER GARDEN.

A FEW OF THE BEST INULAS.

Of the fifty-six species of Inula described in scientific works probably not more than thirty are at present in cultivation in this country, and those are chiefly confined to botanic gardens, notwithstanding the fact that many of them are useful garden plants. They are principally distributed throughout Southern Europe, although we find them extending to Siberia and the Himalayas; indeed, it is to the Himalayas we are indebted for the kinds that are most ornamental. Some of the low-growing species are extremely useful for the rockery, such as I. montana (the Mountain Inula), a fine dwarf plant with woolly lanceolate leaves and dense heads of orange-coloured flowers, resembling in habit and general appearance some of the creeping Hieraciums. It is a handsome and desirable plant for the decoration of old walls and similar places, where it can be a little sheltered from rain and drip. Another very useful species for this purpose is I. rhizocephaloides, found plentifully in the Himalayas. It is one of the prettiest alpine composites we have. It seldom attains more than from 1 inch to 2 inches in height, forming a dense rosette of short, hairy, oval leaves, in the centre of which the bright purple involucres, in the form of a ball, are extremely interesting. It is easily cultivated, requiring, however, a rather snug nook, where it will not be allowed to become too dry. It is best propagated from seed. Then there is the woolly Inula (I. candida), a pretty plant with small oval leaves, covered with a thick, silky down, and much in the way of the white-leaved I. limonifolia, both of which are very effective when grown in masses, which should always be low down near the front of a rockery, or as an edging for a mixed border. The glandular-leaved Inula (I. glandulosa), of which a good representation is here given, is a beautiful hardy perennial. It is a native of Georgia and the Caucasian Alps, near the Caspian Sea. It is a rather robust-growing species with large bright orange-yellow flowers, varying from 3 inches to 5 inches in diameter, the narrow and very straggly ray florets contrasting nicely with the rather prominent disk. The leaves, although quite entire, seem notched, owing to large black glands which form on their margins. They are lanceolate and clasp the stem. The plant is very variable, both as regards robustness and size of flowers, and this may in a measure account for the confusion existing between it and I. Oculus-Christi.

The soil most suitable for the full development of I. glandulosa is a strong clayey retentive loam; it does not thrive well in the light shallow soils in the neighbourhood of London, except in shady positions. I. Hookeri is a free-flowering perennial, with pointed lanceolate leaves, of a delicate texture, bright green, and very finely toothed. The flowers, which are sweet-scented, are not so large as those of I. glandulosa, and are produced singly, the ray florets being, however, much more numerous, rarely numbering less than thirty. It is found in abundance in rocky places in Sikkim, where it replaces the nearly allied I. grandiflora, a dwarfer species, with much shorter shining leaves; both are very desirable plants either for rockery or flower border work. The Elecampane (I. Helenium) is an imposing, robust-growing species, having large, broad leaves a foot or more in length. It grows from 4 feet to 5 feet in height, and its thick, shaggy branches are crowned with large yellow flowers. For isolating in woods this plant is very useful, and, with the exception of Telekia cordifolia, it would be hard to find a rival to it. It is, I believe, pretty extensively used for planting in shrubberies, but unless they are thin and open it is seldom seen to advantage. It is found wild or naturalised in some parts

Inula glandulosa (*flowers deep yellow*).

of England. It flowers in June and July, and even into August when the season has been favourable.

FOR NATURALISING in woods the following will be found useful, viz., I. salicina, I. Oculus-Christi, I. squarrosa, I. britannica, and many more, the true beauty of which can only be realised in this way. With the exception of I. rhizocephaloides, they are all propagated by division with the greatest ease, or by seed, which is best sown as soon as it is ripe.

D. K.

WHAT IS A GILLYFLOWER?

A GILLYFLOWER is properly a flaked or striped Carnation. The name is a corruption of the old French name Giroflier, derived probably from some resemblance to the Giroflier, or flaming star ornament of heraldic and mediæval decoration. The two principal kinds of corruption which take place when a word is transferred without translation from one language to another are first mispronunciation from difficulty in speaking the word, as English sir becomes Hindoo sahib; and second, where a foreign word slips into a native pronunciation, which is understood and has something of the same sound, as Saxon Lethredd, a place on a slope, becomes English Leatherhead. In the change from "Giroflier" to "Gillyflower," both these alterations have taken place. Chaucer writes "Gilofre," Shakespeare writes "Gillyvors," later writers write Gillyflors and Gillyflores, until at last we reach Gillyflowers. We have first the substitution of n for r in the first half of the word, and then the change from flier to flower—possibly through fleur as an intermediate stage. Shakespeare, in the scene from which the heading of THE GARDEN is taken, makes Perdita speak with contempt of "your Carnations and streaked Gillyvors," the reason for her contempt being that they are unnatural or hybridised flowers. July-flowers (pronounced Julieflowers in Scotland) is a still further corruption. In the north this name is exclusively applied to Stocks, and is, in fact, their most familiar name. The extremely intimate connection of the upper classes of Scotland and France during the Stuart period may have familiarised Scotchmen with the Giroflier, and it is just possible that after the Reformation the double Stocks may have been introduced from Belgium and Germany, through intercourse with these Protestant countries, and the name Gillyflower become transferred to that. Great numbers of the more peaceful inhabitants of the Netherlands and Germany came to England and Scotland to avoid the persecutions of the Reformation period. It is more than likely that some of these brought their favourite flowers with them, and double Stocks may have been known as Stock Gillyflowers, especially if a flaked strain was in cultivation.

J. D.

ANEMONES DURING WINTER.

THERE is really no great mystery as regards having Anemones in winter, suitable soil and position, and sowing seed or planting tubers at the right time being all that is wanted for their production. Rich sandy loam is the best staple for them. That champion Anemone grower, "St. Brigid," is firmly in favour of cow manure placed 5 inches or so below the surface of the soil, but then she lives on a wind-swept hill, where the soil is sandy, and where, during summer, all moisture is carried away. Under such conditions a good rich larder of juicy manure well down below the roots becomes of inestimable importance, and getting the roots of the Anemones well into this before the parching summer weather comes is also of importance. Now is the time to make preparations for sowing. File on the manure and well dig a piece of ground in an open sunny position, but one, if possible, where cruel winds will not come. Let it lie, and as early in February as the surface can be got into a nice dry friable condition sow the seed; it does not matter whether it is sown broadcast or in drills, but it does matter much whether it is sown thickly or thinly; it can easily be sown too thickly, but it is almost impossible to sow too thinly. The seeds should be well rubbed asunder by mixing and rubbing with sand, using plenty of the latter. A little stirring of the surface after sowing will afford all the covering required, or the bed may be lightly beaten down with the back of a spade, and a very little finely sifted soil should be scattered over it; no matter what weather succeeds—snow, frost, rain, or any other—it is better to sow early. Weeds must be kept down, and this is about all the after attention required.

Such are our champion's directions; my own experience does not impel me so rigidly on one line. Cow manure is good no doubt—all things considered perhaps the best—and it is certainly the best where summer droughts prevail, but I use any rotten manure that comes to hand. The main thing is not to place it too close to the roots, hence the reason for deep digging and covering. Anemones sown in February will begin to flower in September and go on generally all through the winter, and of course during spring in localities where conditions are favourable, *i.e.*, mildness and moisture, but even where these do not exist, how easy it is so to arrange the beds that a garden frame could be placed over them during winter, so as to make sure of a flower harvest and of preserving the flowers bright and clean. Anemones are of such varied and bright colours, and so lasting when cut (in fact, I have heard some say that they last too long) that no trouble should be spared in order to secure them, and yet there is less trouble needed to do so than is required to provide winter Lettuces. Moreover, they are so hardy. Should there be

2 inches or 3 inches of snow on the ground, and the buds and flowers standing above it, a frosty night ensuing, in the morning these buds and flowers will be found down upon the surface of the ground apparently frozen to death; but not so. The temperature rises, the buds thaw and stand erect again as boldly as though they never knew what cold was. Though called Windflowers, wind seems to be the one thing they dislike. Like all other flowering plants, if the foliage is injured the blooms come poor; hence the reason for choosing a position sheltered from high winds. But even in windy spots a few Spruce branches stuck amongst them, or, better still, some of Mr. Wilson's thatched hurdles placed around, will afford ample protection.

There is surely no hardy plant capable of producing such a large crop of flowers as the garden Anemone, and, moreover, this during the flowerless season. The plants with which I astonished the Manchester folks last Whitsuntide had been blooming uninterruptedly since the previous October, and they had no cow manure under them; rotten stable manure from an old hotbed was their food. There were, however, 2 inches or 3 inches of rotten Couch Grass placed upon the surface of the beds after digging. Be it known that there are Anemones and Anemones. "St. Brigid's" Irish Anemones seem to belong to a more robust race than any others with which I am acquainted. I have tried pretty nearly every strain to be got, and none can equal them. Compared with them the French Anemones are decidedly wanting in vigour; they are also wanting in substance, form, and brilliancy. All this, however, results from rigid selection carried on through many years.

In order to have winter flowers from planted roots the latter should be lifted as soon as they have done flowering, and be thoroughly dried, roasted, and replanted early in July; the same soil preparation as that for seed will suffice. It seems to me that when one has once got Anemones to succeed, they go on doing so without interruption. The flowers noticed by you last week (p. 54) were cut from a bed which has scarcely rested for two years. When Mr. Burbidge was here in the end of last summer he was much surprised to see a large vase of beautiful Anemone flowers cut from this bed, and said something about Anemones all the year round. These plants did not quite go to rest; they seemed to get about half way in that direction, then suddenly woke up and commenced to grow again; they then got a thorough dose of liquid manure, which gave them an impetus, and they soon covered the ground with new foliage. They begin to bloom in November and are now becoming quite covered with buds and flowers. You cannot too earnestly urge everybody who has a garden and loves flowers to sow and plant Anemones.

T. Smith.

Newry.

IRIS SUSIANA.

Several articles referring to this fine Iris have recently appeared in The Garden, some of which seem much more calculated to deter than to encourage its readers to attempt the cultivation of this interesting and beautiful plant. In some soils and situations, at least, this Iris proves itself to be perfectly hardy, and does not require the protection of a frame during winter, nor do the plants need taking out of the soil and baking during summer, as has been recommended by some of your correspondents. This Iris has somehow got the reputation of being fastidious as to soil, and of refusing to grow satisfactorily in some localities. But, so far as my experience with it has gone, I have found no difficulty with it whatever. What it appears mostly to require is to be let alone. In proof of this, there is a small garden attached to a farmhouse on the outskirts of this town, and in this garden there is a rather large bed of this Iris which has stood undisturbed for many years, perhaps twenty, and the plants continue to still furnish annually an abundance of flowers. The soil is of a medium character, rather light than otherwise. The situation is high as well as dry; the plants are fully exposed to the south, and slightly sheltered by trees and buildings on the other three sides; further than this no protection has ever been afforded them, except perhaps an occasional surface dressing of farmyard manure.

Some five or six years ago I procured a few roots from this same clump or bed, and after dividing them formed a bed of them in light soil. They succeeded admirably, and even produced blooms the first year after being planted. Happening to revisit the spot in May last, I found the plants in full bloom, and producing a very remarkable effect, the individual blooms being very large and beautifully marked. These plants have never had any protection whatever. Two years ago I moved a plant or two of this Iris into a small garden in this town; they bloomed towards the end of May last year, and at present, on account of the unusually mild weather which has been up till now experienced, they have become unusually developed; therefore, should very severe weather set in by-and-by, which is by no means unlikely, it may be advisable to place hand-glasses over them, or in some other way afford them a slight protection, although it may not be absolutely necessary. In fact, I am inclined to think that no one need hesitate to grow this beautiful Iris on account of any supposed difficulty that may be likely to be found in its culture, or lack of hardiness to withstand the rigours of our climate.

Bury St. Edmunds. P. Grieve.

THE SPRING SNOWFLAKE.

(LEUCOJUM VERNUM.)

Leucojum vernum, the Spring Snowflake, may be considered still as one of our rarer flowers. In its natural habitat, in Germany and Austria, it flowers in March and April, but with us it is now blooming, at the end of January, almost as early as the Snowdrops. It is a lovely harbinger of spring, of even greater loveliness than its smaller cousin, the Snowdrop. This interesting flower was the subject of one of Curtis's earliest illustrations, being figured in the second volume of the *Botanical Magazine* (A.D. 1788), plate 46. Curtis tells us that its blossoms are, at first sight, very similar to the Snowdrop, but differ essentially when examined, the Galanthus having a three-leaved nectary, which is wanting in the Leucojum. "It thus became necessary to give them different names. We have accordingly bestowed on the Leucojum that of Snowflake, which, while it denotes its affinity to the Snowdrop, is not inapplicable to the meaning of Leucojum"—white Violet

Leucojum vernum is also figured in Reichenbach's "Icones Floræ Germanicæ et Helvetiæ" (fig. 804). Its native habitat is therefore in Germany and Switzerland, where it is stated to abound in woods and shady places, and to flower in March and April. Curtis states that the Spring Snowflake does not increase so fast by its roots as the Snowdrop, and so is much scarcer in our gardens, and may indeed be considered almost one of our rare plants. He also gives its flowering time as a month later than the Snowdrop, and that it is found wild in shady places in Germany and Italy. Our plants at Brockhurst came from the old rockeries of the late Mr. Leeds, at Longford Bridge, the home of so many of our choicest Narcissi. They were moved here about three years ago, and are only now blooming for the first time. This confirms the remark in that excellent reference book just published, "The English Flower Garden," that imported bulbs of the Spring Snowflake make little show the first year or two, but after that, when established in sandy loam and peat, in a somewhat shady border, they flower freely and regularly.

It is a charming plant, having larger, plumper, and altogether more solid looking flowers than the Snowdrop. The petals are strongly marked with large green spots at the tips, as in the Summer Snowflake. The flowers are borne singly on stout stalks about 6 inches high, they are fully an inch long and three-quarters of an inch in diameter, and very fragrant.

In Sweet's "Hortus Britannicus" the variety β Carpaticum is given, and I find it figured in the *Botanical Magazine* (pl. 1923). It is there shown as two-flowered, and a taller and stronger plant altogether. The spots are also yellow instead of dark green. This variety was then (1818) newly introduced from the Carpathian Mountains, and was stated to be rare. Is this again lost to us? I do not find it in either Backhouse's, Barr's, or Ware's catalogues. If it be so, will some traveller, during the coming spring, hunt it up again? Since writing the foregoing I have found a plate of Leucojum vernum in Wooster's "Alpine Plants" (1st series, p. 95), but the flowers there are shown with golden yellow spots instead of green. At first sight I thought this plate must surely have been taken from the flowers of the Carpathian variety, as when placed side by side with Curtis's plate before noted, they correspond exactly, except in the latter being twin-flowers.

Wooster refers to the Carpathian Snowflake in his note, and states that it was considered by Dean Herbert to be a distinct species. Probably, therefore, it exists in our gardens under another name. Wooster also states that the Spring Snowflake was introduced into England in 1596; that it is dedicated to St. Agnes, the patron saint of young virgins, from its loveliness and purity, and hence it is called St. Agnes' Flower. In Parkinson's time it was known as the early bulbous Violet.

Wm. Brockbank.

Brockhurst, Didsbury.

Single Dahlias from seed—These are useful in a cut state, but they must be sown early, so as to get the plants strong by May, for our summers are too short to allow any lengthened flowering season before frost cuts them down. With strong roots, however, to begin with, and planted out very early and protected from spring frosts by some slight covering, they attain large proportions by the middle of July, and from that date until the middle of October yield a continuous supply of brilliant flowers.—H.

The Hungarian Bindweed.—We noticed this plant, the great Bindweed of our gardens, growing up the stem of a dead Spruce last year to a height of nearly or quite 20 feet in the College Gardens at Dublin. As may be supposed, the effect was very good, and the place the true one for the plant, which is not easy to control in a border of choice shrubs. In this case the stem it grew upon was isolated on the Grass, so that the plant could not easily ramble away; besides, it had plenty of room above. The large vase-like flowers of this plant make it worthy of a fit place in our gardens.

Sisyrinchium grandiflorum.—I cannot help thinking that the advice often given regarding the culture of this charming and quite hardy plant is wrong. Here it is the hardiest plant we have. It quite revels in stiff, clayey, generous soil, rich and moist, and never develops fully under any description of coddling; in fact, about the most luxuriant clumps we have are growing under a drip. I am quite under the impression that abundant moisture is mainly accountable for the early and full development of many things here. —T. Smith, *Newry.*

Lilies—I cannot get Lilium auratum to grow and flower well out-of-doors. It succeeds in the south, in certain soils and situations, but in the northern parts of the kingdom it wants special attention to make it do so. Here, in South Yorkshire, in a high and cold position, both L. auratum and the varieties of L. lancifolium, the old greenhouse variety, did well in the open border the year after planting, but dwindled off and died out during the next three or four years. I, however, planted some more imported bulbs of L. auratum in 1881, in a dry spot facing the south, in front of shrubs, and they did very well in 1882, and last summer the plants just doubled their stature and number of flowers—more, in fact. There were not many plants put out, as it was only for

trial, but they succeeded satisfactorily. However, if Japanese Lilies do not succeed, we have always the beautiful old, pure white Lilium candidum, which out of doors in the mass eclipses auratum and is as fragrant. The one is a perfectly good substitute for the other, and candidum grows freely almost anywhere. The great point is to plant plenty of roots in a good, well-drained site, in a rich light sandy compost, and the warmer the situation the better. To prevent disappointment, it may be stated that, however good the bulbs may be, they seldom flower, and never flower well the first year. They must be planted and left undisturbed. They always do best when the bulbs have accumulated in a mass in the ground, and they are better transplanted in that form, but single bulbs only are sold by the trade.—W.

North American Lobelias.—I am much interested in these. Three years ago I brought from Colorado a plant of Lobelia with bright green leaves and very brilliant flowers. This plant has now given me a good stock, and has been perfectly hardy. It breaks up easily and grows well. Which of the Lobelias he describes would Mr. Wood consider it to be? I have not myself seen one exactly like it. How tender and gentle a hand the present winter has as yet laid upon us. Late flowering bulbs are pushing their shoots up in all directions, and early flowering ones are growing strongly. Iris reticulata bloomed with me in the open air last week, and a pink Veronica Traversi has bloomed all through the winter. Even Senecio pulcher has still buds on it. Pansies and Primroses have kept my table well supplied since September last from seeds sown early last spring.—H. Stuart Wortley (Col.).

The Provence Reed (Arundo Donax).—Few hardy plants exhibit a more tropical aspect in our English gardens than this stately South European Grass. Planted in pretty good soil near water, or where a plentiful supply of water is available, the tall stems often reach nearly 15 feet in height; the leaves are broad, of a fine glaucous green colour, and in the variegated form, which, however, does not seem either so vigorous or so hardy as the green-leaved type, they are beautifully striped in different colours similar to the common Ribbon Grass of gardens (Phalaris arundinacea variegata). The rhizomes are used medicinally in France, and the stems are sometimes used in making bagpipes and some other musical instruments; they also make admirable fishing-rods and excellent arrows, the latter quality being of great importance to the warlike Jews after they began to practice archery with effect. According to the "Treasury of Botany," the heroes of Homer made their arrows of this Reed, and the tent of Achilles was thatched with its leaves. During hot seasons only the plant produces flowers in this country. The following interesting memorandum respecting this is copied from "Hortus Collinsonianus": "Arundo Donax in flower Sept. 15, 1762, the first time I ever saw it; but this very long hot dry summer has made many exotics flower. Mr Miller is greatly mistaken in saying that it dies down every year; in my garden the stalks have continued to make annually young green shoots from every joint; it bears a handsome tassel of flowers." Some commentators and writers, among them the venerable ex-curator of the Royal Gardens, Kew, Mr. J. Smith, believe that Arundo Donax is one of the plants mentioned in Scripture under the name of Reed.—George Nicholson, *Royal Gardens, Kew.*

The Balm of Gilead.—A lady sends us a tuft of this from the open border. The softness of the season allows of its unusual verdure in February, perhaps; in any case, there is good proof of the usefulness of this fragrant herb, which grows well at the foot of a wall on a warm border.

Protecting Christmas Roses.—What a wonderful difference mere protection makes in the size and purity of Christmas Rose blooms! It makes them as good again as they otherwise would be. Rarely, indeed, are our winters sufficiently genial to render this fair flower quite happy in the open, but under a handlight, with a little air admitted it looks so perfectly at home as to make one grieve for plants which have to brave the storm unsheltered. —J. Cornhill.

Fruit Garden.

INSIDE V. OUTSIDE VINE BORDERS.

I do not doubt that roots can be coaxed here and there by special treatment even into inside borders, but what I and others insist on is the peculiar physiological circumstance that Vine roots prefer an outside border to an inside one, conditions in both cases being equal. Under such circumstances the majority of the roots will go out, and Mr. Baines is quite wrong in attributing this to the mismanagement of inside borders. Nothing Mr. Baines has said supports his case. I understand Mr. Coleman's practice very well, for some years ago he was kind enough to furnish me with particulars of it himself for The Garden. What would be better for Mr. Baines would be to get any one of the noted cultivators he named last week or before to deliberately endorse his opinion that the reason Vine roots go outside, as a rule, is because they are neglected inside; for it must be noted that Mr. Baines himself admits, and has admitted on previous occasions, that the roots are found outside as a rule, and it was this fact that induced him to seek the reason for it which he has assigned. In order to show, however, that his reasons are wrong, I may state that in one of the vineries here I years ago planted supernumerary Vines inside against the back wall, with their roots wholly inside, and they did so well, that after it became time to remove them I still kept one, which in a short time covered the space of 350 square feet. This Vine did well for years, notwithstanding that it was so much shaded by the foliage of those on the roof, and which were also planted inside in the same soil 2½ feet from the front wall, and yet four-fifths of the roots of these last went outside to take possession, not of a better treated border, but, will Mr. Baines believe it, an asphalt walk under which the poor natural soil had never been disturbed? The consequence was, I had to shift the walk further out, and when I lifted the Vine roots outside lately, they had traversed the border, 15 feet wide, and entered the walk again beyond it. I have taken the Vines up and put a portion of them against the back wall again, and put others in the centre of the border, and am preparing to have the vinery front under the arches built up with cement in order to keep in the roots. I shall then, with the exception of one piece of a border, have all our Vine borders inside or all outside—by far the best way. These are points which Mr. Baines should explain, and, above all, we require the testimony itself of the cultivators which he names. J. S. W.

MORELLO AND KENTISH CHERRIES.

These, two of the most useful of culinary fruits, should be grown in every garden. Both make excellent fruit pies, and the Morello is also used for the production of Cherry brandy. No fruit tree is better adapted for north walls than the Morello, and it will grow in any description of soil in which other fruit trees do well. It grows well at first, and bears good fruit in light soils, but in some with a gravelly subsoil they do not last many years in good health; branches die off, and the quality of the fruit deteriorates; but then, under such circumstances, no other kind of fruit tree would succeed nearly so well as the Morello. In heavy soils good drainage is a most important point. The soil under a north wall gets very little benefit from the sun; it is, therefore, all the more necessary that perfect drainage should aid in the aëration of the ground. The Morello seems to have quite a distinct parentage from that of any of the dessert kinds. They bear their fruit on spurs; the Morello on the young wood of the previous year Trees of this Cherry should all be trained on the fan system. The principal point to be kept in view is spreading the bearing wood regularly over the wall space. As the trees increase in age, their tendency is to produce bearing wood at the extremities of the branches, the centre being furnished with large barren limbs. In some cases the young wood can be tied over these limbs, for, as a rule, the trees produce plenty of bearing wood.

In light soils this Cherry succeeds well on the Cerasus Mahaleb stock, and the trees bear freely trained in a pyramidal form. They grow rapidly, too; indeed, I do not know any other fruit tree that will form good bearing trees more speedily than the Morello. In soils where it succeeds well, I fancy it would make as good returns as any other, and would be worthy of trial for market purposes. It requires no attention in the way of pruning, except thinning out the young wood, which becomes in a few years too much crowded. In the early stages of its growth it is necessary to tie the leading central growth to a stout stick; and if the young wood has a tendency to grow too strongly it should be pinched back, and this may be done twice in a season, but that is during the early stages of growth, and in order to keep the bearing wood near the centre.

Another system of training which I found out accidentally is worth trying. We had some fan-trained trees and no wall space for them; they were therefore planted and trained to iron hurdles about 5 feet high, and the whole space was covered with bearing wood, forming a beautiful screen of dark green foliage, and when the rich crimson fruits hung thickly on each side in the autumn, there were few more beautiful objects in the fruit garden than these Morellos. It was also easy to protect the fruit grown under such circumstances from birds. The latter would not eat them when there was anything of better quality in the garden, but they eat Morellos greedily when nothing else was available.

A tree or two of the old Kentish Cherry ought also to be in every garden. This variety ripens its fruits long before the Morello, and it is even of more rapid growth. It also succeeds quite as well on the Mahaleb stock as it does on the Cherry. There is no difficulty in forming handsome pyramids under the same conditions as those recommended in the case of the Morello.

J. Douglas.

DIGGING BETWEEN STRAWBERRIES.

It is a rather curious fact that Nature has provided the Strawberry with two sets of roots, one of which strikes as deeply into the soil as its condition allows it to do; the other works towards the surface and fills the first few inches with fibres. My theory is that the surface feeders are those which give quality to the fruit; they more directly feel the influence of the weather, and size and flavour in a great measure depend upon their activity and presence in quantity. They are also the most active agents in the maturation of the crowns and in the formation of fruit germs; therefore, as a natural sequence the destruction of these roots, which annual digging involves, must prejudiciously influence both the fertility of the plants and the quality of the fruit. I have alluded to this view of the subject as a theory, but really it is based on actual observation and practice, and, indeed, one has only to note the increase of produce and the superior quality of it which mulching effects to become convinced that the preservation of the surface roots is a most important item in Strawberry culture. In illustration of the influence which

Surface feeders exercise on the fertility of the plants I may cite the following incident which occurred here some years ago: We grow a considerable quantity of Strawberries, planted out in frames, and it has been our custom to leave them several years, cutting off the foliage and thinning the crowns after the crop was gathered. Beyond an occasional soaking and keeping them clean, they got no other care, and, as a rule, gave good crops two or three years without renewal. One year, however, we thought to do better by stirring deeply between them, and to all appearance the labour was well expended, for that season the plants grew with great vigour, and by autumn were furnished with fine crowns and very broad, luxuriant foliage; they were in appearance perfec-

tion, and we rejoiced by anticipation in the fine crop of fruit that was to follow, but how great was our disappointment when we found in spring that not more than thirty per cent. of the crowns showed flower. There was nothing in the treatment at forcing time to account for the failure, and as a fact they were not forced in the initial stages of growth, starting naturally and having no fire heat until the flower trusses were well up, a plan which we always follow in the case of late crops, and where a large amount of fine fruit is desired. It was a puzzling as well as a disappointing affair, but we came to the conclusion that the digging was at the bottom of it, and the explanation which eventually suggested itself was that the plants being nourished alone by those roots which were deeply embedded in the soil, a rank growth was made which was never properly matured by reason of the absence of the surface feeders. This was the more feasible, as other plants similarly treated, with the exception of digging between them, showed an average fertility.

Other proofs of the necessity of preserving the surface-roots intact have, on more than one occasion, been furnished at fruiting time, and I have frequently noticed how very superior was the yield and quality in the case of these planted-out Strawberries under glass when the whole surface of the soil was mulched, if only with Grass or dry Fern, or anything, indeed, which, if not nourishing, would screen the roots against an arid atmosphere. When not mulched, I have seen that the berries were wanting not only in size, but in the glaze, brilliancy, and rich colour, and that firmness of pulp which distinguishes first-class fruit, and which is only obtainable by the employment of perfect conditions. The roots which strike deeply into the soil are undoubtedly those which guarantee the plants against ruin in times of severe trial, such as when a scathing wind sweeps over them, when the earth to the depth of some inches is hard gripped by frost, and no friendly mantle of snow is there to shield the crowns from the biting blast. Then the sap is drawn up through them from the depths below, and even if the foliage droops and withers somewhat, the seat of life and fertility is preserved intact. Both kinds or sets of roots are equally valuable, or they would not have been given, and both should live to perform the functions which has been allotted to them by Nature.

J. Cornhill.

5140.—**Peach tree buds dropping**.—This is probably owing to the wood not being well ripened. Red spider being on the trees would further help to weaken them. A close, rather moist atmosphere would be more likely to cause them to drop than throwing the ventilators open and exposing the trees to frost. Dissolve 4 ounces of soft soap in a gallon of warm rain water, add to it half a pint of tobacco liquor and 4 ounces of flowers of sulphur; stir well together and paint the tree all over with the mixture. This, however, ought to have been done soon after the leaves dropped.—D. J.

5129.—**Canker**.—The most effectual remedy for this is lifting, and if the trees are over-luxuriant, root-pruning. All roots which have found their way into the sub-soil must either be cut off or brought as close to the surface as possible. If the trees are large they can be undermined, leaving a ball of about 2 feet or 3 feet round the stem. Some varieties are more liable to canker than others, but canker is often caused through insufficient drainage; therefore, it is advisable to place a layer of brickbats in the bottom of each hole. When filling in two barrow-loads of fresh soil should be placed round the surface roots.—B., *Bristol*.

Blenheim Orange Apple.—Mr. Douglas appears to doubt the accuracy of my statement, that this Apple has been realising 6s. per sieve in Covent Garden, but my information was obtained from one of the largest fruit salesmen there. There was no mistake in the matter, for the Apples were being sold at the very time when the information was given; they came from Kent, from a grower who has a large plantation of them, and who for many years has sent them to the salesman alluded to. I may add, however, that they were an excellent sample, larger and better in colour than one sees in a general way—a fact which simply proves that good Apples, whether home-grown or foreign, realise good prices. I think, therefore, that if fruit fetches, in such a year of plenty as the past, 6s. per sieve only some six weeks after gathering time, it should be an encouragement to our English fruit growers. Had last season been bad or only moderately good, I should not have been surprised; but as it is I thought the circumstance worthy of special mention.—J. C. B.

5143.—**Lichens on Pear trees**.—"F. H." should try the following solution for his Pear trees, viz., 20 lbs. of quicklime and 5 lbs. of salt, added to 20 gallons of water. The best way to prepare it is first to wet and slake the lime in a small quantity of water, then add the salt; afterwards strain through a coarse cloth, and add water to make up the requisite quantity. In applying this mixture there is some difficulty. If thrown on the trees with the syringe or a garden engine, as some recommend, the operator's hands and arms soon get flayed and painful beyond endurance. A good plan is to obtain a ladder or ladders (if the trees are tall) sufficiently long to be above every tree to be operated on. If bush trees, a good pair of steps will answer the purpose. Then take a watering pot with a rough rose to it, and mount the ladder high enough to be able to thoroughly wet every branch with the solution. If this wetting is well done, "F. H.'s" Pear trees by next Michaelmas will be as clean and bright in the bark as they possibly can be, all the Lichen having been killed and blown off with the wind. This is an easy, safe, and most effectual remedy, and one that can be applied to a large quantity of trees in a very short time if done in the way just described.—Wm. Allan, *Gunton*.

Garden Flora.

Plate 426.

Vanda Sanderiana.*

Since the late Mr. Chesterton, Orchid collector for Messrs. Veitch, surprised that firm one evening with the good news that he had just landed with living plants of Odontoglossum vexillarium, no finer or more distinct Orchid has been added to European gardens than this wonderful Vanda, which is verily the "jewel in the Lotus" of the year 1883. The artist has relieved me of a great responsibility, for the colour and peculiar figure of this new beauty amongst Vandas are alike a little bewildering and by no means easy to describe, and so a glance at the accompanying figure will best give the main facts of its curious structure, as also a glimpse of some new combination

Sketch of the first flowered plant of Vanda Sanderiana.

* Drawn in Mr. William Lee's garden, Downside, Leatherhead, September 25, 1884, from the first plant that flowered in this country.

in the way of floral colouring. Mr. Sander must have been not a little excited at the first dried flowers of this plant when they came to hand, albeit also a little apprehensive of the too close proximity of rival collectors. Happy is the man who can first wrest such a noble Orchid as is this from its native habitat. To Mr. Sander belongs the credit of introducing this noble species, although Mr. Stewart Low had his "finger in the pie" also, and a year ago or more showed me great masses of this plant in his office at Clapton, but, alas! dead—dead as "a nail in a door." I think I am right in saying that Mr. Sander had a sharp taste of the same ill luck, and then came the reward of persistence, and both Mr. Low and Mr. Sander imported the coveted plants in a living state. Among Mr. Low's importation there was one plant—a superb mass with seven or eight growths—and Mr. W. Lee, of Leatherhead, became its fortunate possessor, at the cost of how many shekels, or moidores, or gold pieces of twenty, deponent sayeth not, but the main fact to relate here is that Mr. Lee's specimen will from henceforth go down in the annals of orchidaic history as having been of all others the first to produce its blossoms under an English sky.

In describing this plant, Reichenbach says it is the grandest novelty introduced for years, and that it may mark a golden letter day in our Orchid calendar is perfectly true. Mr. Lee's plant bore two racemes, one of which consisted of eleven flowers, another of nine, and a third spike was visible, but in an earlier stage of development. Of course the news that this Vanda had flowered soon became known, and many went to see the new beauty in her Downside home, and paid many compliments to her, as also to the lucky owner, Mr. Lee, and his gardener, Mr. Charles Woolford. In general habit there is a resemblance to some Saccolabiums. The great flat flowers are of such delicate texture and subtle colouring, that the effects of sunlight and of shadow enhance their beauty tenfold. The three upper segments have unanimously been likened to those of Odontoglossum vexillarium, and in shape and colour there is some resemblance. Personally, they remind me in colour and substance of a rosy Phalænopsis, say P. Schilleriana, or P. casteæ, or P. leucorrhoda, or shall we say of P. Sanderiana, since that is the newest thing in the whole group? Perhaps the Vandas and the Phalænopsids are more nearly related to each other than we imagine, and I should like to offer a few speculations as to whether this plant is not connected by marriage with the Moth Orchids, but I shall not—I shall wait a little; indeed, it is not safe to prophesy until you know. Besides, I remember Reichenbach once speculating as to whether Lælia harpophylla was not a hybrid between Lælia cinnabarina and a Brassavola. However, people, as a rule, do not believe in prophecies; so I must "bide a wee" until more light comes. Vanda Sanderiana needs no praise, and it only remains for me to say that the plant is from a new habitat in that great head-centre or focus of all that is loveliest among Orchids—the closely dotted islands of the Philippine group.

F. W. B.

Flower show at St. Petersburg.—From May 5 to 16 an international horticultural exhibition will be held at St. Petersburg. Intending exhibitors are requested to enter their exhibits as soon as possible, and to describe them with exactitude, so that the catalogue of the exhibition may be ready in time. The latest date of entry is May 1. Two copies of each list should be sent to M. le Docteur E. Regel, Jardin Imperial de Botanique à St. Petersburg, and the superficial space required should be stated. A botanical congress will be held in connection with the exhibition.—J. C. B.

SEASONABLE WORK.

FLOWER GARDEN.

Pruning shrubs.—So far as most parts of the country are concerned, better weather for the prosecution of outdoor work could not be than that which we have lately had, and if it has been taken advantage of, much of the rough work connected with alterations and all planting of trees and shrubs will now be finished, or if not, should be so as early as practicable, after which the next most pressing work will be hedge clipping and shrub pruning. All hedges, lines, belts, and screens of Privet, Beech, Holly, Yew, &c., to be kept thick must be cut annually; such work we usually reserve for frosty weather, which may perhaps not be the best for shearing them, but having from necessity done it in such weather for many years without perceiving any ill effects, we can safely recommend it to be done now, no matter what the weather is. In the majority of gardens shrub pruning is but a secondary consideration, and in some never attempted at all; consequently Hollies, Laurels, Bays, and all similar habited shrubs soon get naked-stemmed, a condition that can only be effectually prevented by timely cutting back the leading shoots, an operation which conduces to lateral extension of growth, and keeps the plants equally furnished with shoots. Moreover, we have an impression that such timely curtailment contributes to longevity, for all surely must have noted the wholesale destruction of unpruned Hollies and Laurels during very severe winters, whilst those that have been kept well trimmed are as healthy as Evergreens of any kind could be. That it may not be inferred from the importance here attached to shrub pruning that formal trimming is advocated, we would add that, from our point of view, trees never look handsomer than in their natural forms, the only aid here advocated being simply the restriction of the stronger branchlets to, as it were, aid the weaker to keep pace with them. Many kinds of trees, Conifers in particular, by the pinching out of the point of a strong shoot or shoots, as the case may be, can be made to grow of even proportions throughout. Of course these remarks refer more particularly to young trees; to influence or direct the growth of old-established Conifers is obviously out of the question.

General work.—This now consists in the completion of the turning or re-gravelling of walks to get them well consolidated by frequent rolling whilst the ground is wet. Verge cutting and levelling of turf are also important works that should be completed as early as possible; as should also new edgings of Box or repairs to the same. Where turf would be in bad taste, not to mention the bother of mowing or clipping, Sedum glaucum makes an excellent boundary line for walks in rockeries and ferneries, and when planted virtually require no attention, except to be kept free from weeds. Sweeping and rolling are still a necessity as regards the preservation of neatness, worm casts, owing to the mildness of the weather, being thrown up in abundance.

INDOOR PLANTS.

Æschynanthus and Torenias.—Such plants as possess a drooping habit of growth are much more suitable for hanging baskets than erect growers. Most of the kinds of Æschynanthus are particularly adapted for the purpose, as well as Torenia asiatica and T. pulcherrima. If cuttings of either are at once put in they will, as a rule, root quickly, and should then be transferred to the baskets, using a sufficient number of the Æschynanthus along with them to make them effective with a single season's growth.

Tuberous-rooted Begonias.—A portion of the stock of these may now be started by placing them in a house where they can have an intermediate temperature. These plants are so accommodating that they will succeed in either a hot or greenhouse; still, if grown too warm they make weak growth, that produces comparatively few flowers, the plants in addition having an indifferent appearance. They may be shook out of the old soil and at once potted in new. Such of these Begonias as are now started in heat will be found very useful to precede the latter portion that will come on with greenhouse treatment. They do best with moderately light soil, fairly enriched with manure and a little leaf-mould.

Caladiums.—Although a few large specimens of these are suitable for use in large houses, still small examples, consisting of a single crown each, are generally preferable. Where large old plants are available they may be divided, retaining a portion of root to each piece. When so treated they must immediately be started in a brisk heat, and should not be placed in soil that is over moist, or they will be liable to decay. The small-growing C. argyrites, if well managed by keeping it close to the glass, where it will get plenty of light with a moderate amount of air, so as to secure stout growth, is one of the most useful stove plants in cultivation, for in such condition it will bear using in a lower temperature along with flowering subjects for some weeks when the weather gets warmer, and the leaves are alike available for cutting to use in bouquets and other combinations of flowers.

Peperomias, Fittonias, and Panicum variegatum.—These small-growing, handsome-leaved plants are alike suitable for cultivation in either large or small houses, adding much to the appearance of the stages when used in quantity so as to act as a setting for larger growers, and where the side stages are composed of slate, stone, or other imperishable material, a carpet of such plants, with a moderate number of other things possessing larger growth placed about on them, produces a much better effect than is attainable by the ordinary arrangement of crowding all sorts of plants indiscriminately together. Where a considerable stock of the above plants are to be used, a sufficient number of cuttings should at once be put in, as by having them rooted thus early the plants should be in a position to get established early in the season.

Sonerilas and Bertolonias.—These pretty, handsome-leaved subjects, although not able to bear the rough usage and shade inseparable from use in the way advised for the Fittonias, &c., ought to have a place in all collections of stove plants where a good amount of heat is available, without which it is useless attempting their cultivation. They root freely from cuttings, which may be put in now, giving them a brisk heat, and keeping them moist and close under propagating glasses.

FRUIT.

Pines.—To meet the demand for early fruit, see that the bottom-heat in which the first batch of Queens are plunged does not fall below 80°, and let the top-heat range from 70° at night to 80° through the early part of the day, and 85° to 90° after, closing with sun-heat. Keep the evaporating pans filled with stimulating liquid, pay particular attention to root watering with the same in a diluted form, and reduce the necessity of overhead syringing by damping all available spaces, including the surface of the bed, when the house is closed for the day. If the bed in which winter fruit is swelling shows signs of declining, take advantage of a mild day for renovating it with fresh fermenting leaves or tan, and replunge the plants, keeping the Cayennes and Rothschilds which started late in October and November together in the lightest and best part of the house, where they can receive heat and moisture with stimulating food, as recommended for the early Queens. If well rooted and not overpotted, these plants will give excellent Pines at a time when good English fruit is in great demand and not too plentiful.

Successions. — Strong plants intended to make growth before they fruit should be examined, and if found very dry at the root a little tepid water may be given to prevent them from receiving too decided a check, which might cause them to throw up prematurely. In light, airy houses an occasional dewing over with the syringe may also be indulged in, but in close pits atmospheric moisture will be quite sufficient for the present. If the bottom-heat valves have been kept shut through the dead months of November and December, and the heat has declined below 70°, it will be necessary to admit a gentle circulation until the thermometer indicates a move upwards, but great caution must be observed, as the application of water to the fermenting material combined with increasing solar heat often produces the desired effect without having recourse to the hot-water pipes. Gradually increase the top and bottom-heat in pits containing suckers, which require shifting into fruiting pots. Give a little water from time to time to bring the soil into a growing state, and shift as soon as the roots show signs of moving. Meantime push on the usual preliminaries as opportunity offers by getting crocks, pots, and soil ready for use before a single plant is disturbed.

Peaches.—Do not neglect the fertilisation of the later kinds of Peaches in the early house, and when all the fruit is set resume syringing with tepid water a few degrees warmer than the house. In mild weather give air at 60°, and raise the temperature to 70° or 75°, under gleams of sunshine; close early, and aim at 50° to 55° by night. Disbudding must now receive attention, and in the event of a single fly having gained a footing fumigate lightly once or twice at short intervals as soon as the young fruit shows signs of swelling. When fairly on the move rub off a few of the smallest and worst-placed fruit, in order to give strength to those intended to ripen, always bearing in mind that Peaches nearest the base of the shoot and on the upper side are the most promising to leave for the crop. Examine the borders, and if old trees show signs of weakness top-dress with short manure and water with clear diluted liquid. To vigorous young trees give plenty of water, and defer the application of stimulants until they begin to feel the strain of the crop. Get all pruning and training finished, and retard trees in late houses by throwing open the ventilators when the weather is not very severe.

Figs.—When the weather is cold run down the blinds at night, and counteract the drying influence of fire-heat by introducing additional supplies of fermenting leaves. Syringe the trees twice a day to keep down spider; stop all gross shoots at the sixth leaf; thin out useless spray to give young spurs and fruit the benefit of light and air as the season advances, and feed the roots with liquid manure. Encourage the trees in succession houses by giving fire-heat and moisture through the day. Mulch inside borders and water with tepid liquid, but avoid an excess of moisture or high temperatures by night until the terminal buds show signs of pushing into growth. Trees struck from eyes last year may be encouraged with warmth and moisture. Remove all ground suckers. Pinch the points of the strongest side shoots and train the leaders to straight sticks.

Orchard house.—Owing to the mildoess of the season, the buds on Peach and Nectarine trees still standing out-doors have got very forward, and altogether unfit to be exposed to moderate severity should this extraordinary weather be succeeded by frost. In many places the orchard house is used for other purposes in winter, and early housing of the trees is often attended with inconvenience; but steps of some kind should be taken for getting them under glass, as they may be placed closely together for a time, provided the house is fully ventilated at all times, unless frost is very severe. In years gone by it was the practice to pot and top-dress trees quite up to the time of housing, but this remarkable season fully confirms the sound advice to get all work of this kind performed before, if possible, or immediately after the fall of the leaf. When all the trees are under glass keep them well supplied with water, as dryness at the root after this date is sure to settle the crop for this season. Also look to trees established in inside borders, mulch well, and give them repeated waterings until the soil is as moist as it will be found in a well-drained Peach border out-of-doors.

Cherries.—Be guided by the state of the weather in the management of early-started trees now approaching the blooming period. When fire-heat is needed for the maintenance of the night temperature, 40° to 45°, with a little air, should not be exceeded, and in the event of a continuance of severe weather a few degrees lower will be preferable to sharp firing. As Cherries cannot be fumigated or syringed when in flower, see that the trees are quite free from insects when the blossoms begin to open. Pay daily attention to fertilisation. Ventilate freely without causing a draught, and avoid damping in dull weather. The past autumn having been so fine, we may assume that lifting and planting were performed at the proper time. If still in arrear, choose the first dry day for the completion of this work in late houses, using good turfy loam and old lime rubble. Drain well, and mulch with manure.

Early houses. —After the fruit is all set on the early forced pot trees, syringing must not be neglected to keep insects down and to wash off the remains of the flowers. If fly has gained a footing, fumigate when the trees are dry, and repeat if necessary. Allow a night temperature of 50° to 55°, and 60° to 65° in the daytime, with a slight increase after closing on sunny afternoons. Where the young fruit is too thickly set relieve the trees by removing a few of the small and badly placed ones, and at the same time gradually carry on disbudding and shortening back, when the shape of the trees can be improved without detriment to the crop of fruit. Water well with tepid liquid, and give the roots a little more fresh top-dressing when they show upon the surface.

Cucumbers.—Winter-fruiting plants renovated with fresh top-dressing and fermenting Oak leaves, as formerly directed, will now be in the best possible condition for passing through the present trying period. Counteract the ill effects of incessant firing by covering the roof at night. Keep the glass clean. Syringe all available spaces to keep down spider, and remove old leaves to make room for young growths, which must not be stopped until we have more light and solar heat. The change to weather of a colder character will not admit of more than the maintenance of minimum temperatures, but there will be short periods of sunshine, which will raise the house to the maximum degree of heat, and this, combined with cleanliness and light cropping, will keep them progressing until we have brighter weather. Put in cuttings of Telegraph, sow seeds, and pot on young plants if the hills or fruiting pots are not ready for them. Follow former directions with regard to making hotbeds. Where a good nursing pit is at command do not be in a hurry to turn out young plants until the soil in manure pits and frames is in good order, and danger from rank steam has passed away.

KITCHEN GARDEN.

Small sowings of Lettuce and Cauliflower may now be made. Radishes should be aired regularly and thinned timely, so that they may grow with little top and good bulbs. Wood's Frame ranks among the best. As the days lengthen all things indoor strengthen. Asparagus we force in old Pine stoves, and with very little trouble. See that old stools are taken out and replaced at once, a remark which also applies to Seakale and Rhubarb. Outside Mushrooms are now bearing well, and the quality far in advance of those grown indoors. Although herbs of a medicinal character have gradually been losing ground in public favour, the best season for replanting herb beds and making provision for the coming year's supply being at hand, a few notes on such as are really useful may not be unacceptable: Common and Lemon Thyme are what may be termed all-the-year-round herbs, as they enter into the wants of the culinary department both in winter and summer. They are readily increased by means of cuttings inserted under hand or bell-glasses, also by seed; but, if taken in time, division of the roots is the readiest way of making good beds quickly, and during this month, or just as fresh growth is starting, is the best time to replant, as they strike fresh roots directly, and soon make fine clumps. The best position for herb beds is a border close to one of the main kitchen garden walks, where they are within ready access at all times and seasons. Beds from 5 feet to 6 feet wide, with alleys between, and rows of plants 1 foot apart, will suit both common and Lemon Thyme. Sage, although not so frequently in request as the preceding, is a most useful herb, but, being of coarser growth, requires more space between the rows and plants. It will grow freely in any good kitchen garden soil, and is readily increased by slips or side branches taken off with a heel of the old wood attached to them, and dibbled deeply and firmly into the soil so as to get rooted before the sun shines too brightly; the broad and narrow-leaved green varieties are those most largely grown, but the red-leaved Sage is preferred by some, and it is very hardy. Mint is a useful herb, being liked both in a green and dried state; the young shoots are especially valued for mint sauce in early spring, and, in addition to the requirements of the kitchen necessitating constant picking of the tops as long as procurable, both early and late out of doors there is a considerable space of time when the supply of green shoots has to be made good from forcing pits. A large stock of roots is necessary in order to insure a supply, and, the plant being of a true herbaceous character, it roots must have some rest before it starts readily into growth again. The best way in order to have a good supply all the year round is to annually transplant a portion of the stock, as the underground roots or stems of the plant need fresh feeding grounds, or they soon perish. Mint does best in rather light well-drained land, and the addition of road scrapings or old mortar rubbish is better than manure in stiff adhesive soils. It will now be starting naturally into growth, and, if pieces of the roots are laid in drills and just covered with soil, they will make fine clumps for next year's forcing. Plants cut down will yield a supply of green shoots late in the season, while those left to mature their growth will be in the best condition for early forcing. They must be lifted carefully, so as not to break the growing points, and, if covered with light soil in boxes, and introduced to gentle heat, a supply of green shoots is readily produced. Tarragon is not only in great request in the kitchen, but especially for mixing with salads. It is rather capricious as to soil; but where it does not succeed in the ordinary kitchen garden soil, we have found a mixture of old potting material, finely powdered brick rubbish, and coarse sand never fail to grow it well. If treated exactly the same as Mint in respect to cutting, drying, and forcing, a supply of both green and dried shoots may be secured at all times. Sweet Marjoram, Winter Savory, Horehound, Hyssop, Rue, and Fennel should be grown in limited quantities. When once established, they are not fastidious as to soil. If the beds for them are well prepared at first, they will yield a supply for three or four years without renewal; merely keep them free from weeds in summer, and lightly fork in some old hotbed manure about this time of year. Annual or biennial herbs are of quite equal merit to those of a more permanent character. First on the list is that daily want of the kitchen, curled Parsley. It is, in fact, only when the supply fails that the importance of this useful herb is realised. This is the time to make preparation by thoroughly cultivating the soil intended for its growth. It is a strong rooter and gross feeder, and one good plant will cover a square yard of soil, and yield a large supply of fine leaves. Single rows in an open sunny position in rich soil yield the best results for summer and autumn, if sown at once; for winter, sow in July, under the friendly shelter of bush fruits or at the base of a wall, where the young plants can be

easily protected by means of straw-thatched hurdles, evergreen branches, or similar protections. Chervil is a valuable biennial or annual herb according to the time at which it is sown, the most important being the autumn for the winter and spring supply. It is much in request for salading, and, in order to keep up a supply in summer, frequent sowing is necessary, as in hot weather it soon runs to seed. A partially shaded position and good soil are the best antidotes to premature seeding. Sweet Basil is, perhaps, the most important of the true annual herbs. The first sowing should be made in pots or boxes in heated pits or houses, as it is tender, and a supply of it can only be relied on from the open air during the warmest summer months. A bed should be sown on a warm border in April, and another in May, for summer use; but as soon as the nights get cold, the supply must be again procured from under glass. This herb is highly prized in a dried state, and the first sowing out-of-doors, when in full bloom, in July or August, should be pulled up and carefully dried and preserved. Bush Basil, pot Marigold, pot Majoram, Carraway, and many other useful herbs may be easily raised from seed.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 62.)

LONCHITIS.—This small genus comprises only two kinds deserving of cultivation. Both are bold growing plants provided with a subterranean rhizome of fleshy texture; their crowns, which seldom grow above the surface of the soil, are also very succulent, and produce in both cases robust fronds, borne on light-coloured and nearly transparent stalks. Both plants thrive well in a mixture consisting of two parts peat and one of fibrous loam. For pot culture they may possibly sometimes be objected to because of their strong growth, but in the conservatory or the winter garden, where bold-looking plants are often wanted for effect, they never fail to prove a source of attraction, especially if planted out and sufficient space be given them in which to develop their handsome fronds; the under surfaces of the latter when fertile are covered all over with sori, thus making them very conspicuous. They also require an abundance of water at the roots and complete protection from the direct rays of the sun.

L. NATALENSIS.—This, as its name implies, is an African species, the bold fronds of which are tripinnately divided into long segments, slightly cut into roundish lobes. They are produced from a very fleshy crown which is densely clothed with short light hairs, and they are borne on stout stalks, also peculiarly hairy. The height of the stalk and frond varies from 2 feet to 4 feet. The whole plant is of a very soft texture and light green colour. Stove.

L. PUBESCENS.—This, by far the more popular of the two species, is also a strong-growing kind from the Mauritius. If differs from the preceding principally in its tripinnately divided fronds, which are also produced from the same kind of succulent crown and divided into pinnatifid segments, which, instead of being terminated by roundish lobes, gradually taper to a sharp point. Its robust and handsome fronds also generally measure from 3 feet to 5 feet in height, and are borne on stalks densely covered all round with short whitish hairs. The whole plant is also of a very light green colour and soft texture. Stove.

LYGODIUM.—Of all known climbing Ferns those comprised in this genus are undoubtedly the most popular. They are all of scandent or subscandent habit, and, unlike other Ferns, with perhaps the exception of Gleichenias, their graceful fronds possess the property of extending to an almost indefinite length. From their crowns to their extremities the fronds sometimes measure under cultivation from 25 feet to 30 feet in length, and form, when carefully trained, charming festoons of the greatest value in the ornamentation of a lofty winter garden. They are generally free growers, provided a suitable place is found for them, but some are more robust in constitution than others, and on that account are especially valuable either for covering pillars, for arching over a doorway, or even for training along the glass, where they produce a pleasing effect. Where no other situation is available, they may be used very effectively as rafter plants, and may even be grown in pots on trellises, but in this last way their beauty is partially, if not completely, destroyed. The strongest growing kinds are all natives of Tropical America, Australia, and the Polynesian Islands, and the smaller-growing, more delicately divided forms come from Japan and from North America, and are particularly well adapted for growing as window plants, the more so as they can withstand a much lower temperature than the others. All the Lygodiums grow well in a spongy, open soil; that which suits them best is a mixture of peat or leaf-mould, loam, and chopped Sphagnum in about equal parts. They all require an abundance of water at the roots, and are greatly benefitted by frequent and copious syringings during their growing season, viz., from May to October.

L. DICHOTOMUM (L. flexuosum).—A very handsome species, native of the East Indies. Its very long shoots are well furnished with dichotomously divided fronds, whose segments, opposite and twice divided, grow to 10 inches or 12 inches in length, and are of a beautiful bright green colour and of coriaceous texture. It is a kind well adapted for covering pillars of large dimensions, as it is of very robust growth and most effective; its foliage, though somewhat massive, is, nevertheless, very elegant, and remains on the plant for a very long time. It is not unusual to find specimens of it trained on pillars and against the glass, as in the large fernery at Kew Gardens, where they are the admiration of all visitors, retaining their foliage for three or even four years. Stove.

L. JAPONICUM.—This, undoubtedly the most popular form in the whole genus, is, as its name implies, a native of Japan, where it is found abundantly. Its decorative merits are so well recognised, that for years past thousands of plants have found their way to our great flower markets, where it is known only under the name of Lygodium scandens; the consequences of this misnaming are that in many, if not in all, private establishments the plant is found under the spurious name, and that the true plant under the true name only exists in botanical gardens and a few nurseries, where visitors and customers generally bestow a doubtful and criticising look at the right name of L. japonicum appended to the specimen. L. japonicum is quite distinct from L. scandens, and produces some extremely slender growths of a pale green colour, and which attain 8 feet to 10 feet in length. Its pinnæ, palmately lobed, are closely set, and in the barren fronds narrow and slightly notched on the margins; whereas the fertile fronds, which give the plant a beautiful and attractive appearance, bear their fruiting spikelets at the apex of each lobe. It is a delightful little climber, producing light festoons very useful for table decoration. It is also well adapted for growing in a Fern case in the drawing-room, but in any case it should always be grown near the light. Another use to which it may be put, and which shows its lovely stems and fronds to the greatest advantage, is by being used as a basket plant. For that purpose a basket of small dimensions is of very little use, as it does not afford sufficient scope for the full development of the plant; but if a wire basket of say 12 inches or 14 inches in diameter is used, and three plants are from the outset put in it, one between each chain, it will in a remarkably short space of time make a specimen that has no equal for elegance, for while some of the strongest shoots are trained upwards along the chains and in the centre of the basket, those of medium growth, by being allowed to hang all around the sides, will soon cover it completely and in a most effective manner. Greenhouse.

L. PINNATIFIDUM.—A very handsome species from Tropical Asia, somewhat in the way of the more common L. polymorphum, but with pinnatifid fronds, which are produced in great abundance and more closely set than in most other kinds. The pinnæ, which are always set in pairs, are composed of six or seven pinnules, the lower pairs of which are in the fertile fronds strongly auriculate; whereas that character is entirely missing in the barren ones. In both cases the pinnules are borne on short stalks of scarcely a quarter of an inch in length and alternate, of a very bright green colour and thin texture. The fructification is very prettily arranged on the side of their margins. Stove.

L. PALMATUM.—This charming North American species is undoubtedly the most delicate-looking as well as the hardiest kind of the whole genus. From a long and very slender rootstock of a dark brown colour, almost black, the growing extremity of which is scantily furnished with semi-transparent jointed hairs, rise at a distance apart of 1 inch or 2 inches the delicate climbing fronds, which, for grace and elegance, are not equalled by those of any other kind in cultivation. The stalk or stipe on which they are borne is dark at the base, but of a pale green colour a few inches above the ground; although very slender, yet it has considerable strength, for its texture is very tough. The lovely fronds, which according to their being barren or fertile are of totally different characters, creep and climb or twine themselves over other plants to the height of 3 feet or 4 feet. The sterile fronds, as well as the lower part of the fertile ones, are strictly bipinnate and particularly shaped, inasmuch as beginning at 6 inches or 8 inches from the ground the twining midrib bears very short branchlets 1 inch or 2 inches apart. These branchlets in their turn divide into two short slender petioles, each supporting at its end a kidney-shaped, deeply-lobed leaflet. These pinnæ, of a rather delicate texture and of a fine pale pea-green colour, are generally about 1½ inches broad, with a deeply-rounded sinus at the base. They are divided into from five to seven oblong or linear-oblong obtuse lobes, whose both surfaces seem to be smooth, although a very few hairs have been at times noticed on the under surface. The greatest ornamental character is imparted to this most interesting plant by its very handsome fertile fronds, entirely different from the barren ones. Several of the uppermost pairs of leaflets are paniculately decompound, being pinnately divided with pinnules generally three-lobed. It is found growing plentifully in low, moist thickets and damp open woods from Massachusetts to Virginia, Eastern Tennessee, and even Florida. Besides being very effective as a climbing plant, Mr. D. C Eaton, in his splendid work, "Ferns of the United States of America," says that the carefully-pressed fronds are much used as an article of parlour decoration in the cities of Connecticut and those of other States. For that purpose the plant is gathered in August and September, and exposed for sale in the markets of Newhaven and New York in great quantities, both in fresh condition and as pressed specimens. The most astonishing feature in connection with this lovely Fern is the fact that the gathering of it became so destructive, that some twelve or fourteen years ago (1869, I believe) he Legislature of Connecticut passed a special law for its protection, when the offence of wilfully cutting, uprooting, or otherwise destroying this climbing Fern was made punishable by a maximum of £20 or twelve months' imprisonment, or even both penalties. This is probably the only instance of a statute law by which a plant has received special legal protection solely on account of its decorative merits. It requires, to grow it well and freely to develop its handsome fertile fronds, whose fruits, borne in miniature catkins, ripen about September, a very porous soil; the best mixture is good leaf-mould and chopped half-decayed Moss in equal parts, with an abundance of water at the roots all the year round, but principally from March to September. Greenhouse.

L. POLYSTACHYUM.—A very handsome species, native of the Malayan Archipelago, and of a totally different aspect from all other species on account of its stems, being of a beautiful

claret colour at the base, and covered all over with a short, woolly, whitish substance, which is also observable on both sides of its glorious fronds, whose lanceolate and slightly undulated pinnæ are also densely clothed with it. These grow to about 12 inches in length and have deeply-lobed pinnules from 3 inches to 4 inches long and about 1 inch in breadth, with lobes much contracted towards the apex. Although requiring as much water at the roots as any other kind, it will not stand syringing over the foliage. Stove.

L. POLYMORPHUM.—This West Indian species, though in general appearance and at first sight somewhat resembling the handsome L. dichotomum, is very distinct from it, inasmuch as its fronds, instead of being dichotomously divided, are simply pinnate, with pinnæ set rather loose on a zigzagged rachis. These long, interminable fronds, instead of starting from a close thick crown, as those of L. dichotomum do, are produced from an underground creeping rhizome of slender proportions, and their pinnæ, instead of being of a coriaceous texture and of a bright green colour, are soft to the hand and of a pale green. Stove.

L. RETICULATUM (Lygodictyon Forsteri)—This fine bold-looking species from the South Sea Islands, although not so hardy as the Japanese and North American species, has for a long time been considered a gem among the climbing Ferns of large dimensions, and particularly effective when grown on a pillar where massive foliage is required, for, besides being a robust grower, its fronds partake of a beautiful dark glossy colour when the plant is grown in a rather deep shady place. Its pinnate fronds, which are firm in texture, vary in form according to age; the segments are lance-shaped from a square base and borne on very short stalks, and they are also rendered very attractive by their margins being finely toothed and beautifully wavy. The fertile segments, which are broader, though shorter than the sterile ones, bear the small oblong fruit-spikes in rows on the margins like so many blunt teeth. A soil a little more substantial than that recommended for the other kinds will suit it best. Stove.

L. SCANDENS.—An East Indian species of very slender growth and somewhat confused or bushy habit, and thoroughly different from the L. scandens of commerce. It has very wiry stalks of a pale green colour, from which develop pinnate fronds rarely exceeding 4 inches in length, with small heart-shaped pinnæ set alternately and rather far apart on an extremely slender rachis. A character peculiar to this species is the natural propensity which it possesses for developing fresh young shoots all along the stems, being in that respect much more prolific than any other species in cultivation. Stove.

L. VENUSTUM.—This beautiful and distinct species from the West Indies is very rarely seen in perfection; indeed, it is seldom met with in collections. It is a plant which requires a good deal of space for its development, as it is a robust and rapid grower, with pinnatifid fronds of a particularly soft texture. Its long shoots are abundantly furnished with pinnæ, borne in pairs, each one composed of ten or twelve alternate pinnules, palmate at their base and deeply serrated on their margins, and measuring about 3 inches in length, with the exception of the terminal one, which generally is from 4 inches to 5 inches in length. The fructification is produced in long spikelets, which give the fertile frond all the appearance of being bipinnatifid. The stalks and rachises of this species are very brittle and densely clothed with short greyish hairs, which may be considered as a very uncommon and peculiar character. This is one of the few Lygodiums adverse to being syringed overhead during the summer months. Stove.

L. VOLUBILE.—A somewhat close-growing species from Brazil, partaking of the habit of L. pinnatifidum, but whose pinnules are rounded and mucronate at their extremity; they are generally bifid, but sometimes also simply forked at the base, and of a bright green colour. The pinnæ being densely set along the stems render this species very valuable for pillar decoration. Stove.

PELLÆA.

KITCHEN GARDEN.

EARLY POTATOES AND THEIR CULTURE.

Of all early vegetables none are more valued than Potatoes. In gardens where forcing appliances are abundant, tubers may be dug and sent to table in February or March, and from that time onwards a constant supply can be maintained. In other gardens it may only be possible to grow a few dishes for use at Easter or Whitsuntide, but it must be a poor garden indeed where something cannot be done to have a few Potatoes ready for use before any are matured in open quarters. The modes of growing early crops are numerous and varied—so varied, indeed, that one or other of them may be found to be suitable for gardens of all sorts and sizes, and now is a good time to begin such work. As to sorts, that is a question which should be settled at the outset, as some are much earlier than others, and of course only very early kinds should be dealt with. A good early Potato is, in my opinion, one which grows very dwarf and produces a large quantity of even sized tubers in proportion to its top growth. It is useless trying to grow a Potato in a shallow frame which bears stems 2 feet, 3 feet, and 4 feet high. Such robust haulm would smother everything, and produce but poor tubers both as regards size and flavour. From 6 inches to 1 foot is height enough for the earliest Potatoes. They should be grown near the light and in plenty of air, both of which have a tendency to make the stems dwarf and robust, but some kinds, such as American Rose, will make a large amount of top growth, no matter how it may be grown. The earliest kinds of Ashleaf, such as Rivers' and Veitch's, make excellent Potatoes for early forcing; they grow compactly, and do not take up much space, but yield a fine crop of well-flavoured tubers. Sharpe's Victor is another early variety of the highest merit, and we have found Porter's Excelsior wonderfully good when grown in a frame, and the same may be said of Carter's Eight Weeks.

DIFFERENT MODES OF CULTURE.—Perhaps no plan is easier or more remunerative than having Potatoes on hotbeds under frames. Under proper management, a frame measuring 6 feet by 4 feet will produce two good dishes of tubers, and by having from ten to a score of lights of this size large quantities of good tubers may be obtained. The material required for a hotbed will be about two cartloads for each light, one consisting of leaves and the other of stable manure. Where tree leaves cannot be had, half-decayed vegetables, such as Cabbage and Savoy stumps, may be used along with the manure, and those who can procure matter of this kind need have no difficulty in forcing Potatoes. Get a heap of fermenting material together and well sweetened, so to speak, before forming the hotbed. When the latter is made it should be a little larger every way than the frames which it is to support. In making it up layer after layer should be put on, and at the same time every fresh layer should be firmly trodden down until at the finish the bed is very firm and capable of remaining so until the crop is matured. It is only a bed of this kind which will retain the heat throughout the forcing season. Where the frames are deep or unmovable, as they are in some cases, it is often unnecessary to make up a bed in the manner just indicated. In that case, after the material has been mixed it should be thrown into the frame and trodden firmly down until it is within a foot or so of the top; the soil should then be put on and the tubers planted. Thus managed, the fermenting material is shut up from the action of the weather, and less of it is required than in an ordinary hotbed.

PLANTING.—In whatever way a hotbed is formed, it must always be covered with soil in which to plant. This should be a good, rich mixture, containing a good deal of manure and a little sand. It should be placed within the frames to a depth of 9 inches, and this may be done as soon as the bed is ready for its reception. Probably the soil when first put in may only be a few inches from the top of the frame, but this will not matter, as there will be no top growths at first to come in contact with the glass, and by the time the tubers are pushing up tops the bed will have subsided a little, and this will give room for development. As soon as the beds have been soiled they should be planted. The varieties above recommended will succeed admirably set 15 inches apart each way. If the tubers have sprouted before planting, so much the better. Do not break the growths off, but plant carefully with a trowel, and the sets should only be put about 3 inches below the surface. After this admit air when necessary, and cover over at nights when the weather is unfavourable. When the tubers are forming a little more soil may be put around each stem to prevent the young Potatoes from becoming green. Culture of this kind begun in the first week in this month has resulted in the production of many dishes of fine Potatoes being sent to table in April and May.

EARLY POTATOES IN FLOWER-POTS.—This is a plan which may be practised with advantage, especially in cases in which hotbeds cannot be made up, as the pots can be placed here and there in any vinery, Peach house, or other structure in which there is heat. The most convenient sized pot in which to grow early Potatoes is a 10-inch one, and two or three dozen of these will produce a quantity of valuable tubers. A few handfuls of fresh leaves should be put in the bottom of each pot for drainage, and the pots should afterwards be filled halfway up with a mixture of loam and horse droppings. One set is then placed in the centre of each pot, and only a slight covering of soil is put on afterwards; indeed, the pots are not filled up altogether until the stems have grown a foot or so in height. Additional soil is then added as an earthing up. As soon as the tubers are planted the pots may be placed in any situation in which the temperature is 60° or 65°. Water should be given sparingly until a good many leaves and roots have been formed. When matured the whole can be turned out of the pots, and the tubers separated from the soil. I have also grown a good many early Potatoes in boxes; these are 18 inches wide, 2 feet long, and 6 inches deep. They are filled in all respects like pots, with the exception that from six to eight sets are put into each box. At present we have just shut up a Peach house, and on the inside border of this we have formed a lot of mounds of suitable soil, and into the centre of each we have put a seed Potato, which will soon grow, and from these we will have several dishes with very little trouble long before any are ready for digging in the open. In gardens where there are no frames or hothouses, artificial means of raising early Potatoes cannot be resorted to, and yet even in these there are some ways which may be practised in order to have Potatoes ready for use before the main crops. In most gardens there are some walls or hedges, and if Potatoes are planted at the bottom, and on the sunny side of these, it is astonishing how early they will mature, especially if the soil is light. In such positions the sets should be planted about the middle or end of February, and as soon as the haulm is seen above ground they should be protected from frost and cold cutting winds by evergreen branches or straw. On borders a great many early Potatoes may be quickly brought forward through being planted in narrow Celery-like trenches, which are easily made and afford much protection.

J. MUIR.

Margam.

James's Long-keeping Onion. — Although new Onions are continually making their appearance, and are expected to supersede their predecessors, they soon fall back to their proper place, but James's Long-keeping, though no novelty, still maintains its position, and invariably produces a good crop of useful Onions, fit for any of the culinary purposes for which Onions are grown, and one of its great merits is that it keeps sound

and solid without any attempt to start into growth till quite late in spring; in fact, no other Onion that I know will yield good bulbs the year round so well as this, and to this alone much of its popularity is due. In spring good, sound Onions are valuable as a market crop, and in private gardens, if any difficulty is experienced in keeping up the supply, it is during spring just before the autumn-sown crop is fit for use; therefore, although this variety is already more largely grown than any other, I would say, do not neglect to include it in every list of vegetables. Sow moderately thick in rows 1 foot apart, so as to get a crop of medium-sized bulbs, and store them when harvested in a dry, airy place.—J. G., *Hants.*

NEW VEGETABLES.

M. Henri Vilmorin thus describes, in the *Revue Horticole*, some vegetables not yet in commerce. As M. Vilmorin is considered to be an excellent judge of vegetables, and has unusual facilities for proving them, the kinds here recommended by him should be worthy of the attention of growers generally:—

Curled Endive Grosse Pancaliere.—A variety resembling the Chicorie de Neuve, with this difference that, instead of spreading over the ground, the leaves grow upright, and form a fair-sized heart, which blanches naturally without tying. Hardy and productive.

Olive Gourd.—A new variety, which appears to be very interesting and of great merit as a long-keeping kind; it is very vigorous, the fruits weighing as much as from 6 lbs. to 10 lbs., and resembling an Olive in form and colour. The skin is smooth, the rind being thin, whilst the flesh—golden yellow in colour—is firm and of excellent quality.

Olive Gourd.

Dwarf Green Very Early Lettuce (black-seeded).—Very much like our Laitue Grosse Lente à Monter, and also a spring kind, but it is greener, less leafy, and the heart smaller. This Lettuce is equally suitable for forcing in frames and for the open air.

Haricot Flageolet Merveille de France.—This variety, which is another remarkable gain of M. Bonnemain's, belongs to the Flageolet type, resembling the Haricot Chévrier in its fine seeds, which are very green when dry, and, by the way, the leaves fall before attaining maturity, but it is earlier, more productive, with longer, straighter, and finer pods. A merit which distinguishes this variety is that of preserving the green colour of the seeds after cooking, which enables one to have Haricots in winter, which, although dry, have the fresh appearance of newly-gathered Beans.

Lettuce Mortatella (black-seeded).—A fine and good winter Lettuce, with very dark green leaves, like the Laitue Verte Grosse (large green Lettuce). Plant round, hard, tinted with red on the upper portion.

White Heart Cabbage (Moyen de la Halle, midseason market).—About as early as the Chou Très Hâtif d'Etampes (very early Etampes Cabbage), and which it might on a pinch replace. It has a heart rather large at the base, and

White Heart Cabbage.

surrounded by not more than five or six leaves, which allows of its being very closely grown, so that the produce obtained is relatively great, which, added to its good quality, entitles it to a foremost place among spring Cabbages.

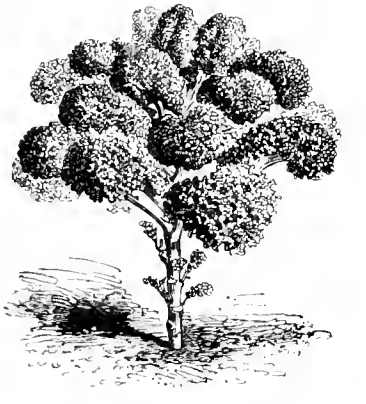
Pea Laxton's Marvel.—Semi-dwarf, with green wrinkled seeds, growing from 2 feet to 2½ feet high. Pods deep green, from 3 inches to 4 inches long, tolerably broad, slightly scimitar-shaped, pointed at the ends, and containing from seven to nine seeds. A fine productive kind.

Adirondack Potato.—An American kind, vigorous, mid-season, prolific, and a good keeper. Tubers round, with shallow eyes, smooth and pale red in colour, and growing closely together. Flesh white and floury.

Potato Iaaho.—Also an American kind, very prolific, late, but vigorous, hardy, and resisting disease fairly well. Tubers round, or rather oblong, white, with the eyes marked and tinted with rose colour. Keeps well.

Radish.—Semi-long, scarlet, very early, with short leaves—a very pretty kind; olive-shaped, very early, of a lively scarlet colour, and remarkable for its small leaf development, which renders it very valuable for frame culture. On account of the beauty of its form and colour this Radish will certainly be much prized, both by private and market growers.

Green Semi-dwarf Curled Kale.—This grows about 2½ feet high and is intermediate between the Chou Frisé Grand (large Curled Kale)



Green semi dwarf Curled Kale.

and the Chou Frisé à Pied Court (short-stemmed Curled Kale), but differs from both in the appearance of the leaves, which are plume-like, more curled, shorter, and turned up at the ends. Very hardy, and recommendable both as a vegetable and as an ornamental plant for the winter.

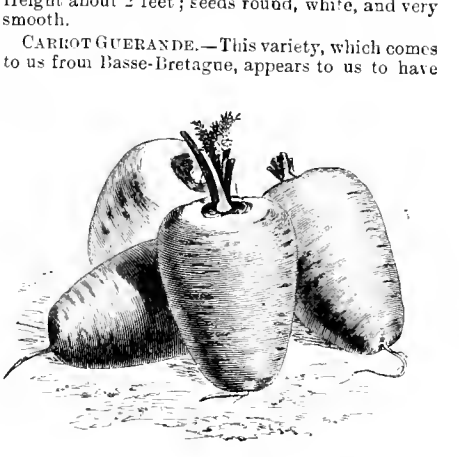
White Cos Burgundy Lettuce (white-seeded).—Coming very close to Laitue de la Passion, spotted and coloured on the heart in the same manner, but larger, whiter, and hearting better. It is equally good for summer culture and for the winter in the open ground.

Bellegarde Cantaloup Melon.—A very early and also a very productive kind, with oblong fruit, very smooth, spotted with olive-green on a greenish ground, skin very delicate, flesh red or orange, very thick, and of fine flavour.

Bellegarde Melon.

Dwarf Capucin Pea.—Very much grown in the north of France, where it is much esteemed; it somewhat resembles the Pois Nain Hâtif Breton (early dwarf Brittany Pea). It is hardy and extremely productive, semi-early, and has no skin to the pods. Height about 2 feet; seeds round, white, and very smooth.

Carrot Guerande.—This variety, which comes to us from Basse-Bretagne, appears to us to have great value for market culture. It is a very bulky, short, red Carrot, some 4 inches through at the top by 6 inches in length, rounded off at the point. It should be grown in a well stirred, rich, and deep soil.



Carrot Guerande.

White-fleshed Black Sugar Beet.—This variety has no other particular merit than that of the distinctive appearance which its black rough skin imparts to it, and which may render it useful to sugar manufacturers. It is of ordinary quality, containing some 10 per cent. of sugar, which being colourless does not in any way injuriously affect the manufacture. J. C. B.

Stewed Celery.—This is the best dish that goes on my table. We raised 4500 heads of Celery, and owing to the past summer having been a moist

one, it is excellent, and I have stewed Celery every day. We use for this purpose the best Celery, boil it whole in water in a pan for an hour, then strain off the water and cook it in milk, thickened a little if needful, adding a pinch of salt and also a nip of butter. I never tasted stewed Celery until I had it last year in Manchester; now I have it every night for supper.—Wm. Falconer.

TOMATOES AND THEIR CULTURE.

Tomatoes have so much increased in public estimation of late, that instead of pounds, as in former years, they are now produced by the ton. In many gardens glass structures are entirely devoted to them, and even in establishments in which such structures are limited in number, attempts are made to produce Tomatoes as early in the year as possible by growing at least a few plants in some of the pits or forcing houses. In order to obtain early crops, the seeds should be sown under glass in autumn or early in spring; the plants should be potted singly and kept near the glass to prevent them from becoming weakly or "drawn," and they should be shifted into larger pots as they are found to require them. They may be successfully fruited in pots some 8 inches or 10 inches in diameter, plunged in a gentle bottom-heat, such as in a bed consisting of tree-leaves or tan. The stems should be trained under the glass roof, like those of a Grape Vine, or the plants may be trained to stakes in the form of standards, or otherwise. They may either be retained in pots as directed, or planted out in a bed of soil. But in either case the use of a rich compost is unnecessary, and is indeed better avoided, as it tends to the production of leafage more than of fruit. As soon as a sufficiency of the latter is formed, its development may be promoted by the use of liquid manure. Although early Tomatoes will doubtless continue to be grown under glass, those for the main supply will generally be grown in the open air, and seed for this crop must not be sown very early, as such plants cannot with safety be turned out before the end of May or the beginning of June. Therefore towards the end of March will be sufficiently early to sow such seed, and that should be done in pots or seed-pans placed in gentle warmth, or say in a temperature not under 60°. When large enough to handle, the seedling plants should be potted singly and gradually inured to the open air. When planted in a favourable situation, such as on the south side of a garden wall, to which the plants can be properly trained, unless the season proves unusually unfavourable, an abundant crop may be confidently expected.

Training.—In cases where a suitable wall cannot be spared for this purpose, the plants may be trained to a temporary wall or wooden fence, having the desired aspect and of the requisite height, say 5 feet or 6 feet, or they may, in a sheltered and suitable situation, be trained to stakes. The warmth and shelter of a wall are, however, especially in the northern portion of the kingdom, essential to the thorough ripening of this fruit. Even on comparatively poor soils the Tomato will grow freely. It is therefore necessary to keep the branches thin, and to remove all unnecessary shoots and foliage which might otherwise injuriously shade the fruit. The latter, if desired for exhibition, should also be thinned, and by this means, and by selecting for cultivation the large fruiting sorts, individual fruits may be grown to a great size and to a weight of something like a pound each. It does not, however, follow that large fruit is of better quality than that of medium size, or that it possesses any other advantage beyond mere size. The plants are somewhat tender, and succumb to a few degrees of frost. Therefore towards the end of the year, more particularly if the season has been at all unfavourable, it not unfrequently happens that considerable portions of unripened, but full-sized, fruits remain in a green condition requiring only time, or an increase of temperature, to complete the ripening process. Should there, however, be indications of autumnal frosts occurring before such fruits are injured by them, they should be removed and hung up in some glass structure or spread out upon a shelf fully exposed to light. If the temperature is moderately high, such fruit will speedily ripen, and will be found to be in all respects equal to that which has finished this process upon the plants. When grown under glass Tomatoes are liable to be attacked by an aphis, or rather a small moth, apparently peculiar to the plant, but it nevertheless attacks other species of plants as well which may happen to occupy the same structure. When examined through a powerful lens this moth is shown to be remarkably beautiful, and it does not appear to injure the plants it infests further than in the course of time to in some degree soil them. It readily, however, succumbs to fumigation by Tobacco.

The varieties of Tomato are already too numerous, and new varieties are continually being introduced; therefore those wishing to grow large and handsome fruit may select such sorts as Trophy, Hathaway's Excelsior, Hopper's Goliath, Chiswick Red, Glamorgan, &c., while such varieties as Burghley Pet are so very ornamental as to have secured for themselves a place upon the dessert-table. As a generally useful and exceedingly prolific variety many growers may give preference to the old Orangefield Dwarf. P. Grieve.

Blanched Chicory.—This is one of the most useful materials for spring salading. The roots are easily grown in quantity, and the blanching of the young growth can be performed in positions that cannot be utilised for any other crop. I sow the seed in April, drawing drills for it 1 foot apart, and scattering it thinly. As soon as the seedlings are large enough to handle, they are thinned out to about 3 inches apart, and beyond keeping the ground clean by frequent surface stirrings, they give no further trouble until the roots are required for forcing. Then by lifting a few at intervals and placing them in any warm position, and excluding light, they soon produce leaves fit for use. If a dark Mushroom house or cellar is available, simply planting the roots in any vacant space will ensure a supply. If only well lighted houses are available, the following plan will be found to answer well, viz.: Plunge the roots into large flower-pots. Those about 12 inches in diameter answer well, as they are of sufficient depth to allow the roots to be inserted at full length. Fill in around them with fine soil, give a good soaking of water, and then set them in the position which they are to occupy, placing an inverted pot over the one in which the roots are. Strong roots will yield two or three pickings of thoroughly blanched leaves before they are exhausted, and in spring, when salad is in daily request and the supply of Lettuces and Endive difficult to maintain, a good supply of this easily grown crop is most acceptable, and with plenty of Mustard and Cress and Beetroot, the work of keeping up a supply of salading will be greatly assisted. Salads are easily enough got in mild winters; it is in case a spell of severe weather should set in that these useful roots should be grown, and March winds generally try the resources of gardens that depend on outdoor supplies.—J. G., *Hants.*

SHORT NOTES.—KITCHEN.

Early Peas.—The time has again come round for sowing early Peas, and the question arises, which is the earliest sort? After testing nearly every early variety, I like Veitch's Selected Extra Early Pea best. It is fit for use some ten days before any of the others, and it fills its pods well—a desideratum in an early Pea. To those who have not grown it I would say, give it a fair and impartial trial along with other early varieties.—W. Gallop, *Bradford, Dorchester.*

Preserving vegetables.—The Garden for December 29 contained a few brief remarks on preserving vegetables in a green state in the Netherlands. Any further information on the subject of preserving both vegetables and fruit will to me, and, perhaps, also to others, be very acceptable. More variety in our dishes of dessert for winter use would certainly be desirable. Gooseberries, for instance, would be of great value if successfully kept in plump condition. I have recently eaten some that had undergone a process of steaming, but though the flavour was good they were too soft for dessert.—T. L.

Variegated Kale.—A good strain of this will produce beautifully curled leaves, which assume all the colours of the rainbow throughout the winter, and for garnishing Apples Pears, and other dishes of dessert fruits they are admirably suited. Indeed, from November until the end of March nothing can surpass them in usefulness for this purpose.—J. Muir.

Books.

GUIDE TO METHODS OF INSECT LIFE.*

Under this somewhat curious title, Miss Ormerod has published ten lectures which she delivered at the request of the Institute of Agriculture; they now form an instructive and interesting little book, which will be found useful to all engaged in the cultivation of plants, and who are desirous of knowing something about the insects which attack them. This knowledge should be particularly useful at the present time, as so much stress is now laid by so many persons on the benefit of a vegetable diet, or at any rate on the propriety of using as food a larger proportion of garden produce than has been usual hitherto, and as our crops are liable at times to suffer so much from the ravages of insect pests. There are no returns available from which to estimate the losses which sometimes occur to growers of garden produce, but they must be very considerable. The loss to the Hop growers in 1882 through the failure of the crop in many places, owing to the attacks of the aphis, is estimated at a million and a half sterling, and that to the Turnip crop in 1881, caused by the Turnip flea beetle, at more than half a million. Each lecture forms a chapter. The first is employed in considering what an insect is, the nature of their metamorphoses or transformations, and some details concerning the eggs and larvæ. In the second, the chrysalis, perfect insect, and the orders into which insects are divided is discussed. It is a pity the original divisions of the lectures have been kept to, for it would have been more convenient if the various insect transformations had been considered in the same chapter.

After giving a list of the natural orders as they are usually arranged, the authoress says: "For our purpose, it will be much more convenient to take first those orders which are grubs, maggots, or caterpillars in their first states, and arrange them in succession by the increase in the number of their legs, or sucker feet, of the grubs, and wings, or apparent wings, in each order; next the orders which are nearly alike in all their states, as grasshoppers and others." What benefit is obtained by this alteration does not appear, and this classification is not adhered to, for if it were, bees, wasps, and insects of that order would be placed before butterflies and moths, as the grubs of the former order are legless, with the exception of those of the sawflies and Siricidæ, while the caterpillars of the latter always have legs. The last eight lectures give an account of the habits, &c., of various insects, arranged according to the classification just alluded to, mentioning the injuries they commit and certain methods of destroying them, or preserving crops from their attacks. On the last two points this work is by no means exhaustive; it aims rather at indicating in a general way the best means of procedure. There can be no doubt that much can be done by such general measures as the application of proper manures, keeping the ground free from weeds and rubbish, drainage, making certain that a crop grows freely during its early existence, in very dry seasons assisting it by watering—in fact, any operation which would be known by the term good cultivation. A knowledge of the habits of an insect is very essential in successfully contending against it; for instance, "In the case of the grubs of the Turnip sawfly (Athalia spinarum), which cannot quit its skin unless it is firmly fixed by the skin of the old one, if it cannot drag itself out it perishes in the stifling wrapping of its late coat. This knowledge

* "Guide to Methods of Insect Life." By Miss E. A. Ormerod. Simpkin and Marshall.

is utilised by brushing or driving sheep through the attacked fields, and thus by simply loosening the hold of a destructive pest we save much of the crop. Caterpillars will bear a great amount of cold without injury so long as they remain where they have placed themselves for the winter; some will bear being frozen hard without the least injury; but if they are disturbed from their cells under the surface of the ground, and left exposed to freezing in wet loose soil, then they perish. What the exact reason of this may be I do not know; probably many points act together—the choking of the breathing pores for one thing, the drying up when exposed to the wind for another, and also the starvation of the creature if it wakes up from its sleep under such circumstances. But, however this may be, if we know the habits of some caterpillars is to be helpless and torpid during winter, we can readily act on it. One great benefit in turning up the ground during winter, which Miss Ormerod has omitted, is that the hibernating grubs or chrysalides are rendered more accessible by birds. Again, "in many cases the different items of treatment which go to make good farming, and good gardening as well, will of themselves keep down a great deal of insect attack. By good cultivation of the surface, and proper as well as liberal manuring by rotation of crops, and clearing fields and borders of useless trash and weeds, we turn out a great quantity of the pests which are harbouring in the ground and also insure a good healthy growth, such as will support the crop under a moderate attack, and by the rotation of crop and absence of weeds we are often able to present starvation to our grubs, as many of them will only (or perhaps we should say can only) live on special food."

Nearly every insect alluded to in this book is figured, generally in its different states. In the preface it is acknowledged that the figures have been obtained from various sources; this is evident, as they vary very much in quality, both from an artistic and entomological point of view; some are excellent, particularly those from Curtis' "Farm Insects," but some are very poor, notably figs. 91, 94, and 95. Fig. 49 is by no means a bad representation of the insect, but it is inserted head downwards, which is a pity. On the second page it is stated that "an insect is an annulose animal." The word annulose is not in the glossary, as it should be, as it is a word which will not be understood by many in whose hands this book should be. And further on we read, "The rings are commonly about thirteen in number." Thirteen is the typical number. "One of these forms the head, the three next support the legs and wings, and the remaining rings form the abdomen, and contain a portion of the organs of digestion and those of reproduction." This is not exactly correct; by allowing one ring for the head and three for the thorax, nine will remain for the body or abdomen, but nine cannot be found in most insects, two rings at least forming the reproductive organs.

Anyone examining an ordinary beetle must not be misled by not at once seeing the proper number of joints or rings, for it must be remembered that the wing-cases in many species almost entirely cover the body, so that to see the rings the underside of the insect must be examined, or the wing cases and wings removed. The thorax also of many insects looks as if it were formed entirely of one piece, but it is not, nevertheless. The propriety of using English terms whenever practicable is very sensibly put. "I would, therefore, advise, with regard to insect knowledge for farm use, that whenever an English word has a well-known meaning and may correctly and properly be used, you should use it rather than the scientific one." And again: "In regard to the insects, I would strongly advise speaking of them by their common English names; but still, with regard to their scientific names, it is very desirable to observe and show our pupils that these have a very precise meaning." This little book should be in the hands of all who are interested in learning something about the insects which are at times so destructive to our garden and field crops. G. S.

LES CLEMATITES A GRANDES FLEURS.*

By A. Lavallee.

This comprises a beautiful series of drawings, with descriptions of the larger flowered species of Clematis, and is a worthy continuation of the useful work of the president of the National Horticultural Society of France. The plants are drawn with truth and grace, and the drawings are delicately reproduced by Lemercier. The book is very interesting as regards the light it throws on some of our garden hybrids. Our well-known Clematis Jackmanni, long supposed to be a hybrid, is declared to be a Japanese species called C. Habonensis. It is very important that this point should be put clear, inasmuch as everyone appears to have been misled as to the origin of the plant, and it puzzled the author for years. He declares it could not have originated from its reputed parents, and he found the plant in a bundle of specimens collected in Japan by Dr. Savatier.

Little notice is taken in the book of the various garden forms of these fine plants, but the information it contains is important from a garden point of view, and we thank the author heartily for this further evidence of his long-continued and great work in the cause of trees and shrubs, including now these most graceful climbing plants. W. R.

* Paris: Baillière et fils.

Trees and Shrubs.

NOTES ON SHRUBS.

The double Spanish Broom.—Is any reader of The Garden acquainted with the double yellow Spanish Broom? It appears to have been known to London, and as its name is given by Mons. Lavallée in the list of trees cultivated by him at Segrez, one may reasonably hope that it is not altogether lost to our gardens, although a long search through English catalogues has proved fruitless. The following rather quaint record of the introduction of the double Spanish Broom is thus given by Collinson, the contemporary and friend of Linnæus: "I first introduced the Spanish Broom with double flowers; it was sent me from Nuremberg, anno 1746, in a pot, nicely wickered all over; it cost there a golden ducat, came from thence down the Elbe to Hambro', and was brought by first ship to London in good order. I soon inarched it on the single-flowered Broom, and gave it to Gray and Gordon, two famous nurserymen, and the public soon had it from them." The single-flowered type of Spartium junceum is one of our most useful ornamental shrubs; it is readily procured from seed, and thrives in almost any tolerably dry spot. In a wild state it is found widely distributed through South and South-eastern Europe.

The shrubby Cinquefoil (Potentilla fruticosa).—A considerable number of shrubs which find a place in our gardens are not so handsome or so well worth growing in many respects as the subject of this note. It has short, pinnate, silky leaves and terminal sub-corymbose cymes of golden yellow flowers, the whole plant forming a compact bush clothed with blossoms and attaining a height of from 2 feet to 4 feet. Some additional interest attaches to this species in the eyes of many on account of its being a native of Britain. In England it is found on the rocky banks of rivers, and is only recorded from Upper Teesdale, Durham, Cumberland, and Westmoreland. In Ireland it is confined to the counties of Clare and Galway. Outside the British Isles its distribution is a very extended one, reaching from Arctic Europe, Siberia, West Asia, to the Himalayas. It also occurs both in East and West North America. In Teesdale the flowers appear to be functionally unisexual, and differ somewhat in appearance; both forms are, however, very well worth growing. As might be expected, specimens from widely separated geographical districts differ a good deal in general aspect; the size and form of the leaflets vary considerably, and the flowers exhibit variations in size. As before stated, however, any form is worth a place in the garden, a damp spot in the shrubbery border or on the rockwork suiting the plant best. Several forms are grown at Kew, and in June and July, when in flower, prove very attractive objects. It is hardly necessary to say that the shrubby Cinquefoil is thoroughly hardy.

Rubus odoratus.—It seems somewhat strange that a plant so accommodating as this, and one, moreover, so thoroughly worthy of a place in any garden, should not be more frequently met with. Although introduced at the very commencement of the eighteenth century, it is still unknown to a considerable number of the gardening world. Being thoroughly hardy, and a handsome plant of the easiest cultivation into the bargain, it only requires attention being called to it to ensure a due recognition of its merits. It will grow in any place where the common Raspberry will thrive, and demands no more, if as much, care. Loudon's name — the sweet-scented-leaved Bramble — seems hardly so appropriate as that adopted by Dr. Asa Gray in his "Manual of the Botany of the Northern United States," viz., the purple-flowering Raspberry." Under favourable conditions, the purple-flowering Raspberry will attain a height of nearly 6 feet, and will produce a succession of its beautiful purple-rose blossoms—which measure about 2 inches in diameter—from June to September. The name odoratus was bestowed on the species on account of the very grateful fragrance of the foliage.

Hamamelis japonica.—Botanically the H. arborea, noticed in last week's Garden, is identical with this plant, though for garden purposes the two are thoroughly distinct; they flower at the same time, and may be seen blooming side by side at the present moment in the Arboretum at Kew. Whilst H. arborea has orange-yellow flowers, those of H. japonica are a pleasing, soft, almost lemon-yellow colour. Besides the difference in the colour of the flowers, there seems also a difference in the habit of the two plants, H. arborea apparently being a taller, stronger grower than H. japonica. All the Witch Hazels are most desirable, hardy, early-flowering shrubs, and well worthy a place in any garden. The American Witch Hazel (H. virginica) commences to flower in autumn, and sometimes continues to produce a succession of its fine yellow flowers almost until the following spring.

Royal Gardens, Kew. Geo. Nicholson.

PRUNING FLOWERING SHRUBS.

There are many things in a garden that require to be done at the proper time if a full measure of success is to be reaped, and the pruning of flowering shrubs is one of them. For the most part, the proper time is just as they go out of flower. In certain positions we have to keep the red flowering Currant in a small state, and annual pruning in our strong soil becomes a necessity. We therefore make a point every spring, as soon as it goes out of flower, to cut back all the shoots which have flowered to within a few inches of the old wood. By doing this the branches are kept in proper form, and the plant has time to make new growth, and to get it matured for next year's flowering. In this matter it has all the character of the garden Currant; *i.e.*, it does not object to pruning, and it will invariably yield larger racemes of flower on young wood than on old. Magnolia conspicua, when trained to a wall and in a good deep soil, usually makes a few vigorous top shoots, and if these were not cut away early in the winter they should be removed at once. This Magnolia forms spurs similar to those of a Pear tree when trained, and if they are getting so far from the wall as to require shortening back, now is the time to do it; but do not cut back too hard into the old wood, or it may not break into growth again. A safe point is to leave 6 inches of the old spur, which will invariably break out into new growth. Where Berberis stenophylla is used as a climber, it is impossible to keep it in good form without pruning; but it will do the plant no harm if any useless branches are cut away as soon as

the flowering season is past. It must not, however, be delayed after the flowers have faded, or there will not be time for flowering wood for next year to be made. When grown in the shrubbery in a suitable soil it also gets somewhat unruly in growth, and, although one may feel reluctant to cut such a beautiful plant, pruning is sometimes a necessity.

Chimonanthus fragrans should be pruned in February. Young plants growing vigorously should not have their leading branches cut back until they have filled the space allotted to them; but strong branches may have all the breastwood cut back to within 3 inches or 4 inches of the stem so soon as they have reached the limits assigned to them. This shortening back will cause them to break afresh, and it is the growth which they make next summer that will produce flowers early next year. Concerning Ceanothus azureus grandiflorus, a word of caution is needed in the case of those who may not be acquainted with the treatment which it requires. Like some other good wall plants, it flowers on the young wood of the current year; and the caution I would give is, that the young growth must be preserved. Where there are vacant spaces to be covered, leading shoots must be trained there as they advance in growth; but all the other growth should be allowed to grow in its own way, as it will flower more freely and have a much better effect when not stiffly trained to the wall. As this Ceanothus is not quite hardy in all places, the pruning should not be done until all danger of severe frost is over. As a general rule the middle of March is soon enough, and then, if the plant is vigorous and in a warm position, all the young growth that flowered the previous year should be shortened back to within 3 inches of the main branches.

Weigela rosea, when grown in a shrubbery border, is best allowed to have its own way, and then it will flower with great freedom; but as a wall plant it requires some care in pruning in order to have it in flower every year alike. As it does not flower until the end of June, it cannot be dealt with in the same way as plants which flower two or three months earlier; but when once the right treatment is understood, it can be had in bloom every year as easily as any other. The way in which this is effected is to thin out the shoots that have flowered as soon as the blossoms fade, which will give room for the growth which is then being made. Spiræa ariæfolia for the shrubbery border is the most stately of all the Spiræas, and, when in flower, as effective as it is stately; but it must be remembered that nearly all the Spiræas are dwarf-growing shrubs; therefore pruning must be avoided until they get too large for the positions assigned to them. The system of pruning should be the same in all cases. Although they do not flower all at one time, no one can err if they prune them so soon as they go out of flower. Whether the variety be Thunbergi, which flowers early in June, or ariæfolia, which blossoms six weeks or two months later, how much or how little pruning will be necessary depends upon the size and condition of individual plants. As a general rule, a judicious thinning out of the branches is all that is necessary, except in the case of those that are getting too large. Then a somewhat severer cutting back may be given without running any serious risk, as the centre of the plant should in such cases be left untouched for one year. As the single-flowered varieties of Kerria japonica are getting fashionable, a brief reference to them may not be out of place in this list. We find that, grown in bush form in the mixed border, they do not thrive so well as one might wish. They make more growth than is desirable, and there is a proportionate scarcity of flowers; while in another garden not far distant, where this plant is trained to a wall, it makes less growth and flowers more freely than our plants of it do, which have more room. As it is a very hardy plant, the pruning should be done in autumn; all that is required is to cut away some of the old wood, leaving the last season's growth its whole length.

The Guelder Rose (Viburnum Opulus) is another plant that when allowed to grow in its own way flowers more freely than when pruned, and is more effective when large than small; but that is no sufficient reason why it cannot be had in small gardens more generally than it now is, for it is as amenable to pruning, in order to keep its growth within certain limits, as any other shrub. As soon as the flowering season is over, the long growths should be headed back, and where the branches are too thick they should be thinned out to make space for young growth, for it is on the growth made during the current year that it flowers the next season. J. C. C.

Chimonanthus fragrans.—Although the variety grandiflorus is larger and more ornamental than fragrans, it has less of that delicious scent for which both are remarkable. It cannot, therefore, replace altogether the original form, which we much admire on account of its neutral grey aspect. The latter appears to be the hardier of the two, and while the larger form occupies a wall, we should never fail to have this in the shrubbery. In this position it does extremely well at Cambridge. There is also in the same garden the variety called luteus, but it is inferior to the two just referred to.—R. I. L.

The Tree Ivy.—It is curious to note how few use this fine variety effectively. We saw one by a roadside away from all gardens some months ago, many feet through the head, and forming one of the handsomest Evergreens that could be desired. It was a plant of the common Ivy, which had grown up an old stone-and-mortar pillar, that once probably formed the gate-post of a small farmhouse. Above this 6 feet of pillar, finding nothing to climb on, the plant assumed the tree habit, and spread forth with a roundish-flat head into a beautiful object. There are few country places where a few of these Tree Ivies could not be placed with advantage. Native Evergreens, they fear not frost, and no foreigner could give a happier effect.

Spiræa confusa and Thunbergi.—In The Garden (p. 31) it is stated that Spiræa confusa was exhibited, at the last meeting at South Kensington, by Messrs. Stuart & Mein. Through a similar notice in one of your contemporaries two years ago, I was induced to send to the same exhibitors for some plants of that particular variety; but as it did not correspond with the variety which I knew as confusa, a friend of mine sent specimens of it to Kew, and the authorities there named it Thunbergi. Which is right I do not pretend to say; but it may save further disappointment if this statement is made public, as Thunbergi is by no means a scarce plant, and anyone having it already will only get the same variety as they already possess, unless a different form is sent from that which I received. I enclose flowering sprays of our plant. It appears to me that Messrs. Stuart & Mein have fallen into error as regards their so-called Spiræa confusa.—J. C. C.

*** The plant sent under the name of Thunbergi is very different from the true Thunbergi, which has linear serrated leaves and long-stalked white flowers borne singly or in clusters all along the branches. In all probability the plant exhibited at South Kensington by Messrs. Stuart & Mein is correctly named; at any rate it belongs to quite a distinct group from S. Thunbergi, bearing the flowers in stalked corymbs. The leaves, too, are quite different in form.—Ed.

Berries and birds.—Living on the confines of an extensive park, in which are to be found the chief berry-bearing trees and shrubs, my attention has often been drawn to the different times at which these fruits are attacked by birds. The thrushes clear the Mountain Ash almost as soon as they are coloured; the next attacked are the earlier Cratægi; these are gradually cleared according to their ripening and the severity of the season. Cotoneaster Simonsi has long since been bare of berries; next attacked were the trees of Cotoneaster frigida, all of which are not yet stripped. The last to be eaten are the berries of Cotoneaster microphylla, which must be frosted to become acceptable. As I write I look on a hedge 100 feet long which has been red with the fruit of this useful shrub; a flock of greenfinches is seldom absent, varied by occasional visits of blackbirds and, more seldom, thrushes. As far as I can judge, the finches eat only the central stone, strewing the lawn with the red envelope, while the blackbird and missel thrush swallow the whole fruit. The conduct of the birds towards the Aucuba berries was amusing; when they first were berried (by the introduction of the male plant), the thrushes tried them, but found them worthless, and dropped them, leaving marks of their bill on the berry. This I have not seen for some years; they have learnt how tasteless they are. When the Pyracanth is berried, the date of the attack on it depends on the severity of the weather; after frost they soon are palatable. The Skimmia japonica we have not, but when the Skimmia oblata is berried, one visit of the fieldfares or missel thrushes will clear a large bush, as I have learnt to my disappointment.—J. S. B., *Bath*.

Orchids.

Orchids at Hackney Downs.

An evident proof of the growing popularity of Orchids at the present day is afforded by the rapid increase that is being continually made to the lists of cultivators, particularly in the neighbourhood of London. Besides Orchid importers, nurserymen, and amateur growers, another class of Orchid cultivators has sprung into existence during the past few years. This class comprises those who purchase largely at auction sales of imported plants, which they establish and grow on to a flowering state and then sell them, usually when in bloom. The working up of this raw material, so to speak, obviously necessitates skilful manipulation on the part of the cultivator in order to make it remunerative, for it is generally admitted that the art of properly establishing imported Orchids is one of the most difficult phases of Orchid cultivation, and to a tradesman one of the most hazardous. The cultivators to whom the foregoing remarks refer may, for want of a better term, be classed as trading amateurs. One of these is Mr. J. E. Bonny, of 88, Downs Park Road, Hackney, whose collection we visited the other day, and better grown Orchids of all descriptions than it contained we have seldom seen. Here, in a populous neighbourhood, with all the disadvantages of a smoke-laden atmosphere, you may see what can be done with regard to growing Orchids in towns. One could scarcely credit that they could be grown to such perfection where sunlight is obscured almost throughout the winter months, and where the sooty particles that pervade the atmosphere settle in layers on the foliage. With all such disadvantages, however, it is evident that success may be attained provided other essentials are thoroughly carried out. Mr. Bonny's garden is entirely covered with glass-houses, none of which are large, and to this we are inclined to attribute his success. Large Orchid houses are a mistake anywhere, and more especially in towns.

The first house we enter is one filled to overflowing with cool Orchids, the bulk consisting chiefly of Odontoglossum crispum (Alexandræ). This house is what is called hip-roofed, or three-quarter span. It is low, so that the plants are brought near the light, an all-important factor in cool Orchid culture. Mr. Bonny is so impressed with the importance of light, that many of the plants in this house actually touch the glass, and in order to obviate the effects of frost the shading is let down at night if the weather is at all frosty. The healthy green, firm texture of the foliage is evident proof that the plants are well cared for, and in summer the leaves become quite ruddy or bronzed by exposure to sunlight, though the house is shaded with hexagon netting. Air is admitted every day throughout the year, and even on the day of our visit, when quite a gale was

blowing, the roof ventilators were opened widely, but the direct blast was sifted and broken in passing through the hexagon netting. Mr. Bonny's canons of cool Orchid culture seem to be plenty of air, as much light as possible, and abundance of atmospheric moisture. The latter is evaporated from the floors, which are paved with grooved tiles that hold water continually, while immediately beneath the stages are beds of common garden soil, than which no better evaporating surface could be had in an Orchid house. Overpotting, too, is a practice that is strenuously avoided here; and so assured is Mr. Bonny of the evil effects due to overpotting, that some of his plants subsist entirely without soil. An instance of this we noticed in some uncommonly fine pieces of Oncidium Marshallianum, of which numbers were growing in the cool houses. These were merely growing on blocks and teak rafts, on which the roots fastened themselves tenaciously. There was not a particle of soil used for any of the plants of this Oncidium, yet we have not seen any better. These were rapidly coming into bloom; in a short time their long spikes laden with swarms of flowers like golden butterflies will be a sight worth seeing. Another Oncidium that was growing excellently well along with the Alexandræs was the charming little Oncidium concolor, of which there is a goodly number here. Many fail to do this Oncid well, probably because it is grown too warm. Here the plants are in small pots all shelved close up under the roof. By the way, it is a great pity that a large importation could not be made of this Oncid in order to make it more plentiful than it is. It is unquestionably a gem among yellow Oncids, second only to the much-prized Rogersi.

Among other flowering plants were some exceptionally fine Odontoglossums, conspicuous being a fine variety of Wilckeanum, Halli, leucoglossum, triumphans, and an uncommonly finely marked variety of O. Alexandræ, of which there were hosts of other forms in bloom. Another noticeable flowering Orchid was Colax jugosus, which is grown to perfection in the same moist and cool house as Skinner's Lycaste. The next house is occupied by Cattleyas, which are grown in the same excellent style as the cooler Orchids. In this house the stages are of slate, Pitch Pine, and Teak—decidedly the best materials for Orchid houses where there is a perpetually heated and moisture-laden atmosphere. Beneath the stages are capacious tanks for holding all the rain water from the roofs of the houses, and this is exclusively used for watering and syringing as long as there is any, and to this fact we attribute a deal of Mr. Bonny's success. Soft water is immeasurably better for watering Orchids than hard, and in the construction of Orchid houses ample provision should be made for catching every drop available. When the rain water supply has run out here recourse is had to the water company's supply, and in order to ameliorate its hardness it is first let into a large tank heated by hot-water pipes, and in which water plants are grown. The water is, therefore, to a great extent softened and rendered more suitable for the plants. At all times of the day water is thrown freely about in the Cattleya house, so as to maintain a moisture-laden atmosphere compatible with the degree of heat, which is, however, never allowed to run very high—between 55° and 60° being the maximum day temperature at this time of the year. The temperature is, of course, lower at night. On mild days the heated water is not turned on; as may be inferred, Mr. Bonny is not an advocate for too much heat for Cattleyas. His plants answer for themselves that the treatment they receive is to their liking, exemplified by their stout and firm growths, plump eyes, and thick, healthy foliage. On one imported piece of C. Trianæ we counted no fewer than twelve flower-sheaths. This piece was on its way to this country twelve months ago, and it has developed and matured all these flowering growths since. It was not potted or rafted, but was simply dangling from the rafter by a piece of wire, with not a particle of soil about its roots, so much for aërial cultivation of Cattleyas. Whether the matured growths which are just about to flower will develop equally fine bulbs as themselves in the plant's present unpotted state would be interesting to know. The major part of the Cattleyas, however, are potted or basketted in the usual way, and a fine lot they are, consisting chiefly of C. Trianæ, Mossiæ, Mendelli, Dowiana, Lælia purpurata and elegans, all of which will in turn yield a showy array of bloom, judging by the show of flower-sheaths. The smaller-growing species, such as C. Aclandiæ, dolosa, Lælia Dayana, and others of that stamp, are grown on suspended flat rafts made of teak, on which they flourish admirably.

Passing through a corridor in which are grown Lycaste Skinneri and a capital lot of Cypripedium Spicerianum, we come to the East Indian house stocked with the usual genera, such as Vandas, Saccolabiums, Aerides, Cypripediums, and Dendrobiums, but the most noteworthy of all were the Phalænopsids and Odontoglossum Roezli, which we consider are *par excellence* Mr. Bonny's best plants, inasmuch as they are as fine as we have seen among London collections, and certainly are far above the average. An Orchid grower only needs to be told that he may see here Phalænopsis Schilleriana carrying spotless leaves as solid as leather itself, and measuring fully 15 inches in length and of proportionate breadth, to infer that Phalænopsids are grown well. Other plants, again, have leaves as broad as they are long, and likewise without the trace of the spot which one so often sees upon Phalænopsids grown about London. Some scores of plants of P. Schilleriana, amabilis, grandiflora, Stuartiana, violacea, and Sanderiana occupy a snug little compartment of the East Indian house, all bearing the impress of vigorous health, and, moreover, creating a picture of floral loveliness by their numerous spikes. It is evident that Mr. Bonny has hit upon the plan of growing Phalænopsids, and this, bear in mind, in the centre of a populous neighbourhood, where one has to sweep the blacks from the roofs with a broom. The other noteworthy plants in the Phalænopsis house were those of Odontoglossum Roezli, than which we have never seen a finer lot of plants or in ruder health. We measured some of the leaves of these, and found them to be 16 inches in length, and the healthy tufts stood erect, as only healthy foliage can do. A row of these plants was growing on a shelf against the glass partition—in fact, quite touching it; consequently they have the fullest amount of light they can possibly have. They seem to be delnged with water, and a noteworthy point is that though the plants were large, they were in small 2½-inch pots. These plants are just developing flower-spikes, some of which are a foot or so in length and have a pretty effect amidst the grassy foliage. Both the type and white variety are grown, among which we observed some uncommonly fine forms. These are the more salient points in this Orchid collection, which reflects credit on its owner, more particularly because he has had no special early training in Orchid culture and had to unravel all the so-called mysteries connected with it by his own observation.

Stenorhynchus speciosus.—This South American terrestrial Orchid is one of the most conspicuous flowering plants in Messrs. Shuttleworth & Carder's Orchid houses in the Park Road, Clapham. It is so distinct from the ordinary run of Orchids, that many would fail to recognise it as one. Its leaves are as large as the palm of one's hand, of firm texture, and of a pale apple-green, handsomely marked with silvery blotches. The flower-spikes rise erect about a foot or so in height. On their upper parts they bear a multitude of flowers of a bright coral-red with ivory-white lips and accompanied by bracts also of a pleasing soft coral tint. A well-flowered plant having the spikes extending for some 4 inches or 5 inches along the stem is a beautiful object. The flower-spikes, on account of their lasting quality when cut, are admirably adapted for cutting. The plant, moreover, is not in the least difficult to grow to perfection, thriving as it does in a cool, moist Orchid house. Its flower season extends over several weeks at this season. Though not a new plant, it is comparatively little known, and certainly not nearly so much as its merits entitle it. Now that it has been imported by Messrs. Shuttleworth & Carder, it will probably be less uncommon in future.

CHOICE CATTLEYAS IN FLOWER.

Especially interesting was our last visit to Baron Schroeder's extremely rich collection at The Dell, Egham, inasmuch as we were in time to see the waning beauty of some of the rarest and loveliest plants to be found in the whole range of cultivated Orchids. The sight of such magnificent Orchids as Russell's, Backhouse's, and Dodgson's varieties of Cattleya Trianæ is, indeed, a floral feast rarely to be enjoyed in any one garden, but here were these three matchless Orchids flowering side by side among a host of other Cattleyas, the whole making a unique display. As regards the respective merits of the three varieties just named; it would be difficult to say which was the finest, some would choose one, some the other; but, speaking for ourselves, we consider that all varieties and forms of Trianæ must give place to Russelliana, a variety which combines with the richest colours imaginable the fine form and substance of flower that an orchidist so much admires in this Cattleya. It is a difficult matter to intelligibly describe the colours of this variety, as the tints are so brilliant, and incapable of being matched on the artist's palette. The flowers measure about 8 inches across; the outspread petals, which are broad, are of fine texture and of a deep lilac colour. The lip is large, symmetrical in shape, frilled at the edges, and of an intense carmine-crimson, the throat being blotched with yellow. No fewer than a dozen flowers were to be seen on one specimen a few days ago in this garden.

The Backhousiana variety is quite distinct from Russell's. The flower is quite as fine as regards size and form. The character that distinguishes it from all others is the heavy blotches and pencillings of deep amethyst on the tips of the lateral sepals, which themselves are of a deep lilac. The labellum of this variety is entirely of a glowing amethyst-purple, which extends quite to the margin, while there is no yellow tint whatever in the throat. The plant bore several two and three-flowered spikes.

The Dodgsoni variety is distinct from the other two, inasmuch as it more resembles a Mendelli in point of colour. We were not much fascinated by it; in fact, we were not a little disappointed in it after hearing so much of its beauty and knowing that it has realised almost fabulous prices. True, we saw it only when the flowers were fast fading, and Mr. Ballantine assured us that it had been previously very much finer in colour.

Of all these Cattleyas there are grand specimens in Baron Schroeder's collection, and all are in superb health Amongst other Cattleyas and Lælias in flower we noticed some admirable forms of C. Percivaliana, which is much prized here, as may be inferred from the fact that an imported mass has been added to the collection, consisting of some scores of bulbs, and which, we believe, cost over a hundred guineas. Numerous forms of C. Trianæ were in bloom, including the Warscewiczi forms, conspicuous among which was delicata superba—the best of all; some of the specimens were carrying from twenty to thirty blooms.

The flowering Lælias included the various forms of L. anceps, the most notable being the Veitchi variety. This differs from all others in the peculiar tint of the labellum, which is of a plum-purple, or even more blue than that. This, in contrast to the snowy whiteness of the sepals and petals, makes a finely attractive flower. The magnificent hybrid Lælia Veitchi was also in flower, and so rarely can it be seen that it alone repaid us for our journey. It is in the way of Cattleya exoniensis, but the lip is shallower than that of exoniensis.

Cattleya Trianæ princeps.—Among the hundreds of flower-spikes of Triana's Cattleya in

Mr. Bull's nursery, the fine variety that has received the name of princeps may be singled out at a glance, inasmuch as it is by a long way superior to all others. It possesses very large and beautifully tinted lips, and the flowers altogether are unusually showy. The lip, too, is exquisitely frilled at the margins. The colour is an intensely rich magenta-crimson, a colour which extends uniformly to the very edge of the lip, which is not margined with a paler hue as in most varieties. The blotch of rich yellow in the throat contrasts strikingly with the other colours. The sepals are broad and of a delicate mauve-lilac. Among the crowds of flowers in the house one may see every variety of C. Trianæ from pure white to the very deepest forms.

Ada aurantiaca. — In order to obtain an adequate idea of the beauty of this Orchid, such a fine specimen as that now in perfection in Messrs. Bull's nursery, Chelsea, should be seen. This plant is carrying no fewer than twenty-one flower-spikes, which reflex gracefully on all sides of the plant and well overtop the foliage. The bright orange colour of the flowers renders the plant highly attractive and distinct from all others. It is an indispensable cool house Orchid.

Lælia anceps venusta.—This is the name of a sweetly pretty variety now in flower in Mr Bull's nursery. It differs from all others hitherto met with, the nearest approach to it being the variety Percivaliana. The petals and sepals are white, and the lowermost lobe of the labellum has a broad margin of the richest amethyst-purple, into which runs the pure white of the throat. The rest of the lip is white, save a border of amethyst which runs along the edges of the lateral lobes. It well merits a distinctive name, and venusta is quite appropriate.

Cœlogyne cristata.—What is known as the Chatsworth variety of this popular Orchid is unquestionably the finest of all, the flowers being fully a third larger than those of the ordinary form. The sepals and petals, too, are broader and as a rule more flowers are borne on each spike, eight, nine, and even ten being not unusual. This variety may now be seen in flower in Mr. Bull's nursery, Chelsea, together with the variety Lemoniana (which has the sulphur instead of orange crest) as well as the pure white hololenca, or alba, which is coveted by all orchidists who do not possess it. An eight-flowered spike of the Chatsworth Cœlogyne has been sent to us by Mr. Percival, Birkdale, Southport, and in a cut state, associated with delicate Fern fronds, it seems to be even lovelier than when on the plant.

Cattleya Percivaliana. — Every week brings us flowers of this Orchid, most of them representing superb varieties. This week we have a gathering of no fewer than ten distinct forms from Mr. Percival himself. Some of these are the loveliest varieties we have ever seen, the colours being intensely rich, not only as regards the labellum, but the sepals, which in many cases are even darker than those of the original autumn-flowering C. labiata. We singled out one of the varieties as possessing an uncommonly broad lip, coloured with the intensest maroon-crimson. The size, too, of the flowers improves markedly, those in question being much larger than those received earlier in the season. One of Mr. Percival's plants, we are told, is carrying thirty-six flowers—a beautiful sight. A three-flowered spike from this plant is sent with the rest.

The Phalænopsis house in Baron Schroeder's garden at The Dell, Egham, is just now quite a picture of floral beauty, there being a great number of fine specimens carrying long and elegant spikes. The finest display is made by the Phalænopsis Stuartiana, of which there are a great many spikes in perfection. Among them was the finest form of the nobilis variety that we have yet seen, the flowers being unusually large and most copiously spotted. Of P. Schilleriana, too, there were some exceptionally fine forms, having flowers with broad overlapping sepals of the richest rose-pink, and most of the plants bore branching spikes. Among the varieties of P. amabilis we measured one with flowers 4½ inches across. The choicest variety in bloom was P. leucorrhoda alba, which is seemingly a hybrid between P. amabilis and Schilleriana, possessing, as it does, the leaves of the latter, and the flowers of the former. The whole of the Phalænopsis collection here is admirably grown in a small span-roofed house, having plenty of light and moisture, as may be inferred from the fact that some of the Pitcher plants (Nepenthes) flourish admirably in it. The Odontoglossum houses also are beginning to assume their wonted gay appearance in spring; already there are crowds of O. crispum, and none but the best varieties are tolerated here.

Vanda concolor.—If the absence of this plant from certain collections may be taken as a guide, it must be rare; it is not brilliant in colour, but it has no little charm and attractiveness. The tint of the sepals and petals, a yellowish brown, is peculiar, and, moreover, the surface is polished and shining; in the midst is a short pure white column, and below a labellum, the lower part of which strikingly suggests an inverted lyre, even to the strings, which are represented by lines of light and dark colour; the upper part of the labellum is formed into a short spur, above which are two wings, white and prettily dotted. The flowers are nearly 2 inches across. Another name is V. Roxburghi unicolor.—R. I. L.

Sale of flowering Orchids.—Mr. J. C. Stevens' second special monthly sale of flowering Orchids took place on Wednesday last. There was a very fine display, numbering upwards of 200 lots, and comprising a representative selection of the species now in bloom, the most prominent being Cattleya Trianæ and Odontoglossum crispum. Though there were no very remarkable plants offered, the sale included some choice things, which fetched fairly good prices. The highest bids were for some unnamed species, notably a very handsome Oncidium—a fine specimen, with two tall flower-spikes, bearing rich yellow and chocolate flowers. This fetched 9 guineas. Six guineas were given for a fine variety of Odontoglossum crispum, and 5½ guineas for a grand form of Cattleya Warscewiczi delicata, from Messrs. Shuttleworth & Carder. A variety of Odontoglossum Pescatorei, with streaks of purple on the broad white sepals, fetched 6 guineas; and an unnamed variety of Odontoglossum, in the way of Andersonianum, realised 10 guineas. Messrs. Backhouse, of York, sent some remarkably fine plants of Cattleya Trianæ, the majority consisting of the finest varieties. There was a numerous gathering of Odontoglossum Alexandræ, from one well-known cultivator, all of which were admirably grown and flowered, and the best varieties amongst them yielded fairly good prices.

RECENT PLANT PORTRAITS.

Trichocentrum porphyrio (*Illustration Horticole*, plate 508).—An ornamental Orchid with medium-sized flowers, borne one on each stem, with a broad rosy purple lip, and with five narrow upper petals, which are deep brown on the inside and golden yellow, spotted with brown, outside.

Camellia M. Raymond Lemoinier (*Illustration Horticole*, plate 509). — A beautiful, fully-double variety, with bright pink flowers, prettily veined with carmine, and with some of the petals fringed or imbricated at the edges.

Anthurium splendidum (*Illustration Horticole*, plate 510).—A fine double plate of this handsome foliaged variety, recently introduced by Mr. Bull. Its handsome foliage is said to be of a peculiar and unique shade of green, unlike that of any other plant, which must be seen in order to be fully appreciated, and with which the white spathe, delicately tinted with pink, and golden yellow spadix form a fine contrast. The flower is, unfortunately, not depicted on this plate.

Nymphæa alba var. rubra (*Botanical Magazine*, plate 6736).—This beautiful hardy rosy Water Lily, which is only known to be indigenous to a single locality, the Swedish lake of Fagerstärn, is still extremely scarce, as it, unfortunately, does not come true from seed, and root divisions from imported plants still fetch high prices when met with.

Tilia petiolabis (*Botanical Magazine*, plate 6737).—This Lime is a native of the Crimea, and is of pendulous habit of growth, being also known under the synonyms of T. americana pendula, T. alba pendula, T. platyphylla pendula, and T. argentea pendula.

Pentstemon labrosus (*Botanical Magazine*, plate 6738)—A variety with branching spikes of narrow tubular scarlet flowers, apparently very freely produced. It was discovered by Dr. Rothrock, in Southern California, in 1875, on Mount Pinos, at an elevation of 7000 feet. Mr. Thompson, of Ipswich, was the first to flower it in Europe, and sent specimens for figuring to Kew.

Gladiolus Quartinianus (*Botanical Magazine*, plate 6739).—A somewhat dull yellow-flowered variety with most of the petals more or less streaked with red. It is a native of Tropical Africa, and was first found in Abyssinia by Mr. Quartin Dillon, after whom it has been named.

Masdevallia Schlimi (*Botanical Magazine*, plate 6740).—A somewhat dull brown-flowered form of this curious branch of the family of terrestrial Orchids. The flowers are but of medium size, and are borne five or more on a stem. The specimen here figured was sent by Sir Trevor Lawrence in April, 1883.

Notospartium Carmichaeliæ (*Botanical Magazine*, plate 6741).—This is known as the pink Broom of the Middle Island of New Zealand, and is one of the most beautiful and ornamental plants of the colony. It is found on the sandy and rocky banks of the Waihopai River, in the Nelson province. Though cultivated for some years in the temperate house at Kew, it has never flowered there, but bloomed at Messrs. Veitch's Coombe Wood Nursery in July last, whence specimens were sent to Kew. W. E. G.

QUESTIONS.

5150.—**Vegetable cropping.** — How much of my garden—light sandy soil—should I devote to Potatoes in order to get half a ton yearly for home consumption? What proportion should be early varieties?—S.

5151.—**Aspect of span-roofed houses** —Preference is given to running houses of this description north and south, but can it be said, provided it is most convenient, that they may not with equal propriety be built to face the north and south, *i. e.*, running east and west?—C. V. R.

5152.—**Window boxes.**—Can any of your readers give me an idea with respect to window boxes? The house stands in the street of a country town, facing the north. The house is white; the walls covered with Ampelopsis Veitchi. Suggestions for the kind of box and suitable plants would much oblige. Would tuberous Begonias do well in a north exposure?—G. W. E.

5153.—**Rabbits amongst Rhododendrons.**—Can any of the readers of The Garden tell me whether I can safely fumigate with sulphur a large rabbit burrow under a clump of Rhododendrons? I cannot get rid of the rabbits by ferreting, and am rather afraid to use sulphur, lest it should injure the Rhododendrons. The soil is gravelly sand, and the rabbit holes appear to go down to a considerable depth.—Subscriber.

5154.—**Beech trees.**—I have a row of fairly large Beech trees standing 8 yards or 10 yards apart from one another. I think of cutting out every other one in the hopes that those left may grow into really good specimens. I am advised, however, not to do so, as the lower boughs, which, of course, are now to some extent crippled by their proximity to their neighbours, will never furnish out so as to make graceful trees. Will some of your readers kindly favour me with their opinion in regard to this matter?—G. F.

5155.—**Vines trained horizontally** —I have a lean-to greenhouse 90 feet long in which are two Vines, one a Black Hamburgh planted against the back wall, the other a Foster's Seedling planted in the front border and trained up the glass. The Black Hamburgh has made two rods right and left, about 30 feet and 20 feet; the other having been planted later is not so long. I find the Black Hamburgh fruits well, but more especially at the ends of the horizontal rods farthest from the main stem, near which it does not break well, although the points are brought back to the main stem to check the flow of sap. I wish to know if any of your correspondents would recommend me to inarch the ends of the horizontal shoots of the Black Hamburgh and Foster's Seedling when they meet; or if I turn their points down to the ground and let them take root, would this tend to drive the sap back and make them break more regularly?—H. Worthington, *Fishguard*.

AN INFORMAL GARDEN.

Under this heading allow me to describe a garden in which neither the general arrangement nor the planting have anything strictly formal about them, as formality is understood in garden decoration. Hitherto, or at least for many years back, the nightmare which has afflicted designers of gardens is the idea that geometrical proportion is the all-in-all of laying out and planting flower beds; that everything should be correctly balanced; that supposing they have a garden laid out in beds, No. 1 on the right should correspond exactly with No. 1 on the left; and the same with Nos. 2, 3, and 4, and so on, until the whole is completed, even to the minutest detail. This is "bedding out" in the purely formal style. Between this style and the wild garden there is a mean, which I shall here attempt to describe, having put it into actual practice, with the hope of fulfilling the idea more completely by-and-by.

We have already formal bedded-out flower gardens, borders and beds of hardy plants, and hardy plants on Grass; but none of these plans quite fulfils one's idea of an informal garden in which hardy plants would form the principal feature, and it was determined to lay out a small garden of beds that would enable one to give each species the attention which it required, admit of planting with an eye to effect, and yet be quite informal, interesting, and natural. With this view a piece of ground, embracing perhaps six hundred square yards, and which had formerly been a formal garden in the bedding-out style, was selected. On three sides this area is enclosed by shrubs and rockwork. This was first overhauled, the shrubs re-arranged, and the rockery portion thoroughly filled up with spring and other flowering plants, planted on the principle of displaying good patches of each species for as long a season as possible. For example, one mound is devoted to yellow and red Wallflowers, scarlet and yellow Tulips, yellow Violas, Primroses, Auriculas, Polyanthuses, Limnanthes, Daffodils, and shrubs, such as Berberis stenophylla and orange and yellow common hardy Azaleas. Whatever one may suppose, it would be difficult to imagine any richer contrast than these colours afford by themselves, without being at all glaring; the pure yellows light and deep, bronzes, and orange-scarlets blend into each other in the most rich and harmonious manner. Other parts of the rockery consist of masses of white Arabis, succeeded by perennial Candytufts of the same colour, of coloured Primroses, Forget-me-nots, Daffodils, Phlox Drummondi and procumbens, Auriculas, Pinks of different colours, double Daisies, Mimulus, Stocks, Saxifrages, and numerous other subjects.

The garden of beds inclosed by these is level, and is looked down upon from a vantage ground, so that the place is seen perfectly; and this must be remembered in estimating the informal aspect of the place, which is necessarily laid out on a level piece of ground, with one formal piece of sculpture in the centre that had to remain. The plants are mostly all select, hardy, useful plants and annuals, and such as need cultural attention to keep them in good condition; hence the necessity of beds. These are of all kinds of informal curvilinear shapes, none being square, quite round, or angular, and they are laid out with an eye to the proportion of Grass, which occupies a good deal more space than the beds do; the latter, however, are all of good size, and laid out to fill up the ground evenly; but no two are quite alike, and no two match in planting or anything else, although the ground is divided into two equal parts. This we determined to try by way of experiment, it being generally supposed that geometrical balance is absolutely necessary under such circumstances. In fact, our garden is a direct violation of this rule, and yet now, when the ground is laid out and the beds planted, the severest garden critic would fail to detect any incongruity, while he is obliged to confess that the general effect is pleasing, and the collection interesting and varied, containing not one bedding plant in the ordinary sense of the term. The subjects consist mainly of Pansies of all sorts, Violas, Potentillas, Senecio pulcher, Coreopsis lanceolata, Gaillardias, Clarkias, Stocks, Asters, Carnations, Harpaliums, Dianthus, Everlastings, Gladioli, single Dahlias, Candytufts, Anemones, Phloxes, Mignonette, and Marigolds. These are not mixed, but each species either fills a whole bed or a good part of one, and the masses are of informal shape, and embrace several square yards each. Following out the idea that has been broached lately, that certain colours and families harmonise well by themselves, Carnations, Gladioli, or Anemones, as the case may be, have been put by themselves; but no very tall subjects are employed. It is a garden intended to be looked at as a whole, and the many different interesting and pretty subjects in it admired separately as well. Contrast of colour has not been lost sight of; but, on the whole, in other respects the planting has been as promiscuous as the general arrangement of the beds, which were not laid out from a plan, but drawn straight off by the eye at once on the ground. This plan of a garden affords the means of cultivating many good things in a natural manner within moderate compass, and enables one to give the plants what attention they require. There are several ways of growing hardy plants. A few particularly vigorous subjects will take care of themselves, naturalised in the Grass margins, but most things require a border or bed in which they can be seen and looked after. A collection of hardy plants, embracing all the seasons of flower, may be grown within a moderate space, everything depending on the means at disposal; and this, I think, is the way to keep and grow such a collection successfully—arranged, of course, informally. S. W.

FILBERTS AND COB NUTS.

Amongst fruits that may truly be termed neglected, Filberts and Cob Nuts occupy a prominent place, for, except in Kent, where their culture is made a profitable branch of fruit culture, and a few other places, no attempt is made to cultivate these valuable fruits. They are simply planted and left to chance, with the result that they seldom bear anything like that amount of crop which trees under good culture do, and there is no comparison between the size of Nuts produced by unpruned trees and those on bushes pruned on the Kentish system. As a rule, I hear owners of Nut trees bewailing the fact that they seldom get any Nuts, yet no attempt is made to improve matters, simply because the mode of pruning and general culture, so successfully practised in Kentish fruit gardens, has never been even heard of, and although all sorts of crops are recommended for fruit growers and others to turn their attention to as a means of profitably cultivating the land, one seldom hears a word said in favour of Nuts; yet they are well worth extensive culture, not the least of their merits being their hardiness and ability to withstand our trying spring weather. Where good cultivation is practised the Nut crop seldom altogether fails like that of soft fruit. Moreover, foreign competition in the case of Nuts is not so much to be dreaded as in that of many fruits, for good home-grown Filberts and Cobs always realise good prices. The following is the mode of culture pursued by growers who send the finest samples of both Filberts and Kent Cobs to the London markets:—

Selection of site.—This is an important item in Nut culture; although the majority of Nuts are produced by bushes grown under the partial shade of tall standard fruit trees, there can be no question that to do them justice they require all the sunlight that our climate affords. The most prolific plantations I have ever seen were situated on banks sloping to the south—so steep, indeed, were they that it was difficult to get up amongst the bushes, and in summer the sun's rays were reflected by the stony soil with an intensity almost equal to that of a wall. Nuts, it may be mentioned, form a valuable crop for soil that is too stony and poor for Apples and Pears; they form quantities of fibrous roots, and are capable of flourishing where more tender-rooted subjects would starve. They, however, well repay not only planting on good soil and in a good situation, but liberal culture, as, owing to the Nuts being sold by weight, it is important that they should not lack nourishment in their final stages of filling up the kernel, for on that depends the weight more than on the size of mere husks or shells. Preparation for planting should be made by trenching the ground two spits deep; if the soil is in fairly good condition, no manure in the first instance will be necessary. Select the bushes from young, healthy stock; they should have spreading heads set on stems about 1 foot clear of the ground, a height which allows all suckers, weeds, &c., around the base to be cleared away. Plant from 12 feet to 15 feet apart each way; the intervening spaces may be filled with Gooseberry or Currant bushes, which will yield some return until the Nuts require the space; then they can be cleared away. Nuts do not yield much return until they have been planted six or seven years.

Pruning.—This is the most important item in regard to the successful culture of Nuts. In Kent it is made quite a speciality of; there men prune the trees at so much per score or hundred, according to size and age. In the case of young, freshly-planted bushes, no pruning is done the first year, but in the second winter they are cut down pretty hard, and the outline of the bush is formed by cutting out the centre shoots and leaving the top bud pointing outwards; by following up this process year after year a basin-shaped bush is formed, the branches of which resemble the ribs of an inverted umbrella. The little wiry twigs on the main shoots are those that bear the Nuts, and on the proper selection of fruitful wood depends the success of Nut culture. All suckers and sappy shoots are broken clean off at the base; if cut off they would give rise to numerous other shoots of similar growth, but if wrenched out this is prevented. As a rule, Nut bushes are kept down below 6 feet in height; therefore all parts of them are reached without ladders. Spring, when the tiny bright female blossoms can be readily distinguished from the male catkins, is the time for pruning, the strong catkin-bearing shoots being cut away after the work of fertilising the blossoms has been accomplished. What summer pruning is needed is done about the end of July or in August; the bushes are then gone over, and the points of strong, erect-growing shoots, which only exhaust the strength of the tree, are broken off, thus leaving nothing to interfere with the swelling up of the Nuts, and the more fully the spray-like shoots are exposed to sunlight, and the more thoroughly ripened they become, the better the chance of a crop the following season.

The time for gathering the crop depends on whether it is required for immediate use or for storing. If to be kept for any length of time the Nuts must be perfectly ripe—in fact, ready to drop from the tree; but for immediate use those that are most forward may be gathered some time previous to maturity, new Nuts always realising good prices in the market. In storing, the Nuts should be gathered quite dry, and they must be stored in an airy place in order to keep them from turning mouldy. A little salt sprinkled amongst them is a good method of keeping them free from mould, and also from shrivelling.

Manuring and digging Nut plantations are operations done in winter, and in Kent old rags and sweepings of streets are utilised in the way of manure and forked in around the surface roots.

As regards varieties, I may mention that for market Cob Nuts have nearly superseded Filberts. They are hardier and produce heavier crops, but for private use I should recommend that some Filberts be grown; they are thin-shelled and exquisite in flavour. The following are sorts that are sure to give satisfaction, viz., the Kentish Cob, a kind more largely grown and highly prized than any for general excellence; Webb's Prize Cob, a very fine variety; Cosford Nut, a large, round kind, with a thin shell; Kent Filbert, excellent in flavour and a good sort for private gardens where high quality is desired; Purple or Red

Filbert, a good old variety; Merveille de Bolwyller, a giant Cob and a good garden variety. If those who have hitherto depended on unpruned trees will grow a single row of the above sorts, as above detailed, I feel sure they will agree that there is something to be said in favour of pruning and cultivating Filberts and Cob Nuts.

Gosport. JAMES GROOM.

NOTES FROM BURGHLEY.

TOMATOES.—Our two old Pine pits have been doing us good service for the last three months past in forcing Azaleas, Arum Lilies, and a host of other flowering plants. These have occupied one half the structure, whilst the other half has been filled with Asparagus, Rhubarb, Mint, and Tarragon. We have this last week thoroughly cleansed the house and planted it with Tomatoes. The plants, which were all well prepared in 5-inch pots, are from 1 foot to 16 inches high, the variety being Criterion. This Tomato is not the best in colour, but it sets its fruit well and is most prolific.

CUCUMBER HOUSES.—Our two span-roofed Cucumber houses which have been bearing well through the winter are now getting rather shabby; Therefore next week we propose pulling up the plants in one house and planting it forthwith with Melons; the variety being netted Victory.

PEACH HOUSES.—Our earliest house is now in full flower. Dr. Hogg is quite a blaze of bloom, whilst Early Rivers is only just expanding its buds. The latter is, however, the earliest to gather by some three weeks. The back walls of our Peach houses are covered with Camellias, which are just now looking particularly gay.

STRAWBERRY HOUSES.—Our first 500 plants are now showing their bloom buds; in fact, many of their flowers are quite expanded; we grow them on stages about 2 feet from the glass, keeping them cool and airy until all the flowers are open; we then move them to Melon, Cucumber, and Tomato houses to set and ripen their fruit. This is our practice for the first two or three lots; the later ones ripen on the stages where they grow. The variety is Vicomtesse Héricart de Thury.

MARECHAL NIEL ROSE HOUSE.—If I have a pet at Burghley, it is certainly this house. Last March we planted it inside with small plants turned out of 3-inch pots, and not more than 6 inches high. They are planted in two rows in the bed and 4 feet apart; they have entirely covered the house, and reach down the back wall from 9 feet to 10 feet. One shoot measured 21 feet long, and is the thickness of one's finger. Just now (Feb. 2) the young growths are about 6 inches long, and a small Rose bud is showing at the point. The great mistake committed in forcing Roses is keeping the atmosphere close and humid, creating mildew—the death-blow to a Rose tree. The house has been kept at from 45° to 50° at night, but when the thermometer rises up to 60° in the morning we admit air. No damping the paths or syringing is allowed. Should this house prove as satisfactory as it promises to do, it will be a great boon to us. R. GILBERT.

Glazed flower-pots.—I hope that this subject will not be allowed to drop until something better is provided for us than the present plant pot which causes us much unprofitable labour to keep clean. Now-a-days, when there is such a demand for cut flowers, our plants in pots amount to thousands, therefore it behoves us to see in what way we can dispense with all labour that is unprofitable, in order that we may be able to bestow more time on that which will give us something useful in return. I think we may safely accept "T. B.'s" dictum (p. 42) that glazed pots are not detrimental to plants, but the contrary. Quite recently I saw two Dracænas that had been for several months in ornamental glazed pots, and that had for the most of that time stood in rooms, only being brought out to be cleaned; they had made good growth and certainly looked none the worst for the ordeal through which they had passed. I have written to a large manufacturer of pots on the subject, and he says the cost of glazed pots would be so much more than that of common ones that very few would buy them, but let us hope that their cost may yet be cheapened.—LAINE.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

Feb. 12.—Royal Horticultural Society, South Kensington.—Meeting of the Fruit and Floral Committees at 11 a.m.; Annual General Meeting at 3 p.m.

Nottinghamshire Horticultural Society.—The annual meeting of this Society took place the other day, and, judging from the report, it seems to be in a flourishing condition during the past year. Papers on the following subjects have been read by members, viz., on "Gardeners and Gardening," on "Plants, Leaves, and the Curiosities of Plant Life," on "The Vine and its Cultivation," on "The Pine-apple and its Culture," on "Hardy Ferns," on "The Dahlia," on "Hardy Herbaceous, Alpine and Bulbous Plants," and on "The Stove and its Occupants, and the Vacuum Theory of Potting." These papers have afforded much pleasure and instruction to members present at the monthly meetings, which were well attended. We understand that it is the intention of the Society to offer very liberal prizes at its forthcoming summer show.

"Pitchery-bidgery" (Duboisia Hopwoodi the "Pitury" shrub).—According to the Vienna journal, *Apotheker Zeitung*, sensation has lately been caused in Austrian medical circles by the importation from Queensland of a new narcotic and anæsthetic. The novel drug is only known as yet by its native name, "Pitchery-bidgery." It is the flower of a plant belonging to the Solanaceæ, according to some botanists, but referred by others to the Scrophulariaceæ, and indigenous to Australia—a sort of stunted shrub, from 3 feet to 4 feet in height when full grown, and bearing blossoms of a waxy texture, white in colour and flecked with pink spots. These flowers are picked in the month of August, dried, packed tightly in canvas bags, and then subjected to a high degree of pressure. Bodily fatigue, hunger, and thirst are said to be speedily relieved by chewing a small quantity of the drug, while a large dose renders the patient totally insensible to pain. Its application is not followed by any evil effects, as in the case with most powerful anæsthetics. If the qualities of "Pitchery-bidgery" are as described, it will form a most valuable addition to the pharmacopœia.

Royal Horticultural Society.—The annual report of this Society states that its financial position is satisfactory, the revenue of the year having been sufficient to satisfy the debtor balance carried forward from the preceding one, and to give a considerable surplus after paying or providing for the payment of every liability to the 31st December last. The experiment of holding evening meetings (such as those on May 8 and June 12 last) at which to exhibit interesting plants and to read and discuss papers is considered by the Council to be most encouraging. The gardens at Chiswick are stated to have been maintained in a high state of efficiency, the practical work of the Society being carried on there as usual. It is proposed that trials shall be made during the present year by the fruit committee of new varieties of Potatoes and Peas, and of the entire class of Cauliflower and Broccoli, which is in great confusion; and by the floral committee of new Pelargoniums, Begonias of the Rex or handsome foliaged type, Ferns of the Adiantum or Maiden-hair class, and Chrysanthemums. The Apple congress surpassed the most sanguine anticipations of the Council, such a display of different varieties, of which the society's garden contributed 260, having never before been seen. About 10,000 persons visited the exhibition. A report on the subject is being prepared for publication. It is contemplated, should the season prove favourable, to hold similar shows of other fruits. The number of plants required for distribution to Fellows continues to increase. During the past year 19,470 plants in pots have been sent out, with 30,000 packets of seeds, and about 5000 cuttings of Vines and other fruit trees, the number of Fellows availing themselves of this privilege being 997.

GARDEN IN THE HOUSE.

Dinner-table plants.—Among the many fine-foliaged plants employed for decorating dinner-tables, drawing-rooms, corridors, or entrance halls, I find none to excel in usefulness Cyperus alternifolius, and few easier to grow. Although a native of Madagascar, it will withstand the fluctuating temperature and draught of an entrance hall for a considerable length of time with impunity, and live in a dark corner of the drawing-room for months if well attended to with water. As regards propagation, cuttings invariably prove the most satisfactory. It may also be raised from seed, and when four or five young plants are grown together they make a good show even in one season. The variegated variety can only be increased by dividing the clumps and growing it in a rather poor and free soil. As to cuttings, when the seed is nearly ripe the tops should be cut off with an inch of stem attached to them, and by drawing them through the half-closed left hand, clip off the Grass to 2 inches in length and insert the cuttings in leaf-mould and sand, putting them well down in order to cover the base of a few of the under leaves. Then plunge the pot, pan, or whatever may be employed, in a brisk bottom-heat, and keep the cuttings moist. In a short time young shoots will spring up from the axils of the leaves, and when these are about 1½ inches long, they may be potted off singly into small pots, in a mixture of loam, leaf-mould, sand, and well-decomposed manure. Place them near the glass where they can have the full benefit of the sun; maintain a moist atmosphere and well attend to them with water. Let the night temperature be 70° or 75°, and under such conditions they will make plants that will require to be shifted into larger pots as the season advances. The strongest tops always make the strongest plants, but small bushy plants are most suitable for the dinner-table; therefore I insert a few of the weaker cuttings to make plants for that purpose. In this way I can get up a stock of good plants in one season, and, except wanted for some special purpose, I throw away all unsightly crowns when I have put in the quantity of cuttings required.—J. R. D. P.

OBITUARY.

Mr. Ralph Carr-Ellison died at his residence, Dunston Hill, Durham, on Monday last. The deceased, who was in his 79th year, had been nearly 56 years a magistrate for the county of Durham, and also many years a magistrate for Northumberland. He was originally Mr. Ralph Carr, of Hedgefield, Northumberland, but on the death of Mr. Cuthbert Ellison he inherited large estates at Dunston and Jarrow, being thereby required to adopt the name of Ellison. Having abundant means, Mr. Carr-Ellison was almost lavish in his charity. Some of the more interesting and practically valuable notes on trees and planting which have appeared in THE GARDEN were written by him.

Cinerarias (*W. J. B.*).—Very large and showy, though as regards form not so perfect as those now considered to constitute the finest strains.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*F. J. H.*—Narcissus Tazetta fl.-pl. (double Polyanthus Narcissus)——*K. A. K.*—Lachenalia pendula; Veronica speciosa variety.——*J. G. K.*—Oncidium cucullatum.——*Bridge of Earn.*—1, Odontoglossum crispum var.; 2, Odontoglossum triumphans; 3, Odontoglossum Cervantesi; 4, Dendrobium crassinode (very

No. 639. SATURDAY, Feb. 16, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES.

The Primrose League, which was founded in November last, is now (the *Morning Post* says) firmly established, and is extending its branches far and near. The Duke of Wellington, Lord Orford, and Lord Wimborne, among others, have enrolled themselves as members. Henceforth the Primrose bids fair to become the popular flower of the Conservatives: and I shall never forget the 19th day of April, 1883, in London, never having seen so many Primroses either before or since. It would seem as if the floral badges, once so popular, are again coming to the fore. We know what the white Iris was to the Florentines, the spike of yellow Broom to the Plantagenets (plantageuista). We remember the brawl in the Temple Gardens over the white Rose and the red, and even to-day Queen Rose is our national emblem, the flower which adds sweetness and colour to our national bouquet, to Scotch Thistle and to Irish Shamrock alike. The wearing of Oak leaves on May 29 is not as yet a dead letter, and there are yet some who wear the Violet, not altogether for the sake of its grateful fragrance; but the newest of all floral ensigns is this of the pale Primrose, henceforth to be worn in memory of one of the most remarkable statesmen of modern times. Flowers were never more thoroughly admired than in our own day, perhaps, and that they should be woven into our history as badges and ensigns will lend to them an added charm.

Orchids in vineries.—In the February number of the "Orchid Album," Mr. B. S. Williams has a very interesting note on Orchid culture in vineries. Dendrobiums especially seem to do well in such structures; many of them start into growth with the Vines, grow freely under their treatment, and go to rest in autumn just as the Grapes ripen, and when the atmosphere, being dry, warm, and moderately airy, suits Vines and Orchids alike. Of course houses especially built for the culture of Orchids are, or ought to be, best suited to them, but it is pleasant to know on such good authority that some Orchids can be made to thrive well in vineries; that anyone having good vineries can also grow a few good Orchids as well as good Grapes is a very interesting fact. Mr. Warner, indeed, demonstrated this point for us years ago, and even at Manley Hall in the old time, when Orchids were largely grown in the best of houses specially designed for them, I used to see Dendrobes and Lælias placed in the vineries or Peach houses when at rest. In a word, a man who really likes Orchids will but rarely be at a loss, but will gladly devise ways and means of growing them, whether it be in plant stoves or in fruit houses.

The old yellow Pæony.—A friend of mine very fond of hardy flowers makes little tours now and then among the old gardens in his immediate neighbourhood, and he is sometimes rewarded by the sight of old friends. In this way he found the old Rose Celeste and other old sorts now rare, and more recently he has unearthed some great clumps of what, if not the old Pæonia Whitmanniana, is a sort equally interesting, having single yellow flowers on stems a yard in height. In the place where it grew it had evidently been long established, the big clumps being a yard across. This old garden was literally paved with bulbs in large masses and colonies—Colchicums, Crocuses, Snowdrops, Fritillarias, and Daffodils by the cartload, and along with them Primroses in great variety and profusion, Pompadours and double purple, blush, lilac, white, &c., and of Cloth of Gold. There are hundreds of old gardens of this kind in Ireland "paved with bulbs" and carpeted with "old-fashioned flowers." The Huguenots came to Ireland, as to England, bringing their love of flowers—perhaps their flowers also—with them. Soil and climate are alike suitable for hardy plants, and then the "scarlet fever," as a cynical friend persists in calling the "bedding out" of Pelargoniums, Lobelias, and Calceolarias, never made the headway here it did in England, hence it comes that in hundreds of Irish gardens many of the handsomest and rarest of bulbs and hardy flowers exist in a profusion and luxuriance elsewhere unknown.

Wild flowers in the Fens.—In his recent book on the "Norfolk Broads and Rivers" (Blackwood) Mr. Davies gives us some pretty pictures of the wild flowers of fen and mere. Ruskin loves the mountains and the alpine flowers and the sunlit Pine trees better than the marsh; but Kingsley always loved the broads, and the late E. W. Cooke, R.A., was quite at home among the meres and quaint windmills of our "English Holland," and our present author admires them also. "Around the broads," says Mr. Davies, "is a dense wall of emerald-green Reeds, from 7 feet to 10 feet in height. Then come the yellow Iris flowers, tall and bending Rushes and Bulrushes, the Sweet Sedge, with its curious catkins; tangled feathery Grasses in such variety that as you stand up to the waist in them you may pluck a dozen kinds without moving; blue clusters of Forget-me-nots, Foxgloves, spikes of purple Loosestrife, and broad tufts of Valerian, bushes of woody Nightshade, and, sweeter than all, masses upon masses, all the way along, of the cream-white and stroog-scented Meadowsweet—these are what make the immediate banks changing panoramas of kaleidoscopic beauty. The far-reaching marsh has a beauty of its own, that of changing colour as the wind bows the many-tinted Grasses and flowers, and the wind-waves and cloud-shadows sweep along; while everywhere are the snowy sails of yachts and the red-brown canvas of the wherries. . . Colour is seen far away; a group of red and white cattle, or the scarlet berries of the Guelder Rose entwined round some fallen Willow, with a gleam of sunshine upon them, will lighten up miles of marsh. Then the flight of hawk and heron, snipe and wild duck, the splash of fish, and the scattering rush of the small fry as a pike makes his raid upon them, are incidents of every hour."

Clematis cirrhosa.—This slender-growing evergreen species is not often seen, perhaps not so often as it deserves to be, in our gardens. It flowers during winter and spring, its slender shoots being even now ornamented with its sage-green, hazel nut-like buds and bright apple-green blossoms. The four divisions of the flower are mottled with pale red inside in a pretty, albeit modest, way. As a plant for the dressing of sunny walls and trellises it deserves notice, and it is readily increased by root cuttings, division, or layers. It is not a showy plant by any means, but if you cut a shoot of its greyish green buds and green blossoms and place it in water on your table, you soon learn to admire its quaintness and to feel a little respect for "its braverie," inasmuch as it ventures to open its flowers to the winter's sun.

Narcissus farms in Scilly.—When the Greek poets wove for themselves that deep-laid myth of the self-admiring youth Narcissus—beloved of the gentle nymph Echo—and left it to us as a previous heritage, they little thought that we should, while holding a little of their beautiful faith, plant the bulbs of their favourite flower in our corn lands, and reap a richer harvest from their blossoms than even the golden grain itself affords. In a word, the Scilly cotters have taken to Narcissus farming, and some of the most enterprising have from 100,000 to 200,000 bulbs growing on their well-tilled land. One farm at Rocky Hill is noteworthy. The flowers are sheltered from the sea breeze by hedges of Escallonia macrantha neatly cut, and during the winter and spring the flowers find a ready market in Covent Garden and elsewhere. This novel industry was, in the first instance, fostered by the proprietor-in-chief, Mr. Augustus Smith, and present day results exceed the most sanguine expectations. About six years ago the first consignment of cut Narcissus blossoms found their way to market from the Cassiterides, and now the produce bids fair to rival even the profits which are produced by the golden Apples of the Hesperides. Even now as we write one of the finest of all the innumerable forms of Narcissus Tazetta (N. Tazetta floribundus) is in flower on the grassy slopes of St. Michael's Mount, and if the Cornish cotters would take the hint it annually affords them, they too might find its culture as profitable, even if not more so, than is that of early Potatoes and Broccoli for Covent Garden.

Reineckia carnea.—Now and then when broad, fresh, green, grassy leaves are required for decorative uses, we find those of this plant very useful. It is quite hardy in mild localities, and produces tufts of leaves a foot in height. These, arranged with bunches of Wallflowers, Snowdrops, Anemone flowers and buds, or with early Primroses, give quite a pretty look to the otherwise bare flowers. Where it grows well Ruscus racemosus is most valuable for a like purpose, and so are the leaves of Tellima and some kinds of Heuchera. Bamboo shoots are graceful, but do not last long even in water. As evergreen foliage plants for cutting, Ruscus androgynus, R. racemosus, and Smilax tamnoides are most useful, as their foliage endures fresh for weeks if taken out of the vases and thrown into a vessel of fresh water occasionally. A handful of long-stalked Daffodils or of Narcissus Tazetta, arranged tastefully with fresh green leaves of this kind, becomes ten times more attractive than they otherwise would be, and the Scilly Narcissus growers might find a few green leaves to enhance the value of their flowers in the London market. VERONICA.

January flowers.—The past month as regards mildness has exceeded anything experienced for many years; the consequence is that several plants have been unusually floriferous. Jasminum nudiflorum has been a sheet of bloom, the sprays being more regularly covered than usual with its Primrose-like blossoms, even on a north aspect. Chimonanthus fragrans and its varieties are other plants that have been exceedingly full of flower—a circumstance which can only be attributed to the open weather and well-ripened wood. Aponogeton distachyon has produced an unusual succession of large blooms during the whole winter. Helleborus niger and its varieties have also been particularly fine. There has been much said about the Brockhurst variety of Christmas Rose; but in what does it differ from the kind called angustifolius, sent to this country in thousands from Haarlem, or from the variety called intermedius by the Edinburgh nurserymen? I am fully convinced that situation has much more to do with differences in Christmas Roses than cultivation. In some places they will not grow. I know of one grand plant now in blossom from which more than 200 flowers have been cut, yet many others are showing themselves; it is in an open situation. I also know of two plants in Cheshire, above 3 feet in diameter, covered with bloom; these are grown under a large Apple tree. There are likewise three monstrous plants in Merionethshire, equally floriferous, on which the sun never shines; all are growing in very strong soil. Cyclamens, such as hederæfolium and its varieties, are at this time in very fine flower. C. Coum and repandum are just coming into bloom. The winter-flowering Croci have had a fine time of it, particularly C. vitellinus, Pallasi, ochroleucus, nevadensis, Fleischeri, Sieberi, biflorus, Weldeni, Imperati and its beautiful white variety, contrasting well with bannaticus, a grand kind, and many others. The common vernal Crocuses are very far advanced. Scilla bifolia is out, and Ornithogalum fimbriatum will be open in a few days. Leontice altaica, Anemone blanda, Galanthus peculiformis, lutescens, Elwesi, Imperati, and plicatus are fully open. Unfortunately, we cannot expect to escape hard frosts and cutting winds before May. Frost in

moderation would now be acceptable, as the Apricots are beginning to show their white petals and Filberts are in full bloom.—Aberia.

PLANTS IN FLOWER.

Iris Kolpakowskyana.—We learn from Mr. R. Potter that this new Iris is now in bloom in Messrs. Backhouse's nurseries at York. He says it is a very pretty and neat plant, dwarfer than I. reticulata, but with flowers about the same size. It is a bulbous Iris or Xiphion, and as yet uncommon.

Pinguicula hirtifolia.—Though so small as to be scarcely discernible, this Butterwort is quite a little gem in its way; the whole plant might be covered with a crown piece. From the centre of the tiny tuft the flower-stems rise about an inch or so, each carrying a bright purple flower, variegated with white. It is now in flower at Kew, and also in the Royal Exotic Nursery, Chelsea.

A new Rhododendron.—At South Kensington, on Tuesday last, Messrs. Veitch showed a new Rhododendron, under the name of R. Curtisi luteolum; it belongs to the Javanese section, but is quite distinct from any other of that race. The foliage is narrow, and the flowers, about the size of those of the old R. jasminiflorum, are of a delicate, soft, creamy-yellow—a pleasing tint in contrast with the foliage. It is presumably a stove plant.

Bomarea conferta.—Of this new greenhouse climbing plant there is now an uncommonly fine flowering example in Messrs. Paul and Son's nursery at Cheshunt. It bears on one spike no fewer than thirty flowers, the colour of which is most attractive, being rich reddish crimson. Such strong flowers, combined with elegant growth, render this among the most desirable of greenhouse climbing plants for winter flowering.

Andromeda japonica.—When this shrub is well flowered, as a pot plant there are few prettier objects for the embellishment of the conservatory at this season of the year. The flowers are like those of the Lily of the Valley, but scarcely so white, and more wax-like. These are borne in long necklace-like clusters, which hang in graceful profusion on all sides of the plant, intermixed with the thick, deep green foliage. A plant of it well grown and flowered was shown by Mr. A. Waterer from his Knap Hill Nursery, and was much admired.

The white Freesia.—The beauty of this Cape bulbous plant (F. refracta alba) was admirably exemplified in a group of plants of it at South Kensington last Tuesday. The plants were in small pots, and were profusely flowered; the spikes, laden with large, white, and deliciously-scented blossoms, were about 1 foot in height, and these, intermingled with the grassy foliage, had a charming effect. It is not a little singular that such a lovely plant has not been taken in hand before by Messrs. Veitch. This is the first time we have seen the plant shown in quantity.

Billbergia Wetherelli and B. Bakeri are both beautiful stove flowering plants which might be grown for the production of flowers in winter, as they usually bloom in January. It would be difficult to find anything more richly coloured than the inflorescenses of these two plants; the large bright scarlet, boat-shaped bracts clustered in profusion along the lower portion of the flower-stem, the yellow, green, and porcelain-blue of the tube-shaped flowers borne at the end of the spike, together with the graceful, drooping habit of the whole, ought to render them favourites in every garden in which stove flowering plants are grown. The above plants are now flowering in the stove at Kew. Another striking Bromeliad now bearing a strong spike of flowers is Hoplophytum coelestis, a large growing species with stiff channelled leaves, arranged in a somewhat vasiform manner, and an erect spike of crimson and blue flowers. In their present quarters the Kew collection of these plants, a collection exceptionally rich in species, is rapidly assuming a healthful and promising appearance, proving at once the preference of Bromeliads for a hot, moist, and light position rather than a dry and airy one, as is usually recommended, and in which the Kew Bromeliads used to be grown.

Plants in flower in Rutlandshire.—It may interest some of your readers to know that in our garden (just 500 feet above the sea), in a cold bracing climate, I picked on Feb. 1 15 kinds of flowers, viz., Primroses of various colours, many varieties of Polyanthus, Christmas Roses, blue and pink Hepaticas, Aconites, Aubrietia, Snowdrops, Crocuses, Violets, Wallflowers, Forget-me-nots, Nemophila, Pansies, Anemones, Oxlips, and some others whose names I do not know, besides yellow Jasmine, Mezereon, and Laurustinus. The Ribes sanguineum, too, is in full bud.—A. K. B., *Uppingham*.

Crocus pusillus.—This charming little Crocus has been sent to us by Messrs. Backhouse, in whose nursery at York it is just now highly attractive. It is one of the biflorus group, but smaller than any of the varieties, though it is by no means inconspicuous. The blossoms when expanded, as they are in bright sunshine, measure 1½ inches across. Inside they are pure white, while the exteriors of the petals are fawn coloured, pencilled and feathered with black. It flowers in a tuft, four, five, and six flowers together, the produce of one corm. The grassy foliage, mingling with the blossoms, adds to their charms. It is also sweetly scented.

Anemones.—Permit me to add a few words to what Mr. Smith says about Anemones. Last spring I got some plants from him; they were then in flower, and a week has not passed since when I could not get a bunch of those lovely flowers. Even to-day, after two nights' hard frost and snow on the ground, they are as bright as could be desired. My place is near the sea and fully exposed to the east wind, the soil very light and sandy. The single Anemone of different colours is almost a weed in my garden, and several attempts to eradicate it to make room for other things have proved abortive; the seed blows about and germinates anywhere, even on walls, so that it can hardly be out of the reach of anyone to make their gardens gay with this most lovely of flowers, provided they get the proper sorts to start with.—O. J. Kelly, *Blackrock, Dundalk*.

Seedling Primroses.—A gathering of these has been sent to us by Mr. G. F. Wilson, Heatherbank, Weybridge, in order to show the variety and brilliancy of tint existing among his seedlings, which are without exception all that could possibly be desired. It is difficult to single out any particular one as being the finest, all being so beautiful; but we might make special mention of Scott Wilson, a plum-purple sort, or having perhaps more blue than that; indeed, it is the nearest approach to a really blue Primrose we have seen. Other flowers are remarkable for the velvet-like lustre which overlies the actual colour of the blossoms. As Mr. Wilson raises Primroses by the thousand on the hillside at his Wisley garden, one naturally expects to see some high-class productions from him.

Hamamelis arborea.—This is one of the best shrubs now in flower in the Cambridge Botanic Garden. In it we have a recent novelty of considerable merit, and our small example of it serves to suggest the bright and sparkling effect which a large plant must have in the winter season. It is infinitely superior to the old Witch Hazel (H. virginica), to which it is closely allied. The flowers are much larger, and are of a bright golden yellow. This is the predominant colour, but, strictly speaking, it belongs only to the petals, the sepals being of a brown-red. The petals compared with those of H. virginica are much broader, being less like threads, and therefore much more ornamental. These are the only species of the genus, and they are much more distinct horticulturally than botanically. Messrs. Rodger, M'Clelland & Co. have a kind which they call H. Zuccariniana, probably a variety of this plant, but said to differ from it in having pure yellow flowers, the sepals being yellow as well as the petals. H. arborea is a native of Japan, and from the fact that the other species may be found from Canada to Florida, we have an instance showing the close relationship there is between the floras of those widely separated countries.—R. I. L.

Iris reticulata.—I send you flowers of this Iris, from which you will see that there is a great difference in the colours; the kind that bears the red-purple flowers grows much dwarfer than the other. I had always thought that the red-purple was Krelagei and the blue-purple reticulata; but the bulbs from which these flowers came were a mixed lot of reticulata. The blue-purple plants that bear the flowers grow taller and far finer than those that produce the red-purple ones.—H. Stuart Wortley.

*** Very good blooms. The red-purple form is Krelagei; the dark purple is considered to be typical I. reticulata.—Ed.

Burchellia capensis, an old acquaintance, is really a serviceable plant when grown as we saw it at Kew the other day, or as we saw a plant of it exhibited at one of the Richmond shows some three years ago, this latter being nearly 6 feet high, bushy, and covered with umbels of salmon-coloured flowers, which in size and shape may be likened to flowers of Erica Cavendishi. At Kew there are several small specimens among the African plants in the Palm house. These are 18 inches high, and bear over a dozen umbels of flowers, either fully developed or in bud. As a winter flowering plant this Burchellia might be much more popular than at present it appears to be.—B.

Steudneria colocasiæfolia.—This is a handsome Aroid with the foliage and habit of a Colocasia or Alocasia, to which the Steudnerias are closely related. They have a succulent stem, clothed with brown membranous sheaths; the leaves are Caladium-shaped and dark green. The flower of the species just named is borne on a longish stalk, and is composed of a deep purple-coloured spathe, some 6 inches in length and about 2 inches in width; the underside is yellowish green. The spadix is pale yellow, and about 2 inches long. A faint odour is emitted by the flowers on first opening. The figure in the *Botanical Magazine* (tab. 6076) is not S. colocasiæfolia, but S. discolor, a species with a lemon-yellow spathe, with a blotch of purple about the throat; the leaves, too, differ in having blotches of the same colour on the underside. The Steudnerias are natives of India. There is a plant of S. colocasiæfolia now in flower in the stove at Kew.—B.

The Mexican Bird flower.—This rarely-seen plant (Heteroma lobelioides) has acquired its popular name from the supposed resemblance of its flowers to a bird. It is nearly related to the Lobelia, and promises to be a much more valuable plant than was at first supposed, or even hoped for, both for the greenhouse and conservatory, and even for sheltered nooks in the rockery in mild winters. Although in all probability it may not have as yet reached the hands of many cultivators, owing to its having only recently been introduced from the Continent, the ease with which it may be increased from cuttings, and the cool treatment suitable for its full development, are undoubtedly recommendations which will go far to assist in its speedy distribution. It is very unlike any of the other Lobeliaceous plants in habit of growth, as well as in the form and colour of its flowers. Perennial in duration, it grows about 2 feet in height, quite bushy, and well clothed with large dark green heart-shaped leaves. The flowers, which are produced freely, are borne near the summit of the branches, the very curious shaped corolla being attached from the middle to a slender stalk. The lower half is of a deep scarlet, which contrasts very strikingly with the upper half, which is very bright shining yellow, surpassing in interest even the beautiful L. cardinalis. Flowering as it does, too, at this season when bright colours are so much required, it is unquestionably an acquisition.—D. K

Flower Garden.

NEW SEEDLING HELLEBORES.

Few seem to be aware that other Hellebores besides the common Christmas Rose (H. niger) and its varieties possess beauty. The general impression appears to be that all other kinds of Hellebore are green-flowered, unattractive plants, only fit for botanical collections, no other but the common Christmas Rose being, as a rule, seen in private gardens. Besides H. niger, there are about a dozen species in cultivation at the present time, though only about half that number can be recommended for general culture, the rest being green, unattractive, and often malodorous. These half-dozen select species are named atrorubens and abschasicus, both with deep, vinous purple blossoms, bright and showy when well grown; colchicus, with deep claret-red flowers; olympicus, with pure white cup-shaped blooms; guttatus, like olympicus, but spotted; and antiquorum, with flowers greenish white, but handsomely shaped.

Flower of Helleborus Commerzienrath Benary (natural size).

Within the past few years these half-dozen so-called species have been taken in hand by hybridists, the result being that a numerous race of seedling varieties has been obtained by intercrossing. It is astonishing what strides have been made in this direction in so short a time, having regard to the length of time which it requires for a Hellebore to grow to a flowering stage. This work of hybridising has been carried out chiefly in continental nurseries and gardens, as may be gathered from the German names which have been given to the majority of the produce. Of these named seedlings, about a dozen are already in commerce in this country, by far the best being the one figured herewith. It is named Commerzienrath Benary, and may be best described as an improved guttatus. The flowers are cup-shaped, perfectly white, and copiously spotted with purple. Our drawing represents the flower, natural size. It was made from some fine blooms sent to us from Messrs. Rodger, McClelland's nursery at Newry about a fortnight ago. Two other seedlings in the way of C. Benary are guttatus Leichtlini, a much shallower flower, but quite as profusely spotted, and sub punctatus, which lacks the copious spotting for which the two just named are remarkable. The seedlings obtained by crossing colchicus with guttatus appear to be F. C. Heioemann, rosy purple freely spotted with a deeper hue; Gretchen Heinemann, Hofgarten-Inspector Hartwig, Frau Irene Heinemann, and Apotheker Bogren are all similar; in fact, it needs a very minute description to indicate the difference that exists amongst them, judging by what we have seen of them in the grounds of Messrs Barr & Son at Tooting. H. olympicus Professor Schleicher and Willie Schmidt are both pure white, and may be regarded as improved forms of the typical olympicus. They are probably only seedlings from that species.

These are the principal continental seedlings already in commerce in this country, and all may be recommended to those who do not like to see their hardy borders flowerless in February and March. In mild winters they even bloom freely in January. There are several other fine seedling Hellebores belonging to this section that have been raised in this country; for instance, Mr. B. Hooke, who is quite a specialist as regards Hellebores, has several of his own raising quite as handsome as the continental kinds.

The culture of Hellebores is so simple that anyone may grow them who has a garden. They like a somewhat sheltered corner, not too shady, but not fully exposed. They like to see a little sun during the morning, but seem to object to its full force throughout the day. They are fond of high culture in the way of rich mulching, and the soil in which they seem to revel most in is a sandy loam. They are admirably adapted for cutting from, as they all have long flower-stalks, which, being slender, are very graceful. The colours of the flowers, too, seem to show themselves off to better advantage when placed loosely in a vase in a room than in the garden. Hellebores, however, of this section, possess one fault which seriously tells against their use as cut flowers, and that is, they do not last more than a couple of days in water; whereas their congeners—the true Christmas Roses—last in bloom in water for weeks together. W. G.

ORIGIN OF LILIUM MELPOMENE.

Some three or four years ago I sent to The Garden some account of the production of numerous seedling Japan Lilies, and among them Lilium Melpomene. Some details as to their growth were omitted; but without the trouble of referring to what I then stated, I send you an account of this beautiful Lily, the plate of which you state was drawn in Mr. G. F. Wilson's garden at Heatherbank, Weybridge Heath, to whom I sent a few bulbs along with others of my seedlings raised about the same period as L. Melpomene, all of which under his good treatment have flowered in perfection. I think it was in the year 1845 that I commenced the hybridisation and production of new Japan Lilies. Having at that time strong bulbs of L. rubrum, album, and punctatum, I thought it possible to produce larger and more perfectly shaped flowers, as well as darker or intermediate colours, though how to do the former I did not know, as there were no darker Japan Lilies than L. rubrum; it occurred to me, however, that L. tigrinum or even L. chalcedonicum might accomplish this, and having them in bloom, both L. rubrum and album were fertilised with them; other species or varieties were also used to fertilise the flowers, until we had in all twelve different fertilisations. These seeds were all planted, and yielded a fine lot of young plants. In subsequent years similar experiments were made, with the uniform result—a good crop of seeds. But which were the parents of L. Melpomene it is impossible to state; for although labels were originally attached to each plant, designating its parentage, it was so long before some of the bulbs came into bloom that many of them were either lost or defaced. There was great difference in the seedlings, and all that showed the least distinctness were noted and catalogued, but Melpomene was not among the number with a label attached. It has always been my impression that it was raised from L. rubrum, fertilised with L. tigrinum, though I have sometimes thought L. album might have been one of the parents, from the almost pure white margin of every petal, and because my memoranda record that many of the seedlings from L. album gave very beautiful deep crimson-spotted flowers. What appeared most remarkable was the fact that I only produced one pale rose-spotted flower like L. punctatum.

Out of thousands of seedlings raised during a period of ten or more years, I selected upwards of thirty which I find recorded as very distinct and beautiful, but this was too large a number to keep distinct, and after selecting and naming nine of the most remarkable, the remainder I considered as improved forms of L. rubrum, under which name they were widely distributed, and which no doubt has been the cause of so much difference in the flowers so often exhibited as L. rubrum, some being very much darker and more densely spotted than others. Not only is L. Melpomene distinct and rich in colour, but the habit and general growth of the plant is equally good. It is much dwarfer than L. rubrum. The foliage is short and set closer together, and the flowers make a more uniform and compact head. The stem has a brownish tinge and the stigma is of a dark purplish tint, a characteristic by which it may be

readily distinguished. The bulb is also shorter and more compact than that of L. rubrum. It is certainly very gratifying to know that this Lily is so highly appreciated in England. Ever since I saw the first bloom I have thought it would be difficult to find one more beautiful; and now, after so long a time, I have never seen a Japan Lily which could compare with it in depth of colour or the distinctness of its blood-red spots, heightened as these are by the white border of each petal. The nearest approach to it is another seedling called L. Thalia. The variety L. cruentum and others are no finer than many of the seedlings we disseminated as L. rubrum.

I have always regretted that I had not preserved the parentage of Lilium Melpomene, as it might be some guide to other cultivators in the production of seedlings; but in the absence of such information we can only use such varieties as we possess in such a manner as we think will accomplish the end in view. With the most careful experiments with varieties which appear likely to produce new and distinct flowers we are often disappointed; while oftentimes an accidental fertilisation, with no particular object in view, will produce some new and remarkable variety. The hybridiser should, however, always have some object in view, but at the same time he should never regard less careful experiments as not likely to afford any good results. C. M. Hovey.

Boston, Massachusetts.

ORIGIN OF MARIGOLD METEOR.

A German novelty under the name of Marigold Prince of Orange, selected by M. E. Benary, is being offered in Continental seed lists. The flowers are marked in the same way as those of Meteor, but the florets are striped with a more intense shade of orange. Such is the description given of it. I think this will prove to be no novelty at all, but is simply a counterpart of Meteor.

This pretty Marigold is claimed to be of foreign origin, but to this I demur. Two or three years before I heard of it from Messrs. Haage and Schmidt I had found it in a Kentish farmhouse garden, and while at the same time struck with its beauty, I yet looked upon it as an accidental sport common to the pot Marigold. It was growing in this garden like a weed and in large numbers, and had been doing so for a few years past. It is supposed to have been brought there from Hothfield Gardens, near Ashford. I brought a few plants to London late in the autumn; they were potted, kept in a cold house, and in early spring, when they were in fine bloom, I submitted them to the notice of the floral committee of the Royal Horticultural Society, but that body, while admiring their beauty, appeared to think that the striped character was due to the flowers having opened under glass, and passed it by accordingly. I think that was the first appearance of this plant in flower in London. Amazed at a body of men thinking so great a change could come over a flower that had opened under glass in a cold house, I did not trouble to show it again, but that same season flowers were sent over by Messrs. Haage & Schmidt, and it was also shown by Mr. Cannell, and eventually certificated.

The foregoing may prove a useful historical record. I think the facts are accurately stated. It would be interesting to know, and it would also be valuable as completing the record, if some information were forthcoming as to how the plant found its way to Hothfield. I am not able to say for certain that it was from Hothfield that it originally came, but that was the name of the place as given to me. R. D.

Clove and border Carnations.—I have always given a large corner of my garden to these, and this year it will be increased. There can be little doubt that numbers who never grew Clove Carnations before outside will be tempted to do so after seeing the really beautiful plate of them lately given in The Garden, and personally I can testify that the sorts figured are true to Nature. I have long since given up the idea of growing or recommending others to grow so hardy and adaptable a flower as the Carnation indoors. The number of the very best, including bizarres and flakes, that will not thrive and produce better blooms outdoors than in, is more limited than many are inclined to imagine. I am not now referring to growing plants for an exhibition stand when, like the Chrysanthemum, you see all the buds removed except one on the top left conspicuously alone. The old sweet crimson Clove continued in bloom with me up to December last, and each plant must have given one hundred blooms. The Governor is the best and most prolific blush-white I have met with, even more so than the white Clove. I would widen and not restrict by artificial rules the growth of such richly-scented and beautiful tinted hardy flowers. For instance, to ostracise a handsome double border Carnation because it has fringed instead of even-edged petals reflects no credit, to my mind, on the florists. Mr. Burbidge, Trinity College Gardens, Dublin, gave me some bright rose, pink, white, and mauve of this description—free growers and free bloomers—that you could cut and come again to for months. Why should they be less prized?—W. J. M., *Clonmel.*

SOME OUTDOOR FLORIST FLOWERS.

Violets.—I cannot agree with "R. A." (p. 75) when he says, "In order to grow Violets well I find they need shade and moisture, so I make it a rule to grow them on a north border." This is not my experience, nor is it the custom here or, so far as I know, elsewhere to grow them on a north border with shade; on the contrary, the warmer the bed or bank, and, if possible, with a southern aspect, the sooner and more numerous one has Violets. I have Neapolitans almost the year round on a rich raised basket bed facing south, and adjoining in another the Victoria Regina and that gem, Swanley White, that makes me think of Mr. Cannell whenever I sniff its fragrant and numerous double flowers. Odoratissima does not do so well with me. I am not at all satisfied, when the soil is fairly rich, or when a drink of liquid manure is given now and then, to disturb Violets. Every year the useless runners may be cut back and the plants top-dressed; and if the top-dressing is put on early and heavy, it will do them great good; even if it covers the foliage it will keep away the red spider, and give that wonted vigour so conspicuous in healthy foliage.

Auriculas.—I cannot say my limited frame collection of edged varieties ever ceased growing this winter. This is no matter of surprise, as we can hardly be said to have had any; the thermometer stood at 50° Fahr. on Christmas Day here in the open air shaded. I am certain those out-of-doors in the beds and some of the better shaded self kinds, which I keep in long boxes on raised stages, did not take the shortest siesta, if I may so say, for no day passed that I could not smell a bloom. This need not surprise, for a bloom in winter will hold four times as long as in summer. At present in one of these boxes I have a bloom on a green-edged old variety called Warris Union. The edging is not quite even or orthodox, but the plant is so vigorous, I never protect it; the bloom is the size of a florin. Campbell's Confidence is a vigorous grower also, but promises this year to be outdistanced by Robert Trail—generally unreliable since I got it from Mr. Cannell three years ago. Lightbody's other grey-edge, Richard Headley, seems much more certain. As pointed out by Mr. Douglas in last issue, now that active growth has commenced, it is an excellent time to take offsets. One requires much patience to grow Auriculas from seed. Last year I got about fifty edged, and am since a whole year nursing them, and am wistfully hoping to see something good amongst them; but in most instances I fancy I must wait another year to discover if they may not be rubbish. Of green edges, the most promising I have is Atlas, another of Lightbody's; General Neil has a very diminutive and unimposing appearance; while of whites, True Briton looks better than last season, but yet is inferior to White Rival. You have many advantages of us in England, but, so far as was noted, I believe, by the Rev. Mr. Tymons, we in Ireland have not yet imported the woolly aphis, nor yet, I believe, the Phylloxera.

Gladioli.—G. gandavensis hybrids do not force well, and G. brenchleyensis is so precocious a bloomer, that there is little occasion to force it. For early use, except when I wish to specially try some expensive hybrid, the only Gladiolus I start early and grow on a tan or leaf bed is that beauty G. Colvillei The Bride. No one should be without a few potfuls of this who has even an open window to grow it on in. Started in October and not unduly forced, I hope for flowers within a month, just as the pot Hyacinths and early Narcissi will be making their departing bow. One of the uses I make of such beauteous white flowers is for church decoration, and any of your clerical or other readers who have not tried them thus, with a shaded or dark background, should do so. They are only outdistanced for such purposes by the Madonna or other white Lilies, which they precede, and last much longer if not too much forced. I am just now examining my hybrids of G. gandavensis, which have been undisturbed since taken up last November, and were then enveloped in moist river sand. The sand slowly dried out, and the corms are now as hard and firm as bullets. I hope to make my first sowing the present week, and will put them down in succession for about six weeks. I am told Messrs. Laird & Sinclair, Dundee, have been trying Lemoine's new hybrids, as likely to be more suitable for their cooler climate. I have so much success with G. gandavensis hybrids, as frequently noted in The Garden, that I have not been tempted to grow them. I have seen them, however, fine with Mr. Burbidge, Trinity College Gardens, and with Mr. W. E. Gumbleton, Belgrove, near Queenstown.

The Dahlia is another of the roots I have been overhauling within the last few days. They had been stored away in a dry back room in boxes of mould, since lifted, and do admirably treated like tuberous Begonias, or, simpler still, like Potatoes. Those I wish to increase will be put on a mild hotbed, and shortly I will plant out in the borders, graduated according to their height, the remainder. The special singles, such as Avalanche or White Queen, Harlequin, Paragon, and others, which I may take as typical kinds, and also including the dwarf lutea, Vivid, and others, both the crimson and white Juarezi, I give, when space permits, separate small beds, too. I must, however, step aside to recommend the bouquet section, as they come in so usefully for cutting purposes. I should have said I left out all the winter, for want of space to store them, a number of my own seedlings, and already growth has commenced. I am constantly reading recommendations that the ground cannot be too highly manured for Dahlias. For the vigorous growers I consider this a mistake; ordinary growers for decoration want tidy blooms, and not an immense lot of foliage, with one exhibition bloom lost in its profusion. Liquid manure should be more depended on, as in the case of Roses.

Tuberous Begonias.—As already mentioned, I have been shaking these out of their pots. This differs somewhat from the ordinary custom of allowing them to start into growth naturally. This without some extra heat, even this mild winter, they will not do for more than a month yet. This would be a month lost to their period of blooming, and no one, to please Nature or Nature's patrons, is prepared to make the sacrifice in this age of rapid motion. Where used for filling the beds in the flower ground, as they should be largely availed of, they should be started immediately on a mild hotbed and slowly hardened off, until planted out say in May or whenever all danger of smart frost is gone. They will then flower immediately, and continue in profusion, the brightest gems of the flower garden, until October or November. Although I have seen the doubles bedded out, I think the better kinds much too good for this purpose—too good to be splashed with rain

and soil, or whirled away by the wind. The singles are not so heavy and have greater staying power. Those who have not seen the newer varieties raised by Laing, Crousse, Lemoine, &c., have a treat yet in prospective. Everyone should try their luck in getting something good by sowing a package of seed and watching the result. Unlike other florist flowers, a pan now, duly transplanted and attended to, will flower the same year, but it may as well be said at once that a magnificent double or single, say 6 inches across, large and fleshy, can hardly be hoped for

Pansies and Fuchsias.—Dissimilar as these are in many respects, to economise space, as I have already exceeded the limits you are likely to be able to spare me, I will refer to them from my point of view together. I have more than once in your columns commended the Fuchsia as a summer bedder. What comparison, except a geometrical one, between a line of these and some of the glaring bedding materials, cut into patterns with mathematical accuracy? Visitors say, "Very nice!" and pass on. We want something to arrest the attention—old favourites that were cherished by our grandsires, and that do not reqnire the scissors or clipping shears every morning. The Pansy is another of those that I never think of having too many of. Show and fancy do equally well. I hybridise and have a few pans of seedlings every year. A small black slug that cuts them across at the crown is with me their most inveterate foe. I make this habitat rather disagreeable for him, however, with occasional doses of soot water, which the Pansies relish, and which keeps away another of their enemies in summer—the red spider. But everyone should take offsets of named varieties, as hot sun is sure to bring on the latter evil, and then even the doctrine of the survival of the fittest will not avail. I took up the better varieties of Fuchsias in November, but corallina, &c., were left out, and had I known the winter should be so fine, I would have chanced all. What I do this way with limited facilities and multifarious other duties, all can do. W. J. Murphy.

Clonmel.

RAISING PRIMROSES FROM SEED.

Many complain to me that they fail with Primrose seed, and ask me to tell them why. The most important rule about Primrose seed is to sow it as soon as it is ripe. I never fail with Primrose seed which I can obtain at that time, and if the seedlings are properly treated, nearly every species I have tried may be made to flower within a year of the flower from which the seed was produced. I will not say that this could be done with all kinds; there are many species of which I have never been able to obtain seed at all, but I grow from seed every year on an average about twenty kinds, and find that what I have said above applies to all of them. In the first place, my soil and its surrounding conditions are such that I am obliged to raise all small seeds in pans or pots, even including such plants as Mignonette. The subsoil is so cold, and worms, slugs and similar pests so abundant, that all attempts to rear small seedlings in the open ground end in disappointment. So I take well-drained pots or pans—I prefer the latter, made square, 1 foot wide, and about 4 inches deep—and fill them to within half-an-inch of the top with fine good soil. But I must say something about soil. All gardeners know what good soil means; it is neither too stiff nor too porous; and the never-failing one-third rich loam, one-third leaf mould, one-third gritty clear sand, does for everything, and all that is necessary is that the soil used should have about the consistency of this mixture. Young amateurs are often frightened away from gardening by the articles written about soils. If soil grows ordinary plants and vegetables well, it is good enough for ordinary purposes, and it is the way to make gardening unpopular to give a list of chemical properties which, we must take care, are present or absent from our soils if we would grow this or that plant; but such precautions are seldom necessary. Having said this much, I am bound to admit that good gardeners have sometimes told me that Primrose seed I have sent them, and which has vegetated with me like Mustard, has failed to come up. I own, therefore, that it is possible that something has been deficient in their soil that has been present in mine. Two necessary and nearly universally present ingredients are

Lime and potash, and those who have failed to raise fresh Primrose seed would not do wr ong in mixing a spoonful of powdered mortar or lime and the same quantity of wood ashes with each pan of soil. This could do no harm. Still, where seeds fail it is far more frequently the fault of the surrounding conditions — slugs, worms, small beetles, or over or under-watering—than of either the soil or the seed. Having, then, filled our seed pans, we sow the seed as thinly or as thickly as we please; the more thinly it comes up, the more easily the seedlings are to treat, but I have often reared over a thousand from a pan 1 foot square. The surface should be smooth and dry when the seed is sown, and the soil previously pressed down so as to be tolerably compact. Small seedlings cannot take hold of the soil if it is too loose. Some gardeners recommend watering before sowing; that may be right, but I do not practise it. After sowing, pass a level edge, like that of a large plant-label, over the surface very lightly, which will cover the seed quite enough; then water with a fine rose, and never let the surface become quite dry afterwards. The usual month for sowing is June. I place the pans either in a cold frame close to the glass or out-of-doors, where it will not get much sun, and with a piece of glass laid over, taking care that worms cannot crawl up into the pot through the bottom. I never give any artificial heat to Primrose seed at any season.

Fresh seed generally appears above ground in less than a fortnight; seed which has been stored and is sown in spring is much longer in coming up. In the case of some kinds, as P. japonica, we are told not to expect it for a year. I have often kept seed-pans with seed in them for a year, and the seed has then come up, but the longer the time the greater the difficulties. Moss and Lichens of various kinds cover the surface, in spite of precautions taken to prevent it. The danger from vermin, underground and above ground, is increased, and I have no doubt that the sooner seed can be got up the more easy it is to deal with the seedlings. When the seedlings are of sufficient size to finger, they should be transplanted into other pans or boxes, whether they come up thinly or thickly. When large enough—the time this takes depends upon the species—they should be transplanted to a store bed out of doors, in the composition of which leaf-mould dug deep in should bear a large proportion. I find a narrow bed raised by tiles or stones a foot above the ground under a north-west wall the best store bed. The young plants should be planted deep, and small dressings of very old manure and leaf-mould are always good during their growth. They may be transplanted for flowering in October, but they will for the most part flower well under the north-west wall. When they flower select the best flower-heads and the best colours for seed. I am a believer in

Selection for seed rather than hybridising. I do not think I ever had a satisfactory hybrid Primrose of any kind, though there are said to be many good ones. I find it decidedly a good plan to dress the heads intended for seed with a camel's-hair brush; dab the brush down upon the flowers perpendicularly. I have compared the heads so treated with those left alone, and find they contain three or four times as much seed. The Primrose seed harvest is important, because in strong soils like that of my garden nearly all Primroses become useless after two or three years, and are never so good as at their second season's flowering. Some few divide well, as, for instance, all the forms of P. cortusoides, P. rosea, P. involucrata, which are easily parted; others, like the strong-growing varieties of P. denticulata and like P. japonica, may be cut to pieces with a knife after flowering, each division having a piece of crown and a piece of root, and these easily make plants; but still, seedlings are better before division. As for the Primroses commonly called "alpine," I regret to say that many of them are not very satisfactory for open-air cultivation. Amongst the stones of a rockery, facing north-west, in good deep gritty loam, such species as P. viscosa, P. marginata, and P. Wulfeniana do fairly well, and now and then produce a very fine truss, which ripens red; but I must own that all of them do better planted under a north wall through summer and potted and put into a cold frame in November, where they seem to flower more happily than out of doors. Still, where they are raised from seed there are enough for trying in both places.

Edge Hall, Malpas. C. Wolley Dod.

EARLY SPRING NOTES.

Our first Narcissus to bloom out-of-doors this year has been N. Corbularia alba, the white Hoop-petticoat Narcissus; it is now in flower in the alpine frame, from which the lights are always removed in fine weather, so that it has had no artificial forcing whatever. We have adopted movable frames for all the sorts of alpines which suffer from excessive moisture, and this promises to be a most interesting experiment, as the Androsaces appear to be unusually fine under this treatment. Mr. Barr sent me N. pallidus præcox from Tooting last week, but we have no Daffodil yet fully in bloom in the open garden, although N. princeps and N. nanus will both be in flower by hundreds by the time this is in print. These two Daffodils are most useful for forcing, and we have thus had them in the cool greenhouse for three weeks. A lady correspondent writes me: "It is delightful to see all the spring bulbs pushing up; Scillas in flower make one feel that the flower year has really begun." Who does not agree with this sentiment? As I walked round my garden this bleak, stormy, snowy, and yet spring-like day, and saw the delicate-looking Chionodoxa putting forth its lovely sky-blue mantle, I was reminded of Longfellow's beautiful floral metaphor, "Some, like stars, to tell us spring is born." But so gradually are we passing from winter to spring this year, that we have a bloom of Tritoma Uvaria, left over from last autumn, and showing its bright scarlet-orange crown still.

The Hepaticas are unusually fine this year. The double pink is exceedingly pretty; its deeper-coloured centre has all the brilliancy of a rose-ruby—a perfect gem amongst flowers. The large blue H. angulosa and the white Hepatica, of equal size, are grand spring flowers. Cyclamen ibericum is also in great beauty on our rockwork, with hosts of Snowdrops, Croci, and Aconites, and here and there a Leucojum, and Pulmonaria, Scillas, Erica carnea, Geums and Vincas, so that we are beginning to look quite gay.

The great Hellebores (altifolius) are having a second crop of flowers this mild season, and are just now nearly as floriferous as they were last November. Our own Christmas Rose is nearly over; its few remaining flowers pass rapidly from white to green. Its blooming time is far shorter than with its larger sister. This is the best time to move these two Hellebores. They can be sent by parcels post quite readily, all the earth being shaken from the roots, and if divided and carefully planted on arrival, they will settle down and become good plants to bloom next season. The coloured spring Hellebores are now coming nicely into bloom, and are a most interesting class of plants which cannot be too widely cultivated. The forms of olympicus, antiquorum, orientalis, colchicus, atrorubens, and the newer caucasicus punctatus of Backhouse (which is probably akin to the old guttatus) are all most interesting varieties—whites, reds, and purples. The green-flowered sorts are quite as pretty in their own quaint way. These, however, are being rivalled by the numerous hybrid forms which are now before us, headed by C. Benary, a beautiful white Hellebore with purple spots, as in a Rhododendron. Several others of the Heinemann va-

rieties are also of great merit. Mr. Archer Hind and Mr. Tyerman have also raised many remarkable seedlings, both self-coloured and variegated, and some with amazing vigour, giving promise of a sturdy race of new Hellebores. I have leaves from Mr. Archer Hind's plants with stalks 2 feet high, and spread of leaf far beyond the largest of altifolius. The flowers also are large, and with much beauty of form and colour. It is thus evident that we are on the eve of a new era in Hellebore culture, and that we may look for some charming varieties in all the classes. We have a pretty little blue flower, Synthiris reniformis, about which I know nothing; and yet it is worth notice, coming thus into bloom at the end of January. It has bright blue flowers with white tips, like a large blue Milkwort; the leaves are, however, kidney-shaped. Can any of your readers give us its history? Saxifraga ligulata speciosa, one of the large-leaved Saxifrages, with delicate pink flowers, is blooming in our alpine frame, and S. orbicularis is in bloom on the rockwork; these appear to be the same plant. The names of the Megasea group of Saxifrages are in much confusion. I shall be glad to exchange notes with any grower during the coming season with a view to their amendment. This class of Saxifrages is far too little cultivated. If grown in sheltered situations, where the foliage escapes the withering influence of cold winds, they are most valuable winter bloomers, and are of great beauty. They also do well in frames and for cool greenhouse work. Both foliage and flower are beautiful when well grown. Ranunculus anemonoides is in flower with us on the open rockery; it is a quaint flower of much interest. It is always a puzzle how to cover the ground on bulb beds without interfering with the growth of the bulbs. On one of our large Narcissus banks we have planted Sweet Violets, and this promises to be an excellent plan, as the two will blossom together and in no way interfere with each other's growth.

Brockhurst, Didsbury. WM. BROCKBANK.

WHAT IS A GILLYFLOWER?

THE following extract from Britten and Holland's "English Plant Names" may possibly be of interest to your readers in connection with the recent note in THE GARDEN on the Gillyflower: "Gilliflower, formerly spelt Gyllofer and Gilofre, with the *o* long, from Girofl*é*e (Fr); Garofalo (It.); in Douglas's 'Virgil,' Gereflouris, words formed from the Latin Garoffolum, Gariofilum, or, as in Albert Magn., Gariofilus, corrupted from L. Caryophyllum, a Clove (Gr., Karuophullon), and referring to the spicy odour of the flower, which seems to have been used in flavouring wines, to replace the more costly Clove of India. The name was originally given in Italy to plants of the Pink tribe, especially the Carnation, but has in England been transferred of late years to several cruciferous plants. That of Chaucer and Spenser and Shakespeare was, as in Italy, Dianthus Caryophyllus (L.); that of later writers and gardeners, Matthiola and Cheiranthus (L.).—Prior, p. 90. In the older writers D. Caryophyllus was, as Dr. Prior has shown, the Gilliflower *par excellence*. The name was, indeed, shared by many other plants, but always with a distinctive preface. Some later authors, however, as Martyn, in his edition of the "Gardener's Dictionary," seem incorrectly to consider Matthiola incana as the true Gilliflower. It would seem that it was more especially the smaller varieties of D. Caryophyllus to which the name was originally assigned. Parkinson (Parad., p. 306) says: 'I account those that are called Carnations to be the greatest, both for leaf and flower, and Gilloflowers, for the most part, to be lesser in both.' Shakespeare also distinguishes between the two—

> The fairest flowers of the season
> Are our Carnations and streaked Gilliflowers.
> *Winter's Tale*, Act iv., Sc. 3.

Parkinson says (p. 314) that the name 'is taken from Cloves, in that the scent of the ordinary ed Gilliflower especially doth resemble them.' The name Gilliflower is spelt in a great variety of ways: 'Chaucer writes it Gylofre; Turner, Gelover, Gelyfloure and Gelofer; Gerard and Parkinson, Gilloflower.' Mart. Mill. Hal. quotes the spelling, Gelowe-floure, from Palsgrave, and Gillofer is another common old spelling." J. W.

Violets.—Amongst varieties of Violets that should find a place in every collection we must undoubtedly include the Venice. It is considerably larger than Marie Louise, has a full, well-rounded eye, and the white marking round the eye is clear and well defined. The blooms stand well up on a long stalk, and, being large, are useful for button-hole bouquets. Mr. Lee, of Cliveden, tells me that it is rather tender. It has not, however, suffered in any way during the present season with me, and I imagine that a very slight covering would be sufficient to preserve it.—E. B.

Planting Ranunculuses.—I have been making two beds of these within the last few days. It is a little early, but the soil is warm and dryish and does not retain much moisture, and, except a great change comes, I do not anticipate any harm. Here we have had practically no winter this year. I am now only referring to the more tender Persian Ranunculus, for the hardier and more robust French, and the too seldom seen semi-double Meladores, and that grand strain the Cockade Ranunculus, as well as the home-grown Turbans, are all over the ground, and were planted out last October. Surely those grand, showy, outdoor flowers, that exacted so much admiration from our grandsires, are deserving of encouragement from THE GARDEN that has done so much to banish mere glare and geometric formality in the flower grounds! There is hardly any soil or situation in which the hardier and more robust kinds will not succeed. All of us should grow some of them.—W. J. MURPHY, *Clonmel*.

Clematis Jackmanni.—I am surprised to see in the notice of Mons. Lavallée's book upon the Clematis (p. 111) that he declares C. Jackmanni to be not a hybrid, but a Japanese species. In Messrs. Moore & Jackman's book, "The Clematis as a Garden Flower," a very clear account is given of the origin of C. Jackmanni as a hybrid (pp. 9, 10). We are told, too, that C. Prince of Wales, C. rubella, C. velutina purpurea, and others came from the same cross; and the great similarity in colour and habit between all these Jackmanni Clematises makes it evident that they are all seedlings from the same source. I am very sorry to see that two most beautiful Clematises, C. florida and C. Sieboldi, are apparently going out of cultivation. There is a grace and delicacy in the slender growth and shape and colour of the flowers of these kinds which is wanting in the newer and larger sorts. Neither of them now appear in Messrs. Smith's or Messrs. Jackman's lists. I saw C. florida growing very beautifully in Mr. Frank Miles' garden at Bingham some years ago.—G. H. ENGLEHEART, *Appleshaw, Andover*.

SHORT NOTES.—FLOWER.

Clematis Jackmanni.—This, long supposed to be a hybrid, is declared by M. Lavallée to be a Japanese species called C. Hakonensis—not Habonens s, as inadvertently printed in THE GARDEN last week (p. 111).

5141.—**Weeds on lawns.**—"B. J." may destroy the tap-rooted weeds in his tennis lawn by a drop or two of sulphuric acid placed on the crown of each plant by means of a barbed pointed stick. The acid may be held in an old blacking bottle, with a piece of wire round the neck to carry it by. Great care must be taken not to get it on the hands or clothes.—F. T. G.

Iris susiana.—Mr. Grieve is quite right in what he says (p. 102) respecting this Iris. It grows quite well as a border flower in warm and chalky districts. The theory of those who say that the roots want baking for six months is not supported by the healthy existence of the plants in question through the recent wet and sunless summers.—V.

Primroses, Violets, and Wallflowers.—The daily papers have during the last few weeks had sundry notes of wonderful productions consequent on the mildness of the winter. These include ripe Gooseberries gathered in the open air (a blind man must have seen them); but to my mind nothing has been more wonderful than that here, in North Hants, we have had abundance of Violets, Primroses, and Wallflowers the whole winter through, and now they are to be had in still richer abundance.—W. W.

Chrysanthemums in Japan.—The note "from Tokio" (p. 100) is very interesting to me. One of my most valued Chrysanthemums is a kind bearing the name Tokio, and quite answering to the description of the flowers alluded to—"a Chrysanthemum of feathery form and delicacy, long slender petals rising in exquisite fringe." Moreover, in colouring it is unique, coming nearer to scarlet, particularly when freshly opened, than any other kind I have seen. Its flower-stems are peculiarly long and slender, and the bearing of the whole plant most graceful. But, being of this character, it is in little request among florists and exhibitors, and it is absent from some of the largest lists. There is a variety of much duller colouring sold under the same name. I may add that I will gladly give a sturdy rooted cutting in exchange for the same of any of the following late sorts: Fulton, Meg Merrilies, Mrs. Charles Carey, or grandiflorum.—G. H. ENGLEHEART, *Appleshaw, Andover*.

Erysimum Peroffskianum.—This is certainly one of the brightest, as well as one of the hardiest, of the hardy annuals. It also appears to be the earliest to bloom in spring, coming in, if sown in early autumn or late summer, with the Wallflower, which it excels in brightness, the flowers exhibiting a rich tinge of orange, so that when grown in masses it presents a fine appearance. To have it well in bloom in spring, the seed should be sown by the first week in September, choosing a sunny place for so doing. Thin out when up, so that there is no danger of overcrowding, and plant in permanent positions by the middle of October at the latest. Where the soil is very poor, this plant will flower quite dwarf, and form masses of bloom not more than 6 inches high; but where the plants get plenty of nutriment, they attain a height of nearly 2 feet. Seed may also be sown from the middle of March to the end of June.—J. C. B.

New florists' flowers.—I see it stated in the last GARDEN, in an article on "New Plants of 1883," that nine Carnations and fourteen Auriculas were certificated last season. Of the former four are named, but, with the exception of Henry Cannell (which seems wrongly described as a scarlet instead of scarlet flake), all those mentioned are sorts for the borders. It seems strange, firstly, that the names of all these flowers should not be given, and then that those specified by name should, with one exception, not be those of the best. What, for instance, is Royal Purple? There must be hundreds of purples produced every year more or less royal (imperial would be the correct term, I suppose). As far as I know, there have been brought out last year: Auriculas—Gold finch (Barlow), Monarch (Horner), Miss Lodge (Douglas), Ajax (Horner), Conservative (Douglas), Sylvia (Douglas), Adonis (Barlow), and Carbuncle (Barlow). Carnations: Rose flakes—Dorothy, Tim Bobbin, Rob Roy; scarlet flakes—Henry Cannell, Figaro; purple flake—Squire Whithourn (Dodwell): pink and purple bizarres—Mr. Anstiss, Wm. Skirving; crimson bizarre—Samuel Barlow (Dodwell); Picotees—Mrs. Webb, Esther Minnis (Dodwell). It would be a boon—a treat—to amateurs to know what those able to judge think of these new sorts—what, for instance, Mr. Horner's opinion is of the new Auriculas and Mr. Douglas' of the new Carnations and Picotees.—F. DEREHAM.

Acroclinums.—These stand in the foremost rank amongst Australian annuals. They are everlasting in character, and can be grown with but little trouble. Anyone having a light, warm, sandy loam may sow the seeds thinly in the open air in the end of April. Thus treated, they succeed much better than when sown on an ordinary hotbed and transplanted. Though classed with half-hardy annuals, it must not be supposed that the seeds will not grow in the open ground; but the nearer the soil approaches to the character of that named above, the greater will be the success in producing fine heads of blooms. There are three varieties of Acroclinums, viz., roseum, the single form, and, in addition, a new double form of recent introduction; and there is also a white

variety. The flowers are compact, symmetrical, and handsome, and they are very durable in a cut state. The best time to cut them is when the flowers are pretty well developed; they should have long stems, be tied together in a bunch, and hung up in any cool place until the stems become quite rigid; then, when reversed, the stems will be found surmounted by flowers as when growing. They can be made useful in many ways for house decoration in winter. On the Continent, and also in this country, Acrocliniums, in common with other Everlastings, are dyed in various colours in large quantities, and are used up in various ways, such as in bouquets, wreaths, crosses, &c.—R. D

SHOWY ERIGERONS.

The difference between the Fleabanes and our well-known Michaelmas Daisies is hardly definable, at least as regards ordinary garden purposes, were it not for their invariably larger and much more numerously rayed flowers. The dwarf-growing and extremely free-flowering character of nearly all the perennial Erigerons, and the ease with which they establish themselves, even in the most unwelcome-looking situations, are surely good recommendations as to their value, especially where

Erigeron glabellum, showing habit of growth and flower (half natural size).

Asters are considered to be too strong and coarse growing for the size of the garden, or where only a few of the most showy representatives from each of the families is the object in view. Some of them are also very useful in larger establishments where attention is given to permanent bedding, and few plants will be found more appropriate for this purpose as regards neatness of habit and beauty combined than the lovely Robin's Plantain (E. bellidifolium and E. speciosum), not, however, as small specimens—the form in which they are generally seen in mixed borders—but in large natural masses, either isolated or in systematic groups, as taste may dictate. In this way only the true beauty of such plants can be seen and appreciated, a fact which should ever be borne in mind when forming masses of hardy flowers. E. speciosum is a native of North America, and grows from 1 foot to 2 feet in height; the stalks are leafy, and terminate with large heads of fine purple flowers covered with soft hairs. It is a fit associate for Robin's Plantain, which has slender stalks, on which are borne large clusters of pretty light bluish flowers. In the copses and on moist banks in the United States it is said to present when in flower a most pleasing appearance throughout most of the summer; for shady places under trees or along the margins of lakes it is a very suitable plant. Amongst the most valuable sorts for the rockery may be named E. mucronatum, a Mexican species known in gardens under the name of Vittadenia triloba, and which calls to mind Burns' "wee modest crimson tippit flower," from its strong resemblance to the Daisy, minus its stiffness, the habit of the Erigeron being very graceful and tinged with deeper purple. It also makes a pretty bedding plant, and is being extensively used in some places for that purpose. It is perfectly hardy. E. aurantiacum is a kind which has been recently introduced from the higher mountains of Eastern Turkestan by Dr. Regel. It is a plant of very peculiar merit, and one which in the hands of practical hybridisers will in all probability give us quite a new race of fancy coloured hardy composites. Its cultivation is being taken up by market growers on a large scale, no doubt on account of its bright orange-coloured flowers, the rays of which are set so closely that the flower appears to be double. It measures from 1 inch to 2 inches in diameter, and the plant requires a light, dry soil.

E. glabellum, represented in our woodcut, is a native of North America, where it is found plentifully on the Missouri plains. It grows from about 18 inches to 2 feet in height, and proves to be a very useful plant for the flower border. Its leaves are broad, lanceolate, and pointed, and the flowers, which vary from one to six, are much larger than those of E. aurantiacum, and generally have over 100 ray florets, bluish purple and very pretty. It flowers from June until August. E. multiradiatum is a very variable plant, and one of the most beautiful of the Himalayan species. It is closely allied to E. alpinum and E. Roylei, and some of the varieties seem to run into the latter. It has large, bright purple blossoms 2 inches in diameter, and grows about 2 feet in height. It is very useful for cutting. E. philadelphicum, the creeping Erigeron, a Canadian species, having numerous rose-purple or flesh-coloured flowers, is very useful in company with E. Villarsi for moist, shady nooks in the rockery. Fordyce's Erigeron, E. glaucum, has hitherto been more extensively cultivated in greenhouses than out of doors, and on dry, sheltered slopes it stands our winters without severe injury; the leaves are broadly oval, thick, fleshy, and quite glaucous. I has a neat sturdy habit, and is a very free flowerer. D. K.

5141.—**Weeds on lawns.**—There are several ways of eradicating these, each having its advocate, but one of the best methods I ever adopted is that of digging them up. This may appear a formidable task at first sight, but in practice it is not so, as it is quite surprising what a large breadth of ground an active person may get over in the course of a day if they have the right kind of tool with which to work. One of the most suitable implements I have seen or used for the purpose I had made by our blacksmith out of a piece of an inch-wide flat iron bar; this I had put in a handle and chisel-sharpened it at the point. It is also bent, so as to give leverage after being forced into the ground close beside the weed, which it cuts; then by pressing the top down, the weed is at once lifted sufficiently to be laid hold of by the left hand and dragged out. Buttercups, Daisies, and Plantains may soon be got rid of when thus dealt with, but it is necessary to follow them up, as though the bulk is destroyed, stragglers from seed are sure to make their appearance. The best time to wage war with the weeds named is in spring, as then, when the weather is warm, the work can not only be carried on in comfort, but with speed, as weeds all show themselves then, especially Daisies. Another plan of clearing lawns of weeds is to get some sulphuric acid in a large-mouthed bottle, which should have a wire round its neck to carry it by; then, by dipping in a notched stick by the right hand, a drop or two may quickly be deposited in the heart of each weed, which the acid burns up and kills in a very short time. It should, however, be borne in mind that care is required in using it, for if the fingers are wetted by it it will blister them, and make holes in one's clothes if it touches them. Watson's lawn sand is also a good remedy for weeds. When sown over the ground, according to directions sent with it, the weeds disappear. I cured a considerable surface of Grass a few years back where Daisies were too thick to think of dealing with them singly by having some dry sand in a tub damped by pouring half a gallon of strong sulphuric acid over it, stirring it up, and then sowing the sand, during a dry, sunny time, over the Daisies: soon afterwards the Daisies died out and the Grass took their place.—S. D.

FRUIT GARDEN.

PEACH CULTURE UNDER GLASS.

Peach and Nectarine trees are generally rapidly unfolding their blooms, and are earlier even than last year. Much damage was done by the late frosts last spring and it will be an agreeable surprise if the crops on trees in unheated houses escape injury this season. Unfortunately, the mild dull weather is equally unfavourable to early forcing. Our earliest trees commenced blooming during the first week in January, but, owing to the almost total absence of sunshine, the progress made has been very slow indeed. The set, however, appears to be perfectly satisfactory, and, as usual, we have abundance of fruit to select from.

Setting the blooms. — There are several methods of setting in vogue, and there are some growers who assert that artificial fertilisation is altogether unnecessary. This may be the case with the later houses when more ventilation is given, and, consequently, more air stirring as well as bees busy at work; but I always carefully fertilise, and do not consider that in so doing I waste time. During bright sunny weather fertilisation is easily affected, as then no difficulty is experienced in drying the pollen sufficiently to admit of its being distributed in many cases by simply shaking either the wires of the trellis or the principal branches of the trees. The small flowered sorts have much the most pollen, and are the most certain setters, but only on one day this season could it be induced to spread very freely. At one time we lightly touched over the flowers with a camel's-hair brush; now we adopt the more expeditious method of passing a rabbit's tail, attached to a long light stake, over the whole. Commencing on one of the small-flowered sorts, a considerable quantity of pollen soon accumulates on the tail, and then we distribute this over a large-flowered variety, and so on alternately till the whole are done, and we never miss having a good set. When damp, dull weather prevails, it is advisable early in the day to make the beating-pipes hotter than usual, and to give a chink of air about 10 a.m.; the evaporating troughs should also be kept empty for the time being. About mid-day the change in the atmosphere will have dried the pollen, and then is the time to distribute it. As the blooms open slowly and irregularly, this practice must be persisted in till such times as all have been set. Each day after the setting has been done, the house may be closed and the floor damped, the heat being again reduced, as a too high temperature ought to be avoided. As it is preferable to have the whole of the fruit exposed to light and sunshine as much as possible, it is advisable to fertilise those flowers only that are placed so as to favour this disposition of the fruit. In our case, bloom being most abundant, we remove all the flowers on the underside of those trees trained to semi-circular trellises, and all those not facing outwardly on the trees trained to the back walls, as we have every confidence in our ability to set those retained. This early removal tends to strengthen the reserved blooms, and subsequently there is less fruit to remove.

Thinning the crops.—Having taken great pains in the matter of "setting," we are not nervous about any part of the crop dropping later on, and consequently commence to gradually thin out the young fruit when not much larger than Peas, eventually completing the thinning before the stoning process is entered on. This, coupled with proper attention in the shape of disbudding and stopping as well as the giving frequent and abundant supplies of water and liquid manure enables us to crop heavily without injuring the trees. For instance, we, during last June ga-

thered as many as ten dozen good fruit from a tree of Grosse Mignonne, covering a trellis 10 feet by 7 feet, without any perceptible weakening effect; and this, I hold, we could not have done had we not closely attended to apparently trivial matters. One Peach to the square foot of trellis is not enough now-a-days, unless the trees are exceptionally weak. Double that number is now often got from the trees, and yet no harm is done. At the same time it is better to undercrop than overdo it, as in the latter case the fruits are apt to drop when nearly ripe, and any that drop, unless from over-ripeness, I hold to be fit for nothing but tarts. Nectarines especially are very poor from over-cropped trees, and I am of opinion that they should not greatly exceed Peaches in number over a given tree surface.

Disbudding and stopping.—At the same time as the flowers are being thinned disbudding is also commenced. All advancing wood buds placed where neither a shoot nor a few leaves to assist in swelling the fruit are required are at once rubbed off. Supposing a fruiting branch, nearly the size of a slate pencil, has been shortened to about 12 inches in length, the growth pushing nearest the base and on the upper side, and also that at the end of the branch, should be preserved and eventually laid in for next season's fruiting. Should a stronger branch be laid in to nearly or quite its full length, it is advisable to preserve three shoots on this, the third near the centre, or grossness may result. It is best for all to be on the upper side, unless there is much space below requiring to be filled, as this much simplifies pruning and training. Any branch shortened to a wood bud is generally strong enough to perfect two young shoots, but those which, owing to the absence of wood buds, could not be shortened, should be encouraged to push a shoot from near the base, the growth from the terminal bud being stopped at the fourth or fifth joint. If both shoots are allowed to grow both will be still more weakly than the parent branch, and the aim should be to have moderately strong growth throughout the tree. There must be leaves on the branches beyond the fruit, otherwise it will not swell, or, at any rate, properly mature, but to lay in more shoots than the tree can well support, or more than are required, is altogether a mistake, and will soon injuriously affect the quality of the bearing wood. Where grossness is anticipated, this, to a certain extent, may be obviated by rubbing out the extra strong shoots that are produced, and the later and as yet dormant buds will not break so strongly, the sap being diverted elsewhere. The shoots from the some joint as reserved fruit, unless required to be laid in, should be stopped at about the fourth joint, the cluster of leaves thus preserved serving to protect as well as to swell the fruit. Peaches and Nectarines require to be exposed to light and sunshine to colour properly, but if stripped and bared prematurely, or, say, much before the final swelling off, they are almost certain to be impaired in quality. The spurs formed by stopping the shoots, if not removed with the branch at pruning time, are best cut away in autumn. There are some who advocate either the spur system or a combination of spurs and young growth, but I prefer to annually lay in the requisite number of young growths. The end shoots of all branches that have reached their limits should be stopped early, a growth only being laid in from the base, this taking the place of the parent fruiting branch when this is cut away after having perfected its crop.

The above remarks may be briefly repeated as follows: Commence early to thin out or remove all superfluous flowers and young shoots before they weaken the remainder; stop those young shoots requiring it when it can be done with the finger and thumb; thin out the crops before they are far advanced; give plenty of moisture at the roots and maintain a moist atmosphere, and not very high temperature, especially at the commencement. Be particularly careful not to overcrop any trees, more especially those not in a very healthy state; avoid over-crowding the young growth, and directly the crops are perfected cut out all the old bearing wood that can be of no further use.

W. I. M.

INSIDE V. OUTSIDE VINE BORDERS.

The details which "J. S. W." gives of his failures to induce the roots of his Vines to remain and grow as freely in an inside as in an outside border, coupled with his reiterated assertion that I am wrong in what I have said on the subject, do not necessarily prove that I am so, or upset the facts of the case in the place to which I alluded. There the roots of the Vines are as numerous and healthy in the inside as in the outside border, to both of which they have free access. Nor is this a solitary instance. Anyone who will take the trouble to look round at what is going on in any county in the kingdom will have no difficulty in finding plenty of places in which like results are accomplished. Mr. McIndoe, of Hutton Hall, Guisborough, whose success as a Grape grower is too well known to require comment, sends me the following note in reference to this matter:

"I do not want," he says, "to take any part in this discussion, but as 'J. S. W.' wants to know where he can see an example where Vines planted near the front arches took to the inside border as much as to the outside one, you are quite at liberty to invite him to go and see six Vine borders at Hutton Hall, and you can assure him of a hearty welcome from me and full permission to 'investigate the matter' upon the spot to his heart's content. In our case the houses stand on pillars. The Vines were planted nine years ago inside about 6 inches from the walls; two years afterwards the outside borders were made of good turfy loam, but not until last year could I coax a root to come out from the inside, and now those that have gone out are few and far between, whilst the inside borders are a complete mass of roots. I think this is easily accounted for; the inside border being at all times warmer than that on the outside, the roots get the start there in spring, and, as you well know, we do not allow our Vines to starve for want of either water or food. Therefore in they go, and they stick to the situation in which they are best served. These are facts—nuts for 'J. S. W.' to crack."

Mr. McIndoe's statements coincide exactly with my experience. The Vines at Hutton Hall, comprising all the leading sorts, are well known to produce Grapes that have not been surpassed and rarely equalled. They confirm even more than the views I have expressed, as they prove that where roots are properly treated inside they are loth to move out.

T. Baines.

FRUIT AND OTHER TREES IN RUBBLE.

In The Garden (p. 49) "J. S. W." refers to the growth of Vines in a border without soil. The subject is certainly an interesting one, but it is one that is likely to mislead unless it is well thought out, and particular care taken to observe the character of the ingredients used in the place of soil; it would also have been better if more explicit information had been given with reference to the manner in which these materials were prepared. The fertilising nature of bones and lime rubbish is pretty well understood when, as it was in the instance alluded to, associated with charcoal and broken bricks; but the amount of nutriment these afford would in a great measure depend on whether they were broken up into large or small pieces. If the bulk was broken up into rather small pieces ranging from the size of a Walnut to that of a hen's egg, and at least one-third of it worked into dust, I can quite understand that it would be likely to make a good and long-lasting border, but a little more information would be acceptable. "J. S. W." says it is not unusual to find forest trees growing almost exclusively among rocks, a statement to which I have little to say; but his experience with regard to trees growing on the refuse of disused coal pits is the same as my own, only I have had to deal with a different kind of material.

The heaps of refuse coal, which "J. S. W." mentions, are doubtless made up of small particles, and probably many feet deep, and therefore whatever is planted on them has a large area in which the roots can ramify and find food. This could not be the case (at least, to the same extent) if the heaps had been composed of large lumps. It is plain that it is not altogether the quantity of material on which the roots may have to feed, but whether it is in sufficiently fine particles to enable them to grapple with it so as to obtain the full amount of food to sustain growth which the plants require. In other words, it is not difficult to understand that although the same amount of plant food may be contained in a given space, if it is not in a condition available for the use of the roots, a smaller area under more favourable conditions would serve the same purpose; moreover, if "J. S. W." had gone further into the subject he would have acknowledged that the increase of temperature in all such cases favoured growth. To my mind it is quite clear that with regard to the Vine border referred to and all similar cases, the heat absorbed and retained by the nature of the material used is one of the principal elements of success. But to come more particularly to my own observations in dealing with hardy trees on rocky soils, I may mention that in several places about the pleasure grounds here we have veins of red sandstone rock running in various directions, and in some places only a few inches under the surface. Perhaps without being aware of the character of the soil below the surface, trees have in some few cases been planted on these rocky places, with the result that although they continue to live, they have not grown in a satisfactory manner, and in all probability never will. If, however, the rock is excavated to a reasonable depth according to the nature of the tree, and if space is filled up with half soil and half rubble obtained in the course of excavation, any tree or shrub planted in it will thrive with surprising vigour.

Shrubs in rubble.—I had such a case verified here in the most direct manner. Sixteen years ago a belt of shrubs was required to hide the end of a new building; the position happened to be in a direct line with one of these rocky beds. As a consequence we had to excavate the rock to make a bed for the shrubs. This was done to a depth of 2 feet, the rock being got out down to that depth, when a difficulty arose as to conveniently getting sufficient soil to fill up the space from which the rock was taken. As not much more than half enough soil could possibly be had, all the small pieces of stones that had been taken out were broken in pieces ranging in size from that of half a brick to that of a hen's egg; the stones and soil were then mixed together, and put in to form the bed, some soil alone being reserved to place on the surface a few inches thick. In this material such shrubs as green Hollies, common Laurels, green Box, and Arbor-vitæ were planted, and although the aspect was north and exposed to cold winds, not one failed to grow. In a few years they had grown so much that they had to be severely pruned to keep them within bounds, and ultimately they had to be removed altogether, because they had outgrown the bounds allotted them, although the gable end of the building is more than 20 feet high. I must confess that I was much surprised at the result. In the whole course of my experience I never remember having had, as I then thought, to plant under such unfavourable conditions. The cause of success in this case, as in all others where a similar material is used, is that the heat retained by the rubble is quite as favourable for the promotion of growth as a better description of soil would be if used alone. It may not always be practicable or desirable to put such a system to the test, but sufficient information has been obtained to show that other materials besides soil can be advantageously used for the growth of plants when occasion requires.

J. C. C.

Cockroaches in Peach houses.—Cockroaches destroy both Peach bloom and leaves faster than any pest with which I am acquainted. Lately I noticed each morning that something

was eating both flowers and foliage, and I determined to find out the depredator. On entering the house one evening, using more light than usual, we found cockroaches scampering off in all directions, and on closely examining the top of the earliest tree we found them in abundance, quite enjoying the luxury of a taste of early Peaches. I never knew before that cockroaches would injure Peaches. We have set traps for them, but find that watching and killing them on the spot is the most effectual remedy.—W. A. Cook, *East Sheen.*

WATERING VINE BORDERS.

I was not surprised to see that "T. B." (p. 48) was somewhat struck by the quantity of water given to my Vine border. I can, however, assure him that the quantity stated was not exaggerated. "T. B." seems anxious that Mr. Hunter should have the credit of being the first to prove the capacity of Vines for root moisture. I do not wish to deprive Mr. Hunter of any of his well-deserved honours, but I am not indebted to him for assistance in this matter. If I owe any man anything outside my own range of observation, it is Mr. W. Thomson, now of Clovenfords, who made the statement some years ago that he always found the best Grapes in districts where the rainfall is the greatest. This led me to set about ascertaining how far the statement could be verified in my own practice. I compared the average rainfall near London, which was 24 inches, with that here (Taunton), which for the last twelve years has been 38½ inches, and I saw that there was a difference between the two places of 14 inches in the annual amount. Nevertheless, the Vines that had had the most water seemed to do best. I therefore kept on increasing the quantity of water up to the point already detailed, and without any ill-effects, either as regards the quantity or quality of the Grapes produced. I may state that I got my first practical lesson as to the quantity of water which Vines require from our early vinery, which we began to force in November. This house has an inside border 3 feet 6 inches wide and is 25 feet in length. During the last ten years this border has had no less than 700 gallons of water distributed over it yearly, between December and the end of April. This is in addition to what the roots get outside. To the outside border we generally give a good soaking of tepid water as soon as the berries are set, and another just as they begin to swell after stoning, and we have had no fault to find with the crop. I quite agree with "T. B." that there is no objection whatever to having an inside and an outside border for Vines. I find in practice that the roots are pretty fairly distributed over each without any ill-effects whatever, and I never could see any difference in the behaviour of the Vines whether wholly outside or not.

J. C. C.

SETTING PEACH CROPS IN DULL WEATHER.

Fruit growers like to see bright weather while Peaches are in bloom, particularly at this season. There can be no doubt that the chances of a good "set" are greatly increased by sunshine, and the very most should be made of it; but cultivators need not despair of securing a good set under glass, even in the dullest weather. I have proved this so often that I venture to give my experience in the matter, knowing that a very general impression exists that a constantly dull, downcast sky is almost sure to cause failure at the setting period. I have a Peach and Nectarine house which has been forced early now for nearly twenty years, and very careful note has been taken of the crops, which have varied, but never quite failed during that period. The trees have always been in flower between January and the middle of February, and have often had bad weather at the flowering time. Nevertheless, even when the sun did not happen to appear at all during the flowering period, the set was good. In fact, I will undertake to say that, provided other circumstances are favourable, it matters very little whether the sun shines or not. The flowers must have daylight, and the more of it the better; but sunshine is not needed to insure fertilisation. I am equally certain, however, that in dull weather a good set will not be insured in a low temperature, or one which seldom exceeds 50° during the day; and this will probably explain why orchard house trees so often fail to set during a spell of dull weather in unheated houses—a thing which often occurs, as I can testify. The temperature remains low for days, and the flowers drop off. An unfertilised flower drops at once, and the embryo fruit never swells perceptibly, as it begins to do the moment fertilisation takes place; and it can be both seen and felt before the petals drop, and soon begins to push out through the calyx. We attribute our good sets, first, to well-ripened wood; and secondly, to keeping up the day temperature. A low drop at night, according to the weather, we regard as of no consequence, but the heat has every day to be got up to 60° at least on dull days by noon, or earlier, and kept up as long as daylight lasts. The trees are also syringed freely once a day in the afternoon, about three times a week, in order to scatter the pollen; but no more moisture is given, nor are any other artificial means of fertilisation whatever employed.

I am aware that many of the readers of The Garden are interested in the Peach crop; and those having Peaches under glass I strongly advise to follow my advice at the flowering period, which is this: Let the heat subside after dark to 50° or 45°, but not much lower, as it takes too long to get it up in the morning. Early in the morning start the fires, and get the heat up to 60° by fire heat, and 15° higher by sun heat, and keep it up to these figures till three o'clock in the afternoon, when it may gradually subside. Give a little air back and front at the same time, chiefly in front, and close gradually towards dark, but do not take the air off altogether. Tap the trellis with the hand occasionally to shake the pollen, and syringe freely about two o'clock in the afternoon with a fine syringe, using clean water of the same temperature as that of the house. If the trees are otherwise in good health, this will insure a good set.

J. S.

GROS MAROC GRAPE.

Although this remarkably fine Grape has been in the country nearly thirty years, it is much to be regretted that its merits are as yet so little known. We are indebted to the late Mr. Thomas Rivers not only for its introduction, but also for bringing it into notice by placing examples of the fruit worthy of a first-class certificate before the Royal Horticultural Society a few years ago. It was not, however, until the opening of the great International Exhibition at Manchester in 1881 that its value as a first class Grape for private use and exhibition became known to the million. Since that time many of our large growers have introduced it into their vineries, and my experience of it justifies me in saying they will never regret having done so. Mr. Barron says, "It has been much confused with Gros Damas Noir and Black Morocco," two totally distinct Grapes; and, further, that it is "difficult to propagate and establish." With me there has been no difficulty experienced in getting it to grow freely enough from grafts, or on its own roots, and I think I may venture to say its obstinacy in the propagating pit will in a great measure give way when thoroughly ripe wood only is used, and not less than 2 inches of the stem is left below the bud to rest upon the crocks placed in the small pots used for propagating Vine eyes. I have thought it necessary to point out the way in which a large percentage of the eyes may be made to grow—under good management of course—lest some might be deterred from giving it a trial, as it grows vigorously when once started, and sets and colours well in company with all other kinds of Grapes, be they early, late, Muscats or Hamburghs. But the treatment usually given to Hamburghs undoubtedly suits it best.

Amateurs and others who do not know the Grape should be careful to secure their young plants from a reliable source, as the name unfortunately closely resembles that of another now popular and profitable Grape, Gros Colmar, and the berries, which are very large, although decidedly oval when the Vines producing them are young, become almost round and not unlike Gros Colmar as they get older, and produce from spurs on established Vines. Here, however, the resemblance ends, as Gros Maroc is tender in the flesh, vinous, and eatable as soon as ripe, while Gros Colmar is firm, fleshy, and requires keeping, if it is to be eaten at its best, some weeks after the leaves fall, and if possible well bottled in a dry, warm Grape room. As the planting season is now approaching let me advise all who have not already done so to find room for a Vine in an early or mid-season house.—W. Coleman, in the *Florist.*

Shrivelled Grapes plumping up again.—I ask just to be allowed to say that Grapes that "shrivel in autumn and at any other season, and Grapes which shrivel, not through evaporation of their juice, but through sheer want of water," are distinctions without a difference. Grapes shrivel from one cause only—viz., evaporation of their juice, or moisture through the skin of the berry, and, of course, the less water the berries derive from the roots the quicker will be the effect of evaporation from them. The instance I recorded of berries plumping up again was quite to the point, and was no "different matter" in any way from that recorded by Mr. Baines, who said there was "no remedy" for shrivelled berries.—J. S.

5143.—**Lichens on Pear trees.**—Lichen, Moss, and kindred parasites on Pear and other trees may be easily and quickly got rid of by syringing them with limewash made with hot, fresh-slaked lime and applied immediately afterwards. It burns both Moss and Lichen brown, and causes them to lose their hold and fall from the bark, which soon becomes clear and healthy, and remains so for years. To render the wash free from lumps and make it so that it will pass through the tube of a syringe or engine, it should be made about as thin as paint, and drained through a fine sieve; it may then be syringed over the branches speedily if a still day be chosen for the work. I always find it to do best when the trees are a little damp from night dews or fog; it then seems to lay tighter hold of the branches, and does not scale off so quickly. If the Pear trees referred to by "F. H." are on walls, I would advise him to try burning sulphur under them. This may be done on a quiet day when there is no wind and the draught is right for seeding the fumes up the face of the bricks. The way to use the sulphur is to have two or three charcoal fires in common flower-pots or other vessels, and keep them moved every few minutes till the work is complete. Not only will the sulphur destroy all Moss on the trees, but it will cleanse the wall of all insects, and greatly benefit the health of the trees, and that at a very small cost, as a few pounds of sulphur will go a long way.—S. D.

SHORT NOTES.—FRUIT.

Vine roots *(F. J. H.).*—Your Vine roots seem perfectly healthy. I could find no trace of insects of any kind after careful examination.—G. S. S.

Scale on Pears *(J. D.).*—Your Pear tree is attacked by the mussel scale (Aspidiotus conchiformis). Brush the affected parts thoroughly over with soft soap and water, and then rub them well with a cloth or stiff brush, or dress the tree with half-a-pound of soft soap, one pound flowers of sulphur, quarter-ounce black pepper, boiled together in four gallons of water for twenty minutes; if not thick enough to use like a paint add lime till it is. Colour with soot if desired.—G. S. S.

Trebbiano Grape.—I agree with "Cambrian" (p. 81) as to this being a good late Grape. A few days ago, when going over the gardens at Stoneleigh Abbey, Mr. Feddard directed my attention to it still hanging on the Vines. It looked so well that I was tempted to taste it; the berries were plump and good, and the flavour exquisite—the best for a late white Grape I had ever tasted. I have frequently seen and tasted this Grape early in the autumn, and always considered it coarse. To all who may have formed such an opinion, I say allow it to hang until January and the result will be all that could be desired.—R. Greenfield, *Priory Gardens, Warwick.*

Spring dressing Strawberry beds.—The time has now arrived for giving Strawberry beds their spring dressing of manure, and it may not be amiss to call attention to the fact that digging or forking amongst the plants is worse than labour in vain. There can be no question that it does more harm than good, as the soil around the crowns can hardly be too firmly compressed, and if, through neglect of summer cleaning, the beds have become so weedy as to render it positively necessary to loosen the surface in order to free it from weeds, the soil around the crown of each plant should be as soon as possible trodden down firmly again. Any manure applied should be spread on the surface and allowed to remain there; it will work down quite fast enough to the active surface roots, and in March, when drying winds prevail, it will crumble down under the rake. In this locality, where Strawberries are largely grown, as much care is taken to consolidate the soil firmly around the crowns as is taken in many parts to loosen it; in fact digging or forking between the rows of Strawberries has only the time-honoured recommendation of custom to commend it. Beds of Strawberries are sometimes allowed to grow into a complete mass of crowns, thus preventing the soil from being dug. Yet these have sometimes produced crops that have astonished those who believe in a loose surface being necessary for all kinds of crops.—James Groom, *Gosport*.

A large Apple tree.—In a note in the *Scientific American*, the Rev. H. C. Hovey says: While visiting an orchard near New Haven not long ago, the farmer, perceiving me to be taking notes as to the dimensions of his trees, told me that probably the largest Apple tree in the world was to be seen on the farm of Delos Hotchkiss, in Marion, Conn. I need not give the size as originally stated by my informant, which was, like most such matters, much exaggerated, for I have just had exact measurements taken as follows: Circumference of the trunk near the ground, 15 feet 3 inches; at 3 feet from the ground, 13 feet 9 inches; at the forks, 16 feet 2 inches; circumference of two main branches, 10 feet 4 inches and 8 feet 8 inches; of nine smaller branches, from 4 feet to 6 feet each; height of tree, 160 feet; diameter of tree top, 104 feet. A peculiarity of this tree is that it is what is termed "an alternate bearer," five limbs bearing one year and four the next. The usual yield from the five limbs is about 85 bushels, although in a single instance it reached 110 bushels, and the four limbs vary from 35 bushels to 40 bushels. The fruit is said to be excellent for winter use, though on this point I can only speak from hear-say. The age of this venerable Apple tree is estimated at from 170 years to 180 years. Curiously enough, the patriotic old tree marked the centennial year by bearing fruit on all its branches, the first time it has been known to do so in its life, and it has continued to do so down to the present time. Some of the limbs are now dying, others are broken down, signs of decay appear in many places, and it is thought that this noble Apple tree will soon be numbered among things of the past.

Apple Barthelemy du Mortier.—This Apple is thus described in the *Bulletin d'Arboriculture*: "Barthélemy du Mortier is certainly, as regards Apples, one of the very greatest gains of the present time. The fruit is very large, rounded, sometimes a little drawn and ridged at the top, the eye being deeply sunk, and the footstalk short. It is of a magnificent golden yellow, tinted with fiery red on the sunny side, which imparts to it a brilliant appearance. In this respect it is superior to the well-known Emperor Alexander. Sometimes, when the summer is comparatively sunless, the vermilion tint is less pronounced, and the fruit is then almost uniformly golden yellow. This Apple has a very fine skin; the core parts easily from the flesh, which is firm, solid, but not crisp, sugary, and possesses an aroma which resembles that of the Calville. The seed was sown in 1854; the first fruits were produced in 1869." The coloured plate in the *Bulletin* represents a very handsome Apple indeed. Should the tree prove hardy, vigorous, and fertile in a general way in this country, it must take high rank amongst Apples. M. Léonard Pycke, of Courtrai, a distinguished amateur, thus writes concerning it: "This Apple is perfectly well known to me. I have eaten it at various times, and caused it to be tasted at a *réunion* of the 5th April, 1871. Its fruit is recommendable in every way; it is good in September, better towards the end of the year, and keeps well until April. What more can one expect of an Apple?" At the exhibition of the Royal Horticultural Society of Tournai, in September, 1872, a medal was awarded it, and on the 20th October following the pomological jury of that society ratified this award, and decided that it should consist of a silver medal.—J. C. B.

Garden Flora.

Plate 427.—Clematises.

(with a coloured figure of C. jackmanni alba.*)

For the varied decorative uses to which the present race of Clematises can be made to conform they have no equals amongst hardy climbers. Although they can be so managed as to induce them to thrive and bloom well, covering the ground in the way of bedding plants, yet it is as climbers for clothing walls or palings, training over arches, doorways, on the trunks of decayed trees, and the numerous other ways in which plants of this habit can be employed, that they are seen to the best advantage. The common Traveller's Joy (C. Vitalba), that in some parts of the kingdom may be seen almost smothering the hedges, is by no means a despicable plant in a well-arranged garden. The free-growing Nepalese species, C. montana, is a very effective kind when clothed with its innumerable white flowers, but it cannot be compared with the numbers of grand varieties now in cultivation. Of these, not the least desirable property is their well-marked times of flowering, which, in the case of the montana, patens, and florida types, begin in May, and are continued by some or other of the varieties belonging to the different sections up to July; then the later blooming division of the lanuginosa, Viticella, and the Jackmanni types commence flowering, and produce a succession of blooms that last through September and even October. In the south of England such kinds as C. rubella and C. Jackmanni are in bloom a month or more earlier than they are in counties further north. Aspect has also an influence on their flowering; on a south wall the blooming is three weeks earlier than that on a north aspect. But in the case of C. Jackmanni, C. rubella, and others, there is this in favour of a north wall, that the colour of the flowers is brought out much finer when in a comparatively sunless position than where directly under solar influence.

Soil.—Clematises are very accommodating plants as to soil, provided it is not wet or of a too retentive character. They will thrive in any kind of moderately free loam, or a mixture of peat and loam, or in peat alone. I have not, however, been able to get such strong plants in peat as in loam, even with the aid of plenty of manure, which the Clematis, in common with other plants that annually make a large amount of growth, likes. Not only must it be given to the soil when first prepared for the reception of the plants, but each spring before growth begins they should have a good dressing, scraping away a few inches of the top soil, or as much as can be moved without disturbing the roots. Then lay on the manure and cover it with a little new soil. Annual assistance in this way is the more requisite where the plants are growing in narrow borders close to buildings, with often a gravel walk in front of them, and which prevents the roots from travelling far for their needful sustenance. In such a position the plants frequently suffer in dry summers from want of root moisture to an extent that never admits of their attaining half the size or producing a tithe of the bloom they would do if liberal soakings with water were given. It is needless to say they like manure water, which if applied in sufficient quantities will usually prevent the attacks of mildew, that sometimes disfigure the late flowering sorts.

The pruning required by the different sections of Clematis differs greatly. The flowering of most of the varieties belonging to the florida, lanuginosa, patens, and montana types is from the previous summer's wood, or on growths produced from it that do not extend far before they bloom; consequently, all the strongest preceding year's shoots should be retained, cutting out only the weak ones that are not likely to flower. Pruning may be done any time during winter or early spring, but it should not be deferred until the young shoots have begun to push, or some are sure to be broken off. In pruning the varieties of the Jackmanni and Viticella sections that flower from the current summer's shoots the knife may be used somewhat freely; remove all the weak shoots and such portions of the stronger ones as the space to be covered will admit of, so as not to endanger the growth to be made through the summer getting over-crowded. Avoid, however, the opposite extreme of reducing the top so much as to give a thin appearance to the plants, as in that case the effect they make when in bloom is much inferior to that which is obtainable when the flowers are produced in dense wreaths. In the case of this division of the Clematis family some attention should be given in spring and early summer to dispersing the growth over the space to be covered in a non-formal manner. A very effective way of treating Clematises is to grow them in association with climbing Roses on stout rustic poles, so as to let the growths intermix freely. There are few gardens, large or small, in which these plants cannot be thus employed with good effect, but in planting care should be taken to use deep or high-coloured Roses with light-coloured Clematises, and *vice versa*. C. Jackmanni and Aimée Vibert Rose produce a beautiful effect; the deep purple flowers of the Clematis and the numerous bunches of the pretty white flowers and glossy foliage of the Rose go well together. The liberal manurings already recommended suit both plants alike, and the rate of growth in each is sufficiently alike to prevent either smothering the other.

Fine as the very large-flowered Clematises are, there is no question that the varieties belonging to Jackmanni section, with their smaller, but much more profuse and longer-continued habit of blooming, are the most generally useful, and that C. Jackmanni itself has been deservedly the most popular sort of all. Yet the want of a variety possessing a similar habit, with white or light-

* This plate is reproduced from a drawing after Nature by Mrs. Duffield, lent to us by Mr. Charles Noble, of the Summingdale Nurseries. The faint shade of blue in the drawing has been somewhat intensified in the printing. The stock of the plant is held by Mr. Noble, with whom it originated.—Ed.

coloured flowers, that would afford the required contrast to this fine old sort, has been long felt. This want has now been met by the clear white variety that forms the subject of the accompanying plate, but which, it is necessary to say, gives an imperfect idea of the colour of the flower, having come out in the printing with too much of the bluish shade in it used by artists in representing white flowers. In other respects it is a faithful representation. An opportunity of seeing the plant when in bloom last August enabled a correct estimate of its character to be formed. It was strong and vigorous, trained to a high pole, which it densely covered; the leaves and general habit are those of C. Jackmanni, except that the blooms often come with a petal or two more than in flowers of the old variety. A plant of this white Clematis grown in a pot was awarded a first-class certificate at South Kensington last year.

Although this is essentially a notice of the hardy kinds of Clematis, still it would not be right to pass without mention the beautiful C. indivisa, which is one of the finest of all climbing plants that will thrive in a greenhouse temperature; its flowers are white and produced in spring in the greatest profusion. It is amongst the freest of free-growers, small plants of it making as much progress the first year as most climbers will do in two. It flowers in winter or early in spring, according to the temperature in which it is grown. There is another form of the plant, C. indivisa lobata, the leaves of which are lobed, but the plain-leaved variety is preferable, its flowers being whiter.

Select Clematises.—The following is a selection of fine kinds: Clematis Jackmanni alba — This is a seedling from C. Jackmanni crossed with a white kind, about the name of which there is some uncertainty. C. Jackmanni.—Deep violet-purple, a free grower and profuse bloomer. C. rubella.—Claret shaded purple flowers, a little earlier than C. Jackmanni. C. Mrs. Cholmondeley.—A free blooming, good sized variety, lavender ground colour tipped with purple. C. President.—Purple, shaded with claret. C. Proteus.—Purplish rose, light centre, a very large double flower. C. Lord Gifford.—Very dark plum colour. C. Xerxes.—A six-petalled flower, dark violet, with crimson bands. C. Aurora.—A fine double sort, red shaded with mauve. C. Mademoiselle Torriana.—Bright rose of good shape. The seven last named sorts are all seedlings from Jackmanni crossed with different varieties of the florida and patens types. C. Albert Victor.—deep lavender. C. Fair Rosamond.—White, with a feathery stripe of red in the centre of the sepals. C. Lord Londesborough.—Dark mauve with deep reddish bars. C. Miss Bateman.—White, one of the best in its colour. C. Mrs. George Jackman—Very large white. C. patens floribunda.—White, tinged with lilac; a fine sort. C. Sir Garnet Wolseley.—A large, fine variety, with broad petals; colour, reddish lilac. C. Elaine.—A double sort, with violet flowers, suffused with a deeper shade. C. Undine.—A double variety; deep puce, shaded with light purple. C. Margaret Dunbar.—A full-sized, fine variety, with dark blue flowers. C. Standishi.—Light mauve-purple. C. Edith Jackman.—White, with a reddish band down the middle of the segments. C. Lord Derby.—Pale lilac. C. Maiden's Blush.—Blush white. C. Thomas Moore.—Puce, shaded violet. C. lanuginosa nivea.—A good clear white. C. Countess of Lovelace.—A full-sized, double variety; colour, shaded lilac. C. Fortunei.—Rosette centre; colour, creamy white. C. Lord Mayo.—A medium-sized, eight-sepalled flower; colour, a pretty shade of lilac. C. Mrs. Moore.—A very large white-flowered variety. C. montana.—A strong-growing species that will cover a large space. Very effective as a wall plant, where its innumerable medium-sized, clouded white flowers produced in spring are seen to advantage.

T. Baines.

SEASONABLE WORK.

FLOWER GARDEN.

Bedding succulents.—The uses to which these may be put in our flower gardens are manifold. The kinds which we most value are those that produce the best effects and which are the easiest wintered and propagated, as, for instance, Agave americana variegata, propagated by root suckers, which are thrown up freely when planted out; Echeverias, many varieties, the best being secunda glauca, metallica, and sanguinea, all of which produce offsets freely, which quickly root in any dry atmosphere and in any temperature short of actual frost. Echeveria metallica, E farinosa, and E. Peacocki are extra choice kinds which, though somewhat tender, cannot be dispensed with; these are most readily increased by seeds. Kleinia repens and K. tomentosa, invaluable for marginal lines in succulent arrangements, are propagated by division of the roots in spring, and they may be wintered safely in a cold pit. Several kinds of Mesembryanthemum are indispensable for clothing the ground beneath the taller succulents, by far the best being M. cordifolium variegatum; other good kinds are cordifolium, caulescens, and incladens—all easily propagated by cuttings in warmth. Pachyphytum bracteosum and P. pulverulentum are amongst the most singular of succulents, and being of small growth are well suited for dotting over the outer lines of beds; they are propagated by offsets and cuttings. Of Sempervivums the best for edgings and groundwork are calcareum, montanum, and arachnoideum, all hardy, and kinds that produce offsets freely. S. canariense, Donkelaari, and cuneatum are three very fine low, dense-growing sorts, which are propagated by offsets and seeds. S. arboreum, arboreum variegatum, and arboreum atropurpureum are generally termed Tree Sempervivums; they are of a branching habit of growth and attain a height of from 18 inches to 2 feet. They are propagated by cuttings. Perhaps Sedums and Saxifrages should not be classed as succulents; but as many of the low-growing varieties of these are seen to best advantage when serving as a cushion or setting for many of the succulents just mentioned, we name them, not their least recommendation being that they are quite hardy, and that they continue effective the year round. This latter advantage has tended to strengthen our partiality for succulent bedding, seeing that the only thing to be done when winter approaches is simply to remove the tender and half hardy succulents and substitute small shrubs, and the beds are at once furnished for the winter. Those who wish to adopt this kind of bedding in the coming summer should now set about the preparation of the plants by one or other of the ways indicated.

Sowing.—If not already done, a first sowing of Sweet Peas should now be made, and to ensure continuous flowering a rich, deep soil is essential. Some make the earliest sowings in pots, and place them in warmth to germinate, transplanting to the open ground when the young plants are 2 inches high, but our experience is that the check caused by such transplantation is greater than any advantages gained by thus sowing them: we therefore prefer to sow them at once in their permanent positions. The following may also now be sown for cutting purposes in any warm nook in the open ground, viz., Mignonette, Clarkias, Collinsias, and Larkspurs. As soon as they are well through the ground they will need guarding against the attacks of slugs, but besides thinning out this is about all the attention which they will require. Every kind of sub-tropical annual that it is intended to use this season should now be sown in warmth. Castor-oil plants suffer so much through transplantation from seed pans, that it is best to sow the seeds singly in small pots. The same remark applies to Maize. Of Cannas, put two seeds in a pot. Solanums, Wigandias, Ferulas, and all other kinds do quite well when sown under ordinary conditions, *i.e.*, in pans placed on a gentle bottom-heat, and covered with glass till germination takes place. After that and till the seedlings have got a firm hold of the soil water must be sparingly applied, or damping off will be the result. All stock plants of whatever kind kept over from last year ought now to be potted. Dahlias, Salvias, Cannas, and Marvel of Peru are among the more important of the kinds alluded to.

General work.—Prune Roses, shrubs, and trees, and complete any planting of these that has yet to be done, tying up or placing supports to the same. Dig and manure all vacant beds and borders. Cut back and nail in climbers. Keep spring flowers well firmed in the ground, protect them from vermin, and the tender and more highly prized kinds when necessary from injury by frost by covering the beds with tiffany or mats resting on hooped sticks. Turn gravel walks, mend Box edgings, roll lawns, and prepare any new additions to the same for sowing with Grass seeds by working the soil fine and level. A rich soil is not desirable, but if very poor a dressing of soot, or wood ashes, or both mixed, will be found to be an excellent manure.

INDOOR PLANTS.

Potting.—Preparations should now be made for potting stove plants. Plants grown in heat need warm soil, and on no account should potting be carried out with soil that is in an over-moist condition. When so used it becomes a close, compact mass, wholly unsuited to the healthy formation of roots. It is, however, possible to err in the opposite direction, the result of which is that in watering afterwards the whole does not get equally moistened. The best way is to keep all potting soils in the open air, getting as much as is likely to be required under cover a sufficient time before it is used to admit of its getting in proper condition. Therefore, enough loam, peat, leaf-mould, and rotten manure to meet the demand for the general potting of stove plants should now be placed where it will be secure from wet, yet exposed to the air. In order to warm it sufficiently for use it may be spread out on the brickwork over a boiler or on a flue; where it is inconvenient to do that, it may be warmed in the baskets set on the pipes in the house wherein are grown the plants to be potted. The time for the general spring potting will to some extent be ruled in the case of stove plants by the amount of heat kept up. The advantage of being able to use a brisk heat early in the season is that many plants of an almost continuous blooming habit, such as Gardenias, Allamandas, Ixoras, Dipladenias, Anthuriums, Scutellaria mocciniana, and others can be regularly brought on to give a lengthened succession. In this way Clerodendrons, Stephanotis, Bougainvilleas, and Eucharis can be had quite double the length of time in bloom that is possible where only a low temperature is maintained, the season being far advanced before such plants can come into flower.

Pitcher plants.—Unless there is a brisk heat at command it is useless to attempt the cultivation of Nepenthes; but where they are grown whatever they require in the way of additional pot room should be given at once before active growth commences. Nepenthes are spare rooters, and the roots, being brittle and black in colour, are easily hurt unseen. In potting, even so much as removing the drainage material is as well avoided, but if the soil has got into a decomposed, pasty condition it should be washed from the roots by syringing it with warm water. If this is done carefully, the old material can be got rid of without so much as a root being broken; a 2-inch shift is usually enough for plants that are in

vigorous health. Fill the pots half full of drainage, using nothing but the fibrous matter from good Orchid peat with all the earth removed, and an equal portion of chopped Sphagnum, with a few crocks intermixed; pot lightly and soak with tepid water immediately. In the case of Sarracenias, it is important that they should have the whole of the soil removed every year, as from the quantity of water which they require, it is certain to get unfit for the roots, which are not so brittle as those of the Nepenthes. They should be potted without delay, as if not done before growth commences, the destruction of the roots is certain to cause the young pitchers that are coming on to be deformed. We have found this time of the year to be the best for potting all Sarracenias, except S. Drummondi and its varieties, which should be done about July or August. One-half good fibrous Orchid peat to an equal part of chopped living Sphagnum, with a liberal addition of sand and some crocks, is the material these plants require, and plenty of water to saturate the soil at once. This condition must also be regularly maintained afterwards, as they are true swamp plants, and dislike their roots being dry. Sarracenias increase readily by division of the crowns, and in the case of the taller growers that form rhizome-like stems, the latter may be cut into pieces 1 inch or 2 inches long. These will form crowns and in time make good plants, but it is not well to make these stem cuttings too small, or they will take several years afterwards to acquire their full strength. See that the plants are free from brown scale before potting; sponging with clean water is the best plan we have met with for removing the scale. Cephalotus follicularis succeeds best in a warm greenhouse temperature. Like most other plants that grow in continuously moist places, it cannot bear to be dry at the roots. It thrives in equal parts of fibrous peat and Sphagnum, with the addition of sand and crocks broken fine, filling the pots half full of drainage. It requires a bell-glass over it in order to grow it well.

Alocasias.—These should be potted before growth begins, especially if any division of the crowns is to be made. They bear dividing freely, the extent to which this is to be carried depending on the size of the plants required. Single crowns are very useful, the distinct form and colour of such kinds as A. metallica, A. Veitchi, A. Lowi, A. intermedia, and others of like character having a good effect when dispersed amongst the other occupants of the stove. Most of the species when strong produce young bulb-like offsets that should at the time of potting be taken off and placed singly in small pots. They mostly require soil similar to that which is used for Orchids, viz., fibrous peat, Sphagnum, crocks, and in addition some sand. They are surface rooters; consequently the pots may be filled from one-third to one-half with crocks, according to the size of pots used.

Myosotis dissitiflora.—This Forget-me-not makes a pretty pot plant, and will bear a little warmth without becoming drawn. Even if the plants were not potted in autumn they may be taken up now. Seedlings that have had plenty of room to enable their getting strong may be put singly in 4-inch or 5-inch pots, securing good balls of earth so that their roots are not much broken in removal. Give them plenty of water and a light position.

Ferns.—The more compact growing species of Adiantum, including A. cuneatum, A. assimile, A. gracillimum, and for large baskets A. farleyense along with some of the Davallias, such as D. bullata, D. elegans, and most of the tasselled varieties of Pteris serrulata, all make excellent basket plants, and where employed alternately with flowering subjects have a much better effect than is obtainable by the use of blooming plants alone.

Zonal Pelargoniums.—Easily managed as these are, they are often seen in indifferent condition in winter, producing much more leaf than flower. If the plants have been well prepared, they will bear a temperature of 58° or 60° in the night if located in a light house and kept close to the glass. Some of the double varieties, such as Wonderful, scarlet, and Madame Thibaut, pink, are the most durable, but they do not open freely with less heat than that just named.

Hyacinths, Narcissi, and Tulips.—More of these should be placed in heat to come in late; they will now require little forcing, and usually flower the best through coming in nearer their natural time. Still keep such plants near the glass, as by this means only can the leaves be prevented from attaining an undue length, in which state they never look well.

Achimenes.—When well grown Achimenes are second to none for the dense masses of colour which they present. In hanging baskets suspended over the paths in a cool stove or intermediate house there are no flowering subjects equal to them, and in no way can the often bare, unfurnished appearance of the roof of a plant house be so well altered for the better and with a minimum of interference with the growth of the plants underneath as by the use of such baskets. But when employed, a little forethought should be exercised so as to see that the size of the baskets bears some proportion to the dimensions of the house in which they are to be used. Large baskets are very effective when well filled, but they look out of character in a small structure. Baskets to be so used should be made of either copper or galvanised wire; if the latter be painted it improves their appearance, and the wires should not be too far apart, or the Moss with which they need to be lined protrudes in a way that looks untidy. Green Moss, such as is to be met with on the ground in woods, we have found to be the best. A couple of inches of this should be used, as less will not keep the soil within from washing through when water is given. After the baskets are thus well lined, they want filling with ordinary potting soil, moderately light, and the plants should be dibbled in about 2 inches or 3 inches apart over the whole surface bottom as well as top. Previous to this the roots ought to be started by putting them closely in shallow pans in a mixture of sandy loam and leaf-mould, giving them ordinary stove treatment; after the shoots are about 2 inches high they should be placed in the baskets as above, keeping them well up to the glass and in not too moist an atmosphere, for upon their making close, compact growth will depend their after appearance. A portion of the roots for pot culture should now be similarly started, with others kept dormant for a time yet, so as to give a succession of bloom.

FLORAL DECORATIONS.

Camellias in varied colours will now give an abundant supply of bloom, by means of which many distinct arrangements may be made. Unless the plants are very large, a great length of stem cannot consistently be cut with these showy and beautiful flowers, or the plants will be deprived of valuable growth. Stems a few inches in length may, in many cases, be secured without doing much injury to the plants if due regard is paid to cut only those growths that can be spared, selecting such as may be straggling or any that are taking the lead in strength of wood to the detriment of weaker shoots. Camellia flowers always look best when at least two or three leaves are retained. Wiring should only be resorted to in cases of necessity—not adopted as a general rule. Florist's gum (liquid gum arabic) is always useful in the case of these flowers; a little of this placed around the base of the blooms will oftentimes hold them together longer than they otherwise would be. A somewhat flat receptacle is the best in which to arrange them, or one with a trumpet arising from its centre. Sand well moistened and covered over with either good green common Moss or some tufts of Lycopodium would give a very good base on which to arrange the blooms. This keeps them better in position than water. A few small seedling Ferns might be dotted here and there to relieve the otherwise somewhat formal look of the Camellias. Where a trumpet-shaped glass rises from the centre, a couple of pieces of Myrsiphyllum twined around the stem look well. A spray or two of Chorozema Chandleri, in blossom now, might also be used in conjunction with or independently of the Myrsiphyllum. This is a good lasting flower in a cut state. As a finish to the top, white Roman Hyacinths or Spiræa japonica would be useful with a few pieces of Epacris, or even the latter by themselves would be sufficient, using two or three distinct colours. The sweet-scented Carnation Miss Joliffe is one of the best of its class at this season as a cut flower. Small spikes of Paper-white Narcissus are also extremely useful for the same purpose. Lily of the Valley will also be valuable in this direction, and can now be better depended on than earlier in the year, the spikes being altogether stouter and more lasting.

ORCHIDS.

East India house.—The temperature of this house should not fall often below 60°; indeed, it is better if this temperature is maintained even in cold weather. We were admiring the splendid condition of some East Indian Orchids the other day, and could not do less than ask the grower of the plants what his temperatures were in February. 65° was the answer, but it usually falls to 60° before morning. "We use very little water," said our informant; "just enough to keep the leaves from showing signs of distress." In this large Orchid-growing establishment the rule all through the different compartments is to be sparing of the water. In one house where Dendrobiums, Zygopetalums, Cœlogynes, and other things were in flower, no water was used anywhere, except to wash out the paths once a week. The condition of the plants all through was excellent; of course, if much artificial heat is necessary, owing to very cold weather, the Orchids would feel greatly its drying effects, unless water was sprinkled about early in the morning and again in the afternoon. It is difficult to explain to the inexperienced this matter of atmospheric moisture; the school of practical experience is the best. A good cultivator can tell as soon as he enters the house whether or not the atmosphere is right. At present Angræcum sesquipedale and others of this interesting genus are beautifully in flower. The tiny A. hyaloides, in miniature plants 2 inches or 3 inches high, is crowded with its tiny spikes of pure white flowers. A. citratum is in full beauty, while A. Ellisi and some others are pushing out their spikes. All these require the highest temperature, and the small ones should be placed near to the glass at this time of the year; later on they do not like so much exposure to the light. The new Saccolabium illustre is a good addition to the East India department. This species looks very much like a cross between S. giganteum and S. violaceum. It has usually longer spikes than S. giganteum has, and the spotting on the flowers is different; besides, the perfume of S. giganteum is lacking. S. bellinum, now in flower at the Clapton Nurseries, is quite a distinct species, which seems as if it would delight us with its quaintly formed flowers this month. It has a short spike, with few flowers, which have yellow sepals and petals, thickly spotted with chocolate; it has a singular pouch-shaped lip, white and yellow at the base, and marked with deep red spots in the centre. Any plants that require repotting should be seen to without delay; they will soon be rooting freely, and to pot them after that would be very injurious to them.

Mexican house.—With the increasing light and heat the occupants of this structure will also begin to make more vigorous development. The unprecedented importations of Cattleyas, which can now be purchased at a much cheaper rate than heretofore, have been the means of filling this department to overflowing. The Cattleya Trianæ group is most valuable at this season, and some of the recent introductions are proving themselves to be of great beauty, possessing, as a large proportion of them do, the rich crimson labellum. As these plants are now imported all

the year round, and are offered for sale at public auctions in December and January as freely as in June and July, intending purchasers should know that at this season it is safest to pot them in clean drainage only. If they are potted in the usual compost of turfy peat, Sphagnum, and broken charcoal, with some clean potsherds added to it, water must be applied very sparingly at first, and as soon as new roots start from the base of the pseudo-bulbs it should be applied more freely. The leaves have a tendency to die off at this season, but as long as the pseudo-bulbs remain in good condition they are sure to start. Dendrobiums of many species are now plentifully in flower. The sweetly perfumed D. heterocarpum naturally flowers at this season. The short thick-bulbed Burmese variety has larger flowers, paler in colour, and much like those of D. heterocarpum philippinense, and has much longer pseudo-bulbs, which mark it as a distinct variety from either. Some people are not careful to admit air sufficiently in winter, and the occupants of this house feel the effects of it; but even with the most skilled and careful attention, our winters are not conducive to the health of Orchids, the want of sun being so trying. The best growers are finding out that they succeed best in a comparatively dry atmosphere during the three winter months, and when but little artificial heat is required, owing to mild weather, they do not even sprinkle the paths and stages. This does not prevent many species and varieties from making roots freely if it is their season to do so. Now we may sprinkle the water more freely; the blinds must now be got ready, and put up during the next two or three weeks. The old fashion of allowing the shading to rest on the glass has given place to a better system of supporting it on laths running parallel with the rafters; it ought to be raised 3 inches or 4 inches above the glass. The blinds need not be used unless they are really required; but after a long dull period the sun may come out strongly, and it may do harm instead of good if allowed to strike suddenly directly on the plants.

Cool house.—We are not going to write systematically on repotting Odontoglossums, Masdevallias, and the other occupants of this house; but our own were potted two months ago, and they are looking remarkably well, growing and flowering freely. Owing to a pressure of other work we cannot find time to pot them this month. We had some conversation with the late Mr. Spyers on this very subject in the Masdevallia house at Burford Lodge. He said from the middle of this month until the end of March was a good time to repot the occupants of this house, and if they could not be finished by that time, it was better, he thought, to leave it until September. Those who can choose their own time would be following a most successful cultivator by adopting those months. We believe we have potted them in every month of the year, and have been quite as successful in summer as in winter. We pot the whole of them, newly imported or not, in a compost of equal parts Sphagnum and turfy peat, with a good sprinkling of charcoal and broken potsherds; they do not, of course, require very much water until the roots are formed; after that plant live Sphagnum on the surface, and keep it in a nice green, growing condition. The new Odontoglossum Edwardi is now flowering in several collections. It is one of the most distinct of the whole genus; the flowers are thickly placed on long, stout, and branched stems. It seems to require much the same treatment as Oncidium macranthum—to be kept quite cool and in a shady part of the house. The newly-imported plants have much the appearance of Oncidium macranthum, except that the pseudo-bulbs are much darker. We are trying to start our recently imported plants in clean potsherds, as we found Oncidium macranthum started remarkably well that way. The remarks as to shading, damping up the houses, &c., apply here the same as in the Mexican house. These Orchids require shading before any of the others, especially if the house is exposed to the sun. The best position is on the north side of a wall, but that cannot always be obtained. In that position they would not of course require shading so early.

PROPAGATING.

This is a good time for propagating Dracænas, both by means of roots and stems, where required in quantity; if struck now they will be sufficiently advanced for the bright sunny weather of the summer months to assist in colouring the foliage, which will not be the case if struck late, as then it will be necessary to push growth on as rapidly as possible to get fair-sized plants before winter. For propagating purposes choose plants that have grown tall and leggy—the taller, indeed, the better, as the stem will then cut up into a greater number of pieces. In the first place cut off the top of the plant, and put it in as an ordinary cutting, leaving sufficient stem attached to it to form a base, and do not remove too many leaves, or when rooted it will have to be grown on for some time before it becomes effective; whereas if struck with as many leaves as possible as soon as it is potted it becomes a good dwarf plant. The tops should be put in small, well drained pots in a soil composed of sandy peat, with just a slight amount of loam well mixed up together. It will be necessary to stake any of them that may be top-heavy. After potting they should be kept in a close case in the stove and plunged in a bottom heat of from 80° to 85°, in which they will soon root. After that they should be hardened off without delay and shifted into larger pots.

Another way, and one often followed, is to put new Cocoa-nut fibre in the case, and in it insert the cuttings instead of putting them in pots, but where this is done they should be kept close for a few days after being rooted and potted, just to give the roots a start in the new compost. When the tops are taken off they should be thoroughly cleaned before putting them in the case, as if there be but a few insects on them in the confined atmosphere in the case, they will increase rapidly. Cuttings of the stem may be put either in a close case or in a house without any extra covering, provided a good growing atmosphere and a bottom-heat of about 85° are maintained. In either case the same principle is carried out, viz., to cut the stems up into lengths of about 3 inches or 4 inches, and the thick fleshy roots into pieces about half that length; this done, lay them in rows in Cocoa-nut fibre, leaving about half-an-inch between each row of stems, and when so placed cover them to a depth of 1 inch with fibre, levelling it down, when all will be finished. Except in a very dry place, no water need be given, as excess of moisture causes many of the pieces to rot. The young plants will soon push up freely from every joint, and when they have made four or five leaves they should be removed from the parent stems. Most of them root quite independently of the old stem, and if cut off carefully can be at once potted, when, if kept close for a few days, they soon become established. The old stems can be laid in again as before, when they will push into growth, but only weakly and irregularly compared with the first effort.

Stem cuttings of Dracæna Goldieana will not grow, but it may be propagated in this way: When the plant has attained a sufficient height, take off the top and put it in as a cutting. After a time the old plant will push out another shoot from the bud immediately below the cut part, which when strong enough may be taken off and treated as the top. The rate of increase by this method is slow compared with stem propagation, but is useful in the case of kinds that grow, but with difficulty, from eyes, such as D. congesta, gracilis, excelsa, &c. Where a plant has a fine crown of leaves, and it is desired to strike the top with as little risk as possible of losing them, two or three incisions should be made in the stem at the height required, and some Moss should be bound around, which must always be kept moist. If done in this way, the top need not be separated from the parent plant till it pushes roots into the Moss, when it should be taken off and potted.

FRUIT.

Peaches.—After the fruit is all set in the early house, the daily syringing of the trees may be resumed on fine mornings when the temperature begins to rise, and again after the house is closed for the day. If the inside borders have not been watered since the trees were started, a good supply of diluted liquid a few degrees warmer than the mean temperature of the house will be beneficial, and old trees which invariably set more fruit than they can carry may have a light mulching of good rotten manure placed over the roots at the earliest convenience. When the young fruit has been relieved of the remains of the decaying flowers, all the small and least promising may be removed as disbudding is proceeded with, but these operations will require great care and judgment, as anything approaching severity, particularly where the trees are weak, may produce a check which will affect the size if it does not cause the fruit to drop. The best and safest plan is to commence with the upper parts of the most vigorous trees, by taking off the foreright shoots first, and pinching others for spurs or ultimate removal, as space is wanted, and to work gradually down to the horizontal branches through which the sap flows less freely. Airing will now require constant attention, as sudden changes from a high temperature to cutting draughts often do much injury. In bright sunny weather it will be well to shut off fire heat early in the day and to close a little earlier in the afternoon, when 70° to 75° from solar heat alone will be quite safe, and the pipes being cold, a night temperature of 50° to 55° will be secured with gentle firing, and a chink of air on the front ventilators.

Succession houses.—Keep these well syringed and give just enough fire heat to admit of forcing with a circulation of air by night and day. Aim at a minimum temperature of 45° to 50° and a day temperature of 55° to 60° when artificial heat is required, and 5° more when the weather is bright or very mild. Fumigate with tobacco paper before the first blossoms open. Thin the latter where thickly placed by drawing the finger down the undersides of the shoots, and impregnate with a brush when in flower. By this time all late houses should be cleansed, tied in, and ready for syringing when the blossoms can be no longer kept back. Owing to the mildness of the season the buds are getting very forward, and unless we have a change the trees will be much earlier than they were last year, but much may be done by judicious retarding up to a certain stage, when a different course must be followed.

Figs.—The weather being still favourable, early trees have made considerable progress, and many of the most forward Figs have reached a size which will not increase until the flowering process is complete, but this apparent stand need not cause alarm, as very important work is going on inwardly, and hard forcing will not help them. If the weather continues favourable, a steady night temperature of 60°, with a rise of 10° by day and 5° more after shutting up, will be quite high enough for a considerable time, but in the event of a change to wintry weather, 5° lower will form a safe working standard. Pay particular attention to the maintenance of a steady bottom-heat of 70° to 75°, and keep the roots well supplied with tepid liquid and guano water alternately, as the Fig when in growth is a gross feeder, and soon resents a falling off in quantity or quality. Be careful to keep the young growths and foliage firm and stout by means of liberal ventilation and clean by a vigorous use of the syringe, particularly when the house is closed for the day, with plenty of solar heat. Guard against overcrowding by pinching side shoots to form spurs, and remove weak growths entirely where there is not room for full development of the foliage and exposure of the fruit when it begins to ripen. Repeat former directions in the management of the succession house, always bearing in mind that a steady supply of heat, air, and moisture, combined with liberal feeding to well-ripened trees which are not overcropped, are cardinal points in the production of high-class fruit worth eating. Get trees in late

houses pruned or thinned, washed and tied in as opportunity offers, as the time is near at hand when a multitude of pressing matters will require prompt attention.

Grape room.—Now all the late keeping Grapes are in their places, and doubtful berries have been removed, it will be necessary to keep the room dark, dry, and well ventilated. A temperature of from 40° to 50° is quite high enough for Lady Downes, still the best and most profitable kind for keeping until new Hamburghs are ripe; and as the above figures can be maintained without the aid of fire-heat, all that is needed is just sufficient warmth on fine mornings to expel moisture. If Lady Downes are started early, perfectly fertilised and well ripened early in the autumn, they will keep fresh and plump until May, but all stoneless berries which show signs of shrivelling after the leaves fall invariably shrink and perish first; hence the importance of taking time by the forelock in the spring, and the removal of all doubtful berries in the autumn before the bunches are removed from the Vines. To insure the perfect keeping of Muscats for any length of time after Christmas they should be quite ripe by the end of August, and slightly shaded from the autumn sun until the time arrives for cutting. To preserve their rich colour the Grape room should be kept at a temperature of 50° to 55°.

Melons.—To maintain a steady supply of Melons throughout the season another sowing should at once be made to succeed the first batch now coming into rough leaf. If the bed intended for these is not ready, give them a small shift and replunge in bottom heat near the glass. Meantime prepare the fruiting pots, and plunge them where they are to remain until the fruit is ripe. Prepare the soil (stiff calcareous loam, which has been stacked for some months in an open shed) by breaking it up with the hand. Place it loosely in the pots, to admit of the heat passing freely through it, then ram firmly and turn out the young plants before they become pot-bound. If the soil is poor, add a 6-inch potful of bone dust, or twice that quantity of dry rotten cow manure to a bushel of loam. Mix thoroughly some time before it is wanted, and see that a few of the roughest lumps are placed over the drainage. Give water sparingly until the roots reach the sides of the pots, and defer feeding until the fruit begins to swell, when the highest culture that can be given will be needful. If planting out on hills or ridges is preferred, make them small at first, using thin sods of turf, Grass side downwards, for a foundation. Turn out the plants, a pair on each hill and 2 feet apart, on continuous ridges, water sparingly, and then train to sticks when they begin to grow. Prolific kinds, now too numerous to mention, from which the earliest fruit is to be cut, may run over two-thirds of the trellis before the points are pinched out. The first set of side shoots will then show and set freely, and the plants being clean and vigorous they will finish Melons of the finest size and quality. For growing over paths in Pine stoves and other places where the pots cannot be plunged, free-bearing scarlet-fleshed kinds like Turner's Gem, Reed's and Blenheim Orange are well adapted, and often succeed over dry hot-water pipes where the green-fleshed varieties fail, or become badly infested with red spider. We generally get plants of the above kinds established in the fruiting pots ready to succeed winter Cucumbers. They take up but little room, and the rapidity with which the superfluous moisture can be forced out of the soil without lowering the temperature when the Melons begin to ripen prevents cracking, and gives them a flavour they do not often attain when planted out on hills, when the roots are not so completely under control. Where pit or frame culture is contemplated and fermenting material is plentiful, the latter must be well worked and fermented to be ready for making up a bed early in February. Plants for this kind of culture are usually pinched at the third or fourth leaf.

Vines.—Follow up disbudding and tying down in the early house. Stop the shoots at the second or third joint beyond the bunches, and lay in the first set of laterals where there is trellis room for extension. Direct syringing may be considerably lightened in dark, dull weather, but the daily application of tepid water to strong stems, walls, and floors must be followed up until the bunches come into flower, and even then a soft atmosphere with a free circulation of air will be preferable to extreme aridity. From this time forward airing will require careful attention, particularly in cold, windy weather; but so important is a constant change, that steady firing must be pursued every morning until a little air can be admitted at the apex of the house. Close early at 75°, and run up to 80° for a short time on bright afternoons. When the bunches come into flower maintain a steady night heat of 60° to 65° for Hamburghs and 70° for Muscats and shy-setting kinds. Run up 10° after closing, and re-open the ventilators, if only half-an-inch, from the close of day until the following morning. Fertilisation is, of course, an important matter, and almost every grower has a method of his own, from a dash with the syringe to a draw over with the hand; but this rough usage being often injurious to the delicate organs, a camel's-hair brush well charged with Hamburgh pollen will best perform this operation.

Late houses now ready for starting may be well watered with cold water from the tanks to bring the inside borders into a growing state, and to fill up the buds before forcing is commenced. If the Vines carry heavy crops annually, and the Grapes are kept hanging until Christmas, a good surfacing of rotten manure may be laid on forthwith and well washed in with tepid liquid, as late hanging is quite as severe a tax as early forcing. Get all pruning and cutting down finished for the season, and dress the wounds with styptic, as there is now danger of bleeding; also put on grafts when the sap in the stocks begins to swell up the buds. An excellent kind for the late house will be found in Mrs. Pearson, as it is a good grower, and is greatly improved by being allowed to hang after the leaves fall; moreover, it can be grown and finished in a much shorter time than its fickle sister, the second-rate Golden Queen.

KITCHEN GARDEN.

We commenced the other week to stick our early border of Peas; we shall not at present use any Fir tops to protect them, the weather being so mild; but all will be in readiness for the cutting March winds, which do them far more harm than frost. Take advantage of all fine dry, open weather to run the hoe through all growing crops, Lettuces, Cabbages, &c. Although no advocate for earthing-up the latter, still the firmer the soil is round their necks the better. In windy weather Cabbages often blow about and get loose, which is anything but a good condition. Planting out Tripoli Onions between rows of young Strawberries is a system which we always adopt, and generally they turn out fine bulbs, and do the young Strawberries no harm whatever. We are also planting a quarter of Hawke's Champion Rhubarb. We use Rhubarb in quantity for forcing purposes, and also for preserving. Turning over our store of Potatoes has occupied a long time, but is now drawing to a close. They are in capital condition, the eyes in most of them being now visible; the greater part are stored in a good dry room on shelves. Young Tomato plants should now be in 3-inch pots, singly. Keep them close to the glass in order to get them stubby and robust. In February we plant ours out in not too rich soil. Of old Tomatoes we have had a full supply all through the autumn and winter. The best forcing varieties are Criterion and a selection of Hathaway's.

Leucojum vernum.—In my last note (p. 102) I quoted from "Wooster" "that the Carpathian Snowflake, formerly by some regarded only as a variety of Leucojum vernum, was considered by the late Dean Herbert to be a distinct species." I had not then at hand Herbert's "Amaryllidaceæ," but on referring to that work I find that not only does he separate the Carpathian Snowflake from the Leucojums, but also with it the Spring Snowflake. Referring to the latter, he says: "This is no Leucojum, for that genus has shining testaceous black seeds like those of Hemerocallis, and a style attenuated at both ends like the roller used by a pastry cook." Herbert, therefore, makes a separate class for these two, which he places between Galanthus and Leucojum, viz., Erinosma—(1) being Erinosma verna (Leucojum vernum) and (2) E. carpathica. Of the latter he says: "I have not been able to obtain a sight of this plant. I see no reason for confounding it with the one-flowered, green-spotted vernum. I believe that vernum does not ever produce a two-flowered scape, and that the L. præcox majus of Clusius is carpathicum." So far as I can find, Dean Herbert's views hereon do not appear to have met with acceptance by our botanical authorities. Balfour's "Botany for 1871" still has Leucojum vernum, and does not mention the class Erinosma. Neither is the latter to be found in "Johnson" or any other botanical dictionary to which I have access. The flowers and general habits of all the Leucojums are so similar, that it would be a pity to divide them, as proposed by Dean Herbert, for such very slight structural differences.—W. Brockbank, *Brockhurst, Didsbury*

Books.

TREATISE ON THE CULTIVATION OF FRUIT FOR MARKET AND FAMILY USE.*

By C. Baltet.

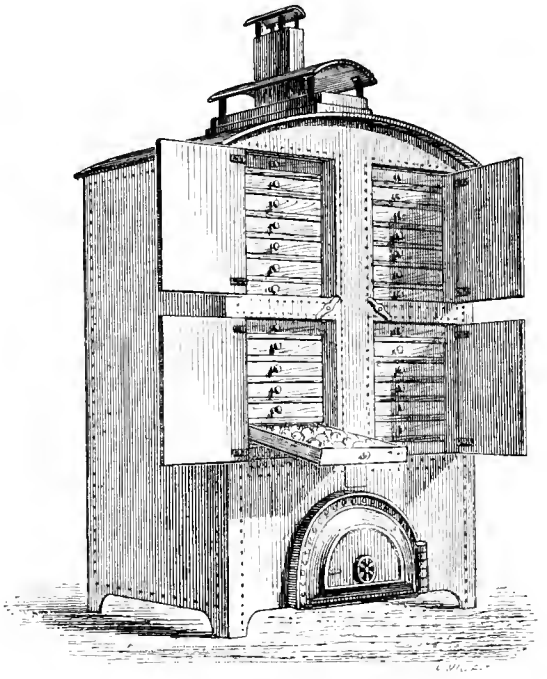
This work, which is conceived in quite a new spirit, comes to fill up a blank which had previously existed in the gardening library. Up to the present, writers who have treated of the culture of fruit have, as a rule, overlooked the economic and commercial side of the question, which, in these later days, in consequence of foreign competition, has become one of considerable importance, but the work which M. Baltet has just published embraces all the current requirements of the subject. He describes in alphabetical order all the cultivated fruit-yielding trees and plants, from the highest to the lowest, from the Walnut tree to the Strawberry plant, and points out, with his well-known ability, the various soils, temperatures, and positions which are most suitable for each. The propagation of varieties, the planting of the trees, the general and special modes of treatment, in fact, all questions of vital importance in these matters, are handled in a masterly manner by the author, but it is especially in the consideration of the culture of each species from a commercial point of view, that he supplies us with new and most useful information. Enumerating the principal centres of production of the various kinds of fruit, he informs us of the trade names for the varieties cultivated in each district, the different modes of culture, the relative value and yield of the crops, the principal neighbouring markets, and the average prices obtained. But it is not enough to know how to grow fruits; to know how to send them to market is also a matter of the highest importance. The care which is taken in gathering and packing—in a word, the condition and appearance of the fruits—have a very great influence in determining the prices which they will bring. The author thoroughly understands the importance of this part of the subject, and he has accordingly treated it at considerable length, illustrating the various operations with numerous fine engravings, which give a peculiar charm to the work.

By the term "culture bourgeoise" M. Baltet denotes the mode of culture which is employed by the amateur who grows fruit for his own private consumption. While the grower for market confines himself to the production of such fruits as are in demand at certain seasons, the well-to-do amateur endeavours to have on his table at all seasons fruit that will please his palate, and on which he may also, perhaps, pride himself before his guests, as

* "Traité de la Culture Fruitière Commerciale et Bourgeoise," par Ch. Baltet. Paris: G. Masson.

a skilful fruit grower. Such a one will find in M. Baltet's work a safe guide to the choice of varieties classed in their order of ripening, with full information as to the soil, aspects, &c., required by each. The general principles of culture (including propagation, planting, pruning, &c.), which should be applied in each case, together with instructions for planting in the open or against walls, so as to make the most of all the ground in a garden, are all given in the clearest manner.

M. Baltet has written his book for the benefit of the grower for market and of the amateur, and, good-hearted man as he is, he has been equally thoughtful for the lady of the house; and, considering how few, alas! of our housekeepers know how to take advantage of the fruits of the garden, he has entered into a detail of the suitability of the principal varieties of Strawberries,



Apple drying Apparatus.

Currants, Gooseberries, Raspberries, Apricots, Plums, Peaches, &c., for making syrups, jams, pastries, and preserves. Apple drying with us is little understood, but in France in plentiful seasons it forms in itself quite an industry. Most of the fruit farms possess a drying apparatus. Therefore growers need not necessarily dispose of their fresh fruit at any time at a loss, as when dried it can be preserved for years and fetch remunerative prices. It is calculated that a bushel of fresh fruit after being cut up for drying yields about 6 lbs. of dried fruit. The annexed illustration represents one of these "evaporators" or Apple drying stoves, and we reproduce it from M. Baltet's book in the hope that it may induce people to try Apple drying in this country. In such a season as the last, for example, a large quantity of fruit could have been preserved, which was no doubt left to decay on account of the low price which it realised.

To conclude with some of M. Baltet's own words: "Everywhere the culture of fruit trees is making progress, and if we cross the Atlantic we shall see it developing itself there in an extraordinary degree. The people of the United States, who devote to their orchards an area of nearly 5,000,000 acres (representing yearly 300,000,000 dollars), in 1883, at the close of so many other congresses, convened a special meeting for the discussion of the different modes of packing and transporting fruit. Let us, then, prepare ourselves for the struggle. The New World means to swamp our markets with her fruits, as she has already tried to do so with her corn and meat."

M. Baltet acts the part of a good patriot in sounding this note of alarm. Such excellent books as that which he has just published should be in the hands of all who take an interest in fruit growing, and they will be a powerful aid in preserving to France her pleasant title of "The Fruit Garden of the North of Europe." W. M.

Trees and Shrubs.

BERRY-BEARING TREES AND SHRUBS.

During spring and early summer a continual floral display is kept up by the numerous trees and shrubs now to be found in the gardens, but by the beginning of September the list is well-nigh exhausted, and then attention is directed to the beauty and variety that exist among fruit-bearing subjects. The length of time during which berries remain on the trees varies a good deal; some quickly drop, while others, such as the Hollies, Pyracantha, Pernettyas, &c., remain on throughout the winter. Birds frequently play sad havoc with berry-bearing trees and shrubs, but such is not invariably the case, as some seasons very few are touched, while at others all in any way popular with the feathered tribe are taken. A fortunate circumstance is that most of the Evergreens which retain their fruit throughout the winter are among the least sought after by birds. Among the earliest to ripen is the Mountain Ash or Rowan tree (Pyrus Aucuparia), whose brightly coloured berries are borne in such numbers, that the small branchlets on which they are produced bend beneath their weight, thus presenting the surface of the whole bunch to the spectator. The yellow-fruited variety is also a very desirable kind. The transparent Crab, with pretty Cherry-like Apples of a rosy hue, is very distinct from the above. The broad-leaved Spindle tree (Euonymus latifolius), with its peculiarly shaped fruits, which, after a time, open, and display their scarlet seeds suspended by a slender filament, is an attractive object for the shrubbery border.

The different Roses, too, are all handsome in a berry-bearing stage, the finest in this respect being Rosa rugosa, whose large orange hips are very conspicuous early in autumn—indeed, before the plant has finished flowering. Other Roses, such as R. villosa, has bright crimson fruits; R. spinosissima, very dark, almost black hips; and R. cinnamomea is a bright red-berried kind. The scarlet Thorn (Cratægus coccinea) is very showy, as is also the large yellow-berried C. Aronia. The Snowberry (Symphoricarpus racemosus) grows in almost any soil or situation, and produces its pure white berries very freely. The common Barberry (Berberis vulgaris) ripens by the middle of August; and, from the profusion of its fruits and their bright colours, is a very conspicuous object at that time. The berries of the Sea Buckthorn (Hippophae rhamnoides) supplies an uncommon colour. They are bright orange, and from their numbers are very effective. They are about the size of large Peas, and the long slender shoots of this plant are sometimes wreathed for some distance with them.

The different Cotoneasters are all attractive when in fruit, some being very brightly coloured, and others of a more sombre hue. C. frigida, a vigorous growing kind, bears large clusters of bright crimson berries, which remain in good condition during a great part of the winter if birds do not touch them. C. Simonsi does not ripen till late in the year, but then its orange-red fruits are very bright and cheerful. C. bacillaris has small brown berries, individually in no way showy, but they are borne in numbers sufficient to make them attractive. The evergreen kinds, such as microphylla and buxifolia, also bear great numbers of reddish brown fruit. Evergreens retain their berries longest in winter, and amongst these the first place must be given to the Holly, whose berries are so much sought after at Christmas time for decorative purposes. A vigorous specimen of the common Holly when well furnished with berries, as is frequently the case, is a striking object, and the same may be said of the variegated-leaved kinds, some of which are just as prolific in fruit-bearing as the common kind. The yellow-berried Holly, too, might with advantage be more frequently planted than it is, as it is in all respects a counterpart of the common kind, except that the berries are yellow. In slightly shady and sheltered spots the bright red berries of Skimmia japonica remain on throughout the winter, as birds do not touch them. Aucuba japonica will bear berries freely if a male plant is in the immediate vicinity. These last two are very useful for conservatory decoration, as they fruit freely when in a small state. Against a wall, nothing surpasses the Pyracantha in brightness of berry. Pernettya mucronata, with purplish fruit as large as a Marrow-fat Pea, has long been known; but there are now a number of varieties, varying from white to almost black, that are both handsome and free-fruiting, and which should ere long become more popular.

Where the Arbutus is hardy, its large, rough, crimson berries are very ornamental in winter; but in most places it is cut down by severe winters. There are many other trees and shrubs whose berries are more or less ornamental, but I have here named some of the most useful. Some of the above may with advantage be more extensively planted than they are. Alpha.

SHORT NOTES.—TREES AND SHRUBS.

Fruiting of Chimonanthus fragrans.—Allow me to tell Mr. Clarke (p. 93) that both this and also grandiflorus have fruited at Offington, near Worthing, producing in some seasons hundreds of seeds.—F. T. G.

Berberis Darwini is well known to make a good wall plant, and by associating it with B. dulcis and B. stenophylla, all of which are evergreen and neat in growth, a striking effect would be the result. If strong plants are used in the first place, they would reach a height of 6 feet in four or five years. None of these Barberries are very particular as to soil, and they will grow and flower freely on all but a north aspect. B. Darwini flowers in midwinter in the west of England in the form of a bush. —J. C. C.

SWEET-SCENTED SHRUBS IN FLOWER.

Jasminum nudiflorum has been and still is quite covered with its clear yellow blossoms. This Jasmine is seen to greatest advantage on walls built with red brick, a colour which forms a good background for its flowers. This and other shrubs so grown are generally too formally trained, a circumstance which destroys much of the beauty of this Jasmine, whose weeping branches and shoots, if left to themselves, would curve and arch over and depend from the trellis or other support in a most graceful manner. I could not help being struck with the charming appearance of this Jasmine the other day; in a wide border in front of some Evergreens several plants of it were growing up and over some old tree stumps, which they completely covered, the long twiggy shoots weeping downwards in all directions, and looking like fountains of gold. This to me was quite a new use to put this Jasmine to, but thus grown it is very effective. It must, however, be supported, for without that its long branches would lie flat on the ground. For elevated places, like banks, mounds, or rockwork, it has few equals at this season, its clear colour being very showy, even at a distance. As its growth is made early, transplanting it, where needed, should not be deferred, especially in the case of those that have to be removed, without having been first established in pots, which ought to be lifted before the buds break and immediately after their flowering is over. The propagation of this Jasmine is most simple; indeed, its branches may often be found rooted where they happen to touch the soil, thus forming natural layers, and the young shoots, taken off and cut into lengths, strike freely if inserted in sandy earth and covered with a handlight till spring, or put into pots and kept in pits or frames that are a little damp, so as to prevent the soft bark from shrivelling.

Lonicera fragrantissima. — Though the flowers of this Honeysuckle are but only small and not very showy, yet plants of it are quite worth growing, even indoors, on account of the rich odour which they yield; one or two in bloom will perfume a whole house. The best example of this Honeysuckle which we have is on a wall, where it completely covers a pier 9 feet high. This plant has for a long time supplied us with quantities of sprigs in a cut state crowded with blossoms. For vases, mixed with other flowers, or for working up in bouquets, the twiggy shoots of Lonicera are most valuable, the blossoms emitting a fragrance different from that of most other plants. For yielding abundance of bloom there is nothing like stumpy, short growth—a condition which may be brought about by planting in sandy soil or by confining the roots. The plant just referred to is in a south-west border, and, compared with it, others in shrubberies and less exposed situations are very poor, and nearly evergreen, as they stand no chance of ripening their wood. In pots they are quite under control, the only thing to guard against being not to turn them out-of-doors too early, when the shoots are young and tender, or they get cut off by winds and spring frosts. We propagate this Lonicera by taking off the hard shoots with a heel attached to them, and inserting them in sharp sandy soil in the shady part of a border, or by making cuttings of shoots from plants under glass; shoots of this class when just firm strike as readily in close, gentle heat as those of any Verbena.

Chimonanthus fragrans is another universal favourite, the blossoms of which are generally used for scent bowls. They exhale sweet odours long after they have been picked, although nothing like to the extent they do when fresh gathered. That is the time when they are of great value for mounting and working up for the sake of their perfume in bouquets. The only situation the Chimonanthus does really well in is against a warm sunny wall, where if kept stopped, so as to make the plant form spurs, it flowers quite freely.

Daphne Mezereum is one of the most floriferous of shrubs, as generally every shoot is thickly studded, and, being very compact, it is a capital plant for a border, as is also the deliciously fragrant D. Cneorum, which spreads rapidly, and does remarkably well in sharp gritty soil, in which the shoots, if partially buried, root freely and soon form separate plants. S. D.

ORCHIDS.

ORCHIDS AT KENWOOD, ALBANY, N.Y.

Among the hundreds and, I may say, thousands of flowering Orchids that contribute to the beautiful display of bloom in Mr. Corning's collection, one of the most celebrated in America, the following are those most worthy of notice. Of Cattleya Trianæ alone, which constitutes the major part of the display, there are no fewer than forty distinct varieties, each represented more or less numerously. There is a wonderful variation among these, from the chastely beautiful alba, whose flowers are of snowy whiteness, to the deep-tinted forms such as Rougieri, while intermediate between these two extremes in point of colour is another named Hilli, which has white sepals and petals and a very fine labellum as rich as it is brilliant. The other named forms of Triana's Cattleya which may be singled out for distinctness and beauty include Aspasia, very delicately toned and most pleasing; Pandora, a kind with very large flowers, but with petals somewhat flimsy—not a commendable character in a Cattleya; Pescatorei, a fine, bold flower, with rosy sepals and petals, and a deeper rose-tinted labellum; and Dodgsoni, the finest of the dark-lipped section. Probably the finest of all Cattleyas, however, is one here called Penelope, also a form of Trianæ. The flower of this must be seen to be fully appreciated, or even to obtain an adequate idea of its great beauty. The bloom measures 8 inches across the outspread petals, which are of the loveliest rosy-pink imaginable, while the labellum is large, shallow, and exquisitely frilled at the margin. Its colour, an intensely deep carmine-magenta, is in striking contrast, or rather harmony, with the lemon blotch in the throat. This glorious variety is, moreover, quite distinct in other respects, the leaf and bulb being different from those of any other Cattleya with which I am acquainted, but most nearly resemble those of the old C. labiata. The pretty C. Eldorado, which by the way seems to have no particular season for flowering—at any rate with us here—is beautifully in flower. There are some strikingly pretty varieties of it, and I consider it an indispensable Orchid, as the blooms are so neat and bright. Lælia albida furnishes several varieties, the best with us being those named salmonea and Mariana. Of all the forms of L. anceps, Veitch's variety is one of the most distinct, though it does not surpass, or even equal, the superb Dawsoni variety, the undisputed queen of Lælias of the anceps type. There seems to be more purple in the lips of Veitch's variety than in that of any other, and this character singles it out from the rest. L. harpophylla is with us an extremely showy and free flowering Orchid, and I consider that it ought to be grown in large quantities for cutting from, as its peculiarly bright orange-red colour is so distinct even among Orchids The rarely-to-be-met-with Scuticaria Steeli is largely represented in Mr. Corning's collection. It is thoroughly at home in company with the Cattleyas, and some of the plants carry no fewer than ten and fifteen of its showy flowers. Our experience is, that it needs only a bare block, and seems to dislike any soil about the roots.

The Phalænopsids, the glory of the Kenwood collection, are scarcely yet at their best, though amongst those that are in flower there are some worthy of note. Foremost among these is the new Stuartiana, which, in my opinion, is but a pale geographical form of the old Schilleriana. For all that, it is none the less lovely, and as it varies considerably, it is all the more valuable. The supposition that it is a near relative of Schilleriana is corroborated by the fact that we have a plant of Stuartiana bearing decidedly rosy tinted blossoms, as if the colour of the flowers had reverted to their original type. There are many forms of the new Sanderiana—some no better than the old amabilis, though some assume the characteristic rosy hue. One in particular is scarcely distinguishable in this respect from Schilleriana. The rare P. Boxalli is pretty, but it requires the eyes of a connoisseur to distinguish it from P. Manni, which is flowering by its side. One of the most pleasing of Phalænopsids is casta when represented by the best form such as there is in this collection. The delicate tone of the flower seems to be a compromise between amabilis and Schilleriana, between which species it is presumably a cross. It is to be regretted that such a lovely Orchid is so scarce, but then the very fact of its being rare invests it with a certain amount of interest. P. rosea abounds in the collection and represents a great variety of colour, some forms being scarcely worth notice, others again strikingly beautiful. One of the prettiest is called delicata. A gem of the first water is P. intermedia Portei, a plant coveted by every Orchid lover who does not possess it. I remember seeing an excellent plate of it in The Garden some time ago, but, good as that plate is, the flowers must be seen to enable one to form a clear idea of their delicate beauty. It is presumably a hybrid between P. rosea and P. amabilis, while P. Veitchi (also in bloom here) is apparently between P. rosea and Schilleriana. We have a pale form of P. leucorrhoda in bloom, though it lacks the beauty of the variety alba, which is almost pure white. The variety of amabilis, named Dayana, is a handsome dark-lipped form; and, lastly, I must notice an exceptionally fine variety of Schilleriana, the sepals and petals of which are very much crisped, and a delicate perfume which it emits also adds to its value.

Aganisia cœrulea, though seldom seen, is really a fine Orchid. It has dark blue flowers, fully 6 inches across, and a shell shaped labellum of bright violet, sparkling like crystal. It is a native of the Amazon, and flourishes on a bare block if given plenty of heat and abundance of moisture. It is flowering beautifully, and lasts a long time in perfection. Among the Lady's Slippers in bloom are Cypripedium concolor, quite a gem, which everybody admires for its neat habit and quiet colour. The lovely little C. Schlimi album is a great favourite here, which it well deserves to be. There are two forms of this plant, the genuine kind, a real beauty. Hybrid Lady's Slippers are numerous. The everflowering calurum, selligerum, and Dominii are always attractive. The hybrid C. politum is, I consider, little better than the old venustum itself, from which it sprang. Of course such as Spicerianum, Argus, and villosum contribute to the display.

The Dendrobes, beyond crassinode and Wardianum, are as yet not prominently in bloom, though those that are include such kinds as thyrsiflorum, Ainsworthi, bigibbum, and Dominii, with the bright colours of which the quiet primrose-yellow of D. luteolum makes a charming contrast. The latter Dendrobe is not half appreciated enough, for when well grown there are few more pleasing plants. Other flowering Orchids include a Vanda gigantea, with two spikes, numbering some 30 odd flowers. The superb variety of the blue Vanda, V. cœrulea Greyi, has again been the glory of the East Indian house for many a day. It is not only remarkable for the unusual depth of the colour, but the blooms this season measured fully 4½ inches across. The flower, moreover, is finely formed, the sepals and petals overlapping like those of a Pansy. In one of the cool houses some forty plants of Cœlogyne cristata form a flower show in themselves—a lovely one, too. Most of the plants of this popular Orchid, which we flatter ourselves that we cultivate to the highest perfection, produce two spikes from each bulb. To our practice of fully exposing our plants, so as to ripen the bulbs well, we owe our success mainly with respect to Cœlogyne culture. The favourite old Cypripedium insigne is no less remarkable than the Cœlogyne, and is grown quite as numerously; some of the stalks carry two flowers.

Another beautiful floral spectacle in the cool house is a score or so of suspended blocks of Sophronitis grandiflora, averaging some 15 flowers to each plant. The Lycaste Skinneri, too, in this house is noteworthy, some of the forms being extremely dark, almost a blood colour, and between this and the pure white there is every conceivable variation.

Odontoglossum spikes, which may be counted by the hundred, create a paradise of Orchid beauty, Alexandræ being the most numerous, particularly those which we class here under the virginale type, characterised by spotless white flowers with broad sepals and petals. The soft, canary-yellow flaveolum is very choice, being as beautiful as it is rare. There is also an extremely large-flowered form of O. Wilckeanum, equally remarkable representatives of baphicanthum, Andersonianum, Ruckerianum, deltoglossum, and hystrix. Of the latter there is a form called magnificum, a name which the plant does not belie. The variable gloriosum is represented in every form, I should say; some very dark, others the very reverse. One plant has a spike of 44 flowers. The somewhat scarce bictonense also has a spike of 43 blossoms. Ada aurantiaca and Mesospinidium help to enliven the Odontoglossums, and among the Masdevallias two pretty additions are Chelsoni, a hybrid between Veitchi and amabilis, and ignea Massangeana, truly a splendid Orchid.

F. Goldring.

Indoor Garden.

BOUVARDIAS.

There are various ways of growing Bouvardias, and it is difficult to say which is the best, as some can grow them well one way, while others, under nearly the same conditions, fail. The best plants I ever saw were treated as follows: After they had finished flowering they were transferred to a greenhouse, with the exception of a few for furnishing cuttings, and which were kept in heat for that purpose. The others were ripened and rested by gradually withholding water until the leaves were all off and the wood quite firm, which it should be by the end of February or the beginning of March. They were then cut back rather hard, which induced them to break strongly, and they were still kept in the greenhouse until growth had commenced. By the end of March or early in April they were ready for planting in a pit previously prepared for their reception, the compost consisting of three parts good turfy loam and one part peat soil, to which were added some well-rotted manure and coarse sand or road grit. The plants were then shaken clean out of the soil and a few of the roots cut off for purposes of propagation. The latter made nice little plants by the autumn, and were strong enough to produce several trusses of flower during the winter. These root cuttings were put in a pan of fine soil, and placed on a hotbed or in a warm house or pit, where they soon commenced growing, after which they must not be kept very wet, or they will damp off. They were eventually potted off singly into 3-inch pots and stopped once or twice to make them bushy.

The old plants were carefully planted, well spreading out the roots and covering them with a little fine soil to encourage them to start away freely. They usually stand about 18 inches apart, more or less, according to their size and strength. As each light is finished they are watered with tepid water and the lights closed and shaded until the plants have become established; after that they are gradually given more air until the end of May, when the lights are removed entirely. They are frequently pinched to induce them to become bushy, but they must not be pinched too late, say not later than the end of August, or they will be correspondingly late in flowering. When growing strongly they are benefited by frequent supplies of liquid manure and soot water in bright weather, while if wet for any lengthened period, it is best to sprinkle a little guano, soot, or any other fertiliser on the surface between the plants, being careful not to lodge it on the leaves, or the sun is liable to burn them. The plants are kept free from weeds by the use of the Dutch hoe, being careful not to work too close to their stems, or the young suckers might suffer thereby.

About the end of September the plants just alluded to were lifted with good balls of earth and carefully placed, principally in 8-inch pots, the compost being similar to that in which they were growing, and set under a north wall until they were partially re-established. Care was taken to keep them regularly moist, occasionally sprinkling them overhead on dry days to prevent undue flagging, otherwise they shed their lower leaves. Before frosts were anticipated they were put principally in a warm greenhouse, a few being placed in a stove temperature to bring them on for early blooming, thus affording a longer succession. They were freely syringed, as red spider is apt to attack them, and then they get disfigured. The most useful varieties with which I am acquainted are Vreelandi and jasminoides, white; Hogarth, elegans, and coccinea, scarlet; and to these may well be added Humboldti corymbiflora and the pretty double white Alfred Neuner and double pink President Garfield, these flowering after the bulk of the single varieties are past their best.

I.

LILIUM GIGANTEUM.

For some reason which I am unable to explain my attempts to grow this noble Lily permanently planted out in the open in a satisfactory manner has altogether failed. I can only surmise that the position which the plant occupied was too much exposed to the sun, but as it was the best I could secure for it, I, therefore, gave up the attempt and took to growing it in pots. That I am right in my surmise that this Lily thrives best in moderate shade has been to my mind pretty clearly verified by its behaviour since I had it in pots. Before I go farther, however, I may remark that only large and perfectly healthy bulbs are capable of flowering in a way that will show the true character of this noble plant. This season, when I lifted my bulbs from the open they were potted singly in 16-inch pots, that is to say, the largest of them, the smaller ones being put in pots of different sizes; although the bulbs were what I considered large and of a flowering size, they did not produce anything but leaves the first year, which after all perhaps was as much as I could have expected, for with such a vigorous growing plant late autumn potting would not favour flowering the following season; their subsequent behaviour, however, quite rewarded me for my patience, for the second year the largest bulbs flowered in a way that justifies all that has been said concerning the beauty of this Lily. The largest plant produced a flower-stem 8 feet high, and furnished with thirteen flowers.

The treatment which the plants received was very simple. Having plenty of space in a large unheated house, they were placed in one corner where they had plenty of air and were lightly shaded by the branches of a Rose tree trained under the glass. During summer they had an abundant supply of liquid manure given them, which they evidently liked, for the leaves they made were very large and of the darkest green. From my experience, I am quite convinced that the only way to get this Lily into satisfactory condition is to grow the young bulbs thoroughly well, and to do this the soil cannot well be too rich, if not too light, nor can they have too much help from the manure tank while growing. As a matter of course, during winter, while the plants are at rest, they require only just enough water to keep the soil moist. There must be no attempt to hurry them, for they evidently like to have their own way, and then, with generous treatment, they will not fail to reward the cultivator with their flowers. I am quite satisfied that it is useless to attempt to grow this Lily in smaller than 16-inch or 18-inch pots, and to get it in its true character the plants must be well fed; they require to be grown one year in the pots in which they are to flower, and even then it is useless to put in a small offset and expect it to flower.

In order to keep up our stock of plants, we take off the offsets or small bulbs which are formed round the flower-stem as soon as the plants go out of flower. These we pot in 10-inch pots, in which they are grown one year, and the next autumn they are shifted into the pots in which they are to flower. The compost we use consists of three parts strong loam and one part manure; moderate drainage only is required.

The whole routine of management is of the most ordinary kind; given the shelter of a glass roof and moderate shade while growing, there is no need to fear frost or cold currents of air. I must not, however, be understood to say that they will not flower in smaller pots than I have named; I have had them in flower both in 10-inch and 12-inch pots, but the size of the stem, as well as its height and the number of flowers produced, were all insignificant compared with those grown in larger pots.

J. C. C.

JASMINES, SHRUBBY AND CLIMBING.

Amongst Jasmines may be found some of the most highly fragrant plants in cultivation, the perfume known as oil of Jasmine being procured from two or three of the species, such as J. grandiflorum, J. Sambac, and J. officinale. Amongst stove species all are favourites, but some are much superior to others, and to these it will be better to confine the following cultural details, which will answer for the shrubby and also the climbing kinds, with this difference, that the largest growers obviously want more root room than the less vigorous sorts. Some of them furnish suitable shoots to make cuttings of more freely than others, and the propagator should select such as are in proper condition for the purpose, *i.e.*, neither too soft nor too hard.

The best season to propagate is spring, when shoots a few inches long can be had, as then there is plenty of time to get the young plants established before winter. Take them off with a heel, and insert them thickly in small pots in sand, covered with a bell-glass; kept moist and shaded in a temperature of 70°, they will root in the course of a month; then, when a little hardened by exposure to the full air of the house or pit in which they have been struck, they should be moved into 3-inch pots in good fibrous loam, to which add a little finely sifted rotten manure and some sand, giving as much water to the roots as is requisite to keep the soil moderately moist, but not over wet, as most of the species to which these remarks refer are somewhat spare-rooting plants. Keep them warm and in a fairly moist atmosphere, with a full complement of light, some air, and a little shade when the sun is bright. Syringe each afternoon to keep down red spider, by which they are liable to be attacked. During the middle of summer a night temperature of 66° to 70° will answer, with 10° more by day. Distinction will now have to be made between the climbing and the shrubby kinds. The latter will need to have the points of their shoots pinched out to lay the foundation for bushy specimens; the former should be encouraged to keep to their erect habit, simply stopping them when some growth has been made, so as to encourage as many shoots as required to furnish the pillar or rafter to which they are ultimately to be trained, in which way the climbing kinds can with the best results be grown. When the pots are moderately filled with roots, move the plants into others 3 inches larger, using the soil a little more lumpy, and continue the treatment advised as to air, water, and heat until the autumn approaches; then give more air, keep drier at the roots, and lower the temperature, which, during the last months of the year and up to the latter part of February, may be about 60° in the night. After this gradually give more warmth, and as soon as the roots are in motion move the plants into pots 3 inches or 4 inches larger, continuing the treatment advised for last year in every way. By midsummer it should be determined how the climbing sorts are to be grown; the weaker growers, such as J. Sambac, are as well with their roots kept in pots, increasing the size as more room is re-

quired; the bushy kinds need to be similarly treated in this matter, being careful not to overpot them, as they will succeed better with less root space than many plants. By continuing this treatment, they will last for years, each spring removing as much of the surface soil as can be got away without materially interfering with the roots, replacing it with new. Clear manure water given at short intervals through the growing season, will help the growth, which it is necessary to encourage, as the flower forthcoming with these plants is generally proportionate to the wood they make. I have found the time of blooming with the stove species of Jasmine very much consequent on the amount of heat they are subjected to.

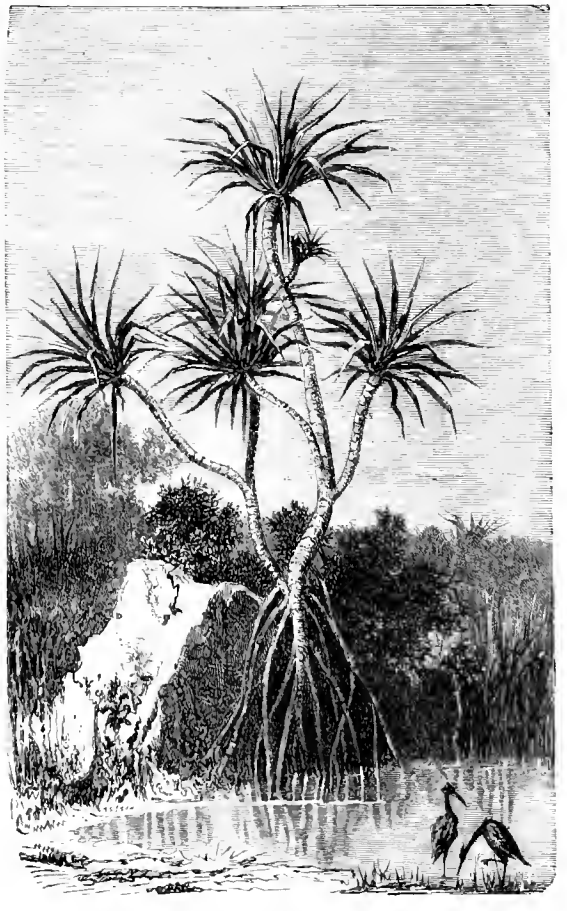
Species.—The undermentioned I have found to be the best, taking all properties into consideration, viz: J. Duchesse d'Orleans, a climbing or tall-growing kind that has orginated on the Continent, with very handsome white flowers, which keep on opening in succession, so long as any growth is being made. It likes a brisk heat. J. sambac fl.-pl.—This is an evergreen climbing species that bears white, highly fragrant double flowers most useful for bouquets. It is not a strong grower, and must not be over-potted. A native of the East Indies. J. ligustrifolium.—An evergreen shrub with white flowers, produced for a long period in succession. This likewise comes from India. J. gracile.—A plant of slender habit, from Norfolk Island; it has white flowers, and will grow in a lower temperature than the others named. J. gracile variegata.—A form of J. gracile, from which it differs in being variegated. J. gracillimum.—A new and beautiful species with white, sweet-scented flowers, produced freely from every bit of growth the plant makes. One of the best hard-wooded flowering stove plants introduced in recent years. Northern Borneo.

Insects.—These heat-requiring Jasmines are subject to most of the insects that affect plants requiring artificial warmth, including aphides, thrips, and red spider, which must be kept down by daily syringing overhead and fumigating. If mealy bug and scale attack them, syringe well with or dip in insecticide, until they are free from the pests. T. Baines.

THE SCREW PINES.

The usefulness of large numbers of stove plants is due to their singularly graceful forms when young as compared with those of full-sized specimens seen growing wild in the Tropics or here and there in large gardens where space is provided for the development of large-growing stove plants. Among Palms, Dracænas, Aralias, and similar plants we have many instances of this, so to speak, doubleness of character, and although many of these assume in the adult stage forms more or less attractive, it may be safely said that such plants are of little value for garden purposes except when young. To this class of plants belong the Pandanuses or Screw Pines. Travellers tell us how noble an appearance many of the Screw Pines have when seen luxuriating in groups or in the form of large weird-looking, isolated specimens along river banks or sea coasts, or crowning stony hills; the tall naked stem, from which long armlike branches are produced near the top, and stretch out horizontally; the long stilt-like aërial roots, which, growing out of the branches, extend down to the ground, where they ramify freely, and so afford safe anchorage to the tree against strong winds and heavy rains; the large sheaves of long sword-shaped leaves borne on the end of the branches; these are all characteristic features of the Old World Tropics, and especially of the Mascarene Islands. But Screw Pines are not tree-like in habit; we have the graceful little P. pygmæus, the small unarmed P. inermis, and the bushy variegated P. Veitchi and P. javanicus. These form either flat-topped table-like plants, or dense globose shrubs, sometimes growing out from a rift in the side of a rocky coast or mountain, or creeping by means of their snake-like stilts—the aërial roots—along the surface of the soil, until they become many yards in circumference. Such are Screw Pines "at home." As to their uses, they are almost as valuable to the natives as Palms. Their Pine-apple-like fruits are eaten in a variety of ways; the roots are used as ropes, and are made into baskets, mats, and hats, as are also the leaves, which are, moreover, used for paper-making, nets, &c. In Mauritius the leaves of P. odoratissimus are made into bags, in which coffee, sugar, and grain are exported, and the "bases" used by fishmongers in this country are made from these sugar bags.

In the Palm house at Kew there are several gigantic specimens of Pandanus, the immense plant of P. odoratissimus being one of the attractions of the house, and perhaps the finest specimen of the kind in Europe. For horticultural purposes the Screw Pines are much valued in this country, only, however, in a small state. The most popular, perhaps, is P. Veitchi, a graceful variegated species from the South Sea Islands. Whether used for table decoration, or as an exhibition plant, this is always effective, and as it is easily grown and propagated it has become one of the most frequently used among plants for decoration and exhibition. Before the introduction of this species we possessed in P. javanicus variegatus our only variegated Pandanus, and if not so graceful as P. Veitchi, and less fitted for decorative uses, owing to the strength and sharpness of its spines, it still ranks second, its beautiful variegation being much more permanent than that of P. Veitchi, which is apt to "run out" when the plants get large. P. utilis is a dark green species with purple spines; it is quite as graceful as the variegated species and equally useful. The plant known as P. candelabrum must be referred to this species, as also must some of the Screw Pines known in gardens under the names sylvestris, odoratissimus, and media. It is a native of Mauritius. P. pygmæus is the P. graminifolius of gardens. It is a pretty little plant, more like a Freycenetia than a Pandanus. The leaves are narrow, pale green, and edged with white spines. It branches when only a foot high, and continues to grow horizontally rather than in an upright direction. It is a native of Madagascar. P. inermis, a spineless, bluish-green leaved species; P. Pancheri, a broad-leaved plant, with white marginal spines and a flesh-coloured keel; P. decorus, P. ornatus, and P. Vandermeeschi are other species cultivated in gardens, and all more or less ornamental when young. It would be difficult to refer all our garden Screw Pines to their proper botanical position, the characters of young plants being so very different from those of flowering specimens. Being all natives of extremely hot countries, the Pandanuses will thrive only in our warmest stoves; they require plenty of water always, and grow well in a mixture of peat and loam, with a little sand added. The variegated kinds should have a light position close to the glass in order to fully bring out their beautiful markings. In fact, all the species prefer a light position, although they thrive fairly well in a shaded one. We must remember that naturally they grow in very open places, seldom, if ever, occurring under the shade of trees.



The Screw Pine (Pandanus utilis) at home.

As regards propagation, seeds are sometimes to be had, and when fresh they germinate freely in a little extra warmth. Unfortunately, however, seeds of such plants as these Screw Pines, Palms, &c., are sometimes named according to the value of the name in the market, so that they are

not to be relied upon unless one knows their history. Cuttings may be had from all the species either by cutting the central growth out, which causes lateral shoots to develop themselves, or by growing the plants on, when they naturally produce lateral growths, which, when long enough, may be severed from the parent stem and potted in very sandy peat, and if placed in a warm propagating frame they will root in about a month. The species which produce the laterals without having their central growth first removed are both variegated ones—P. pygmæus and P. inermis. —B.

New hybrid Freesia.—From the description of this supposed novelty transcribed by "G. N." (p. 61) from a recent number of the *Revue Horticole*, it seems to me quite evident that the hybrid obtained in the Florentine garden is absolutely identical with that obtained a year or two ago by Messrs. Charles Smith, of Guernsey, and sent out last year for the first time by Messrs. Sutton, of Reading, under the appropriate and accurately descriptive name of Freesia Leichtlini major, which is at all events a decided improvement on the dreadfully long Italian name bestowed on his plant by the Florentine gardener, which I hope it may never be known by in this country. I bloomed this pretty plant well in January last (half-a-dozen bulbs having been kindly sent me by the raiser before it was sent out), and I was delighted with its beauty and exquisite fragrance, as it possesses the merits of both its parents, and is larger in size of flower and considerably earlier in coming into bloom than either of them.—W. E. G.

KITCHEN GARDEN.

GARDEN PEAS.

The retail seed catalogue of a well-known seed house gives a list of 114 varieties, or assumed varieties, of Peas, and it is not to be wondered at if gardeners in view of this bewildering enumeration are found asking in despair, What shall we select to grow? There are several new Peas announced for this season, and if the various catalogues could be gone through and a list of Peas made, there would be some 200 or more different names, if not different varieties. It is the annual influx of new varieties that makes the work of selection so perplexing. Let us try to make a selection of sorts likely to be useful. What shall we start with? Clearly American Wonder, a good hardy variety. It grows only from 10 inches to 12 inches in height, and its haulm is covered with pods, each containing from seven to ten Peas. It is one of the best for early sowing. Let William I. follow this; it is early, productive, and of excellent flavour. Advancer when represented by a fine stock is one of our best selections; it is good in quality and very productive. Add to this John Bull, with its large, well-filled pods and fine table quality, and our select list of first and second early Peas is complete. As a rule,

Main crop varieties form the staple sorts grown in the kitchen garden, and here there is abundant room for selection. In this class we would include Prince of Wales, a white wrinkled variety of excellent quality; Dr. Maclean, a free-bearing wrinkled variety; Champion of England, a truly grand old Pea that will be grown by market gardeners for years to come, because so productive and of such fine quality; and Telegraph, or Telephone, according to taste; both are very productive, but apt to be pnffy in the pod; the table quality of both is, however, excellent. Then for the late crop I would select Ne Plus Ultra, which, though tall in growth, is, taken altogether, the best all-round Pea in cultivation; Veitch's Perfection, represented by a good stock of it; Omega, a dwarf Ne Plus Ultra, and a valuable late variety; and, lastly, Walker's Perpetual Bearer, a very late selection from Veitch's Perfection, a variety that appears to be but little affected by mildew, and which will stand until quite late in the season. It is now the rule for prizes to be offered for

Pods of Peas at flower shows, and judges are often confronted by great difficulties in making awards to such exhibits. Some trust to appearance, and give the prizes to large, handsome, clean, symmetrical, well-filled pods that have been carefully cultivated. Others go solely for flavour, and it is not uncommon for a dish of rough-looking pods to be put before one more perfect in appearance. Some pass by pods that are pointed at the tip like those of John Bull, and award prizes to blunt-topped pods like Dr. Maclean or Ne Plus Ultra. The following are all good exhibition varieties, viz., William I., Best of All, Telegraph, Telephone, Pride of the Market, Stratagem, Culverwell's Giant Marrow, Dr. Maclean, Ne Plus Ultra, and Walker's Perpetual Bearer, the two last named for late exhibitions. Respecting the

Culture of Peas, but little that is new can be stated, yet, seeing that not a few fine new varieties have been introduced, they should be cultivated as generously as possible. It is a common mistake to sow Peas too thickly, and especially those that branch freely. Not loog since we saw a plant of Walker's Perpetual Bearer Pea that had three main stems; these had branched out into nearly a dozen lateral branches, and the individual specimen had on it nearly 200 pods. Such a Pea as this should be sown a foot apart in rich ground, but it is but few who would sow so thinly. The result of thin sowing is luxuriant plants and a heavy crop. The lines of Peas, too, are often put too closely together, especially in the case of tall-growing varieties. It would be better to keep them widely apart and have another crop between the rows. The soil in which Peas are sown should likewise be deeply dug, if not trenched. It should be well manured, and if it is at all stiff, some leaf-soil or anything that would tend to keep it open should be added. Peas root deeply—much more deeply than is generally imagined, and the manure may be a foot or 15 inches deep, but the roots will go down to it. The drills should be drawn 1½ inches to 2 inches deep, but if the weather be dry at the time of sowing and likely to continue, it would be best to sow in trenches, so that water could be given and some mulching applied if necessary. As to the best time for sowing, much depends on the position of the ground and the nature of the soil. In warm positions and on early soil, American Wonder and William I. may be sown as early as November and onwards, and the second earlies in February. To have a very late crop it is the practice of some growers to sow Ne Plus Ultra thinly in good soil fairly early in the season, and as soon as the first sowing gets into flower a few more Peas are put in on either side of the rows between the stakes, and these grow and come in later, furnishing a very useful succession crop to the first one; or some of the very early varieties may be sown at the end of June or about the middle of July. It is scarcely necessary to state that earthings-up are a great help to Peas; and the sooner they have stakes placed against them, the stronger will the plants be, as their support is of the first importance in encouraging a vigorous growth and ensuring good crops. R. D.

SHORT NOTES.—KITCHEN.

Hackwood Park Tomato.—To all who are on the out-look for a good new Tomato, I would say try Hackwood Park. I have grown it and cooked it, and I consider it to be the best Tomato.—J. C.

Chou de Burghley.—Mr. Gilbert has sent us examples of this Cabbage, a tender and very excellent one. Its heads are conical, medium-sized, not very hard, and pale green. When cooked it is delicious, its flavour being somewhat different from that of any other Cabbage with which we are acquainted.

Diseased Cucumbers (*J. Spreckly*).—Your Cucumber plants are attacked by an Acarus or mite nearly allied to the red spider. Paint the hot-water pipes with one part of fresh lime to two parts of flowers of sulphur, adding enough water to form a paint. Sponge the leaves with soft water mixed with a little Tobacco water or other insecticide—tobacco smoke will kill them. Very great care should be taken not to let the atmosphere of the house get too dry.—G. S. S.

ORCHIDS IN FLOWER.

Orchids at Waltham Hall, Lincolnshire.—There are here seven large houses, several of them 50 ft. long by 12 ft. wide, wholly devoted to Orchid culture. In one house there was a grand show of Odontoglossum Alexandræ intermixed with Sophronitis grandiflora and Cœlogyne cristata. I also noticed some very fine forms of Odontoglossum gloriosum and Cypripedium barbatum, the whole forming a grand bank—a treat to any lover of Orchids. On the back stage in the next house were several hundred plants of Cœlogyne cristata, two pans of which about 3 feet in diameter were covered with spikes of fine blooms, in themselves forming a grand sight. On the front stage I noticed some fine varieties of Cattleya, especially of C. Trianæ. Dendrobes were also well represented by some of the finest varieties grown. Three other large houses were filled with Odontoglossum Alexandræ, O. Pescatorei, O. vexillarium and others, all in the most perfect health. Another house contained some of the leading varieties of Phalænopsis, amongst which P. Stuartiana was doing remarkably well. The last house in the range was almost entirely filled with Lælia purpurata of last year's importation. Amongst these, judging from what have flowered, there will be some valuable kinds.—R. C. B.

Orchids at Kew.—Among the many species now in flower at Kew, we noticed an unusually fine spike of Phalænopsis Stuartiana bearing a score of flowers of good size and handsome markings. There are also some good spikes of P. Schilleriana and one or two other kinds. The large plants of Angræcum eburneum have flowered well this year, and their delicious fragrance has gone a long way to make up for their lack of striking beauty. A. sesquepedale is also represented by two flowering specimens. A pan of Goodyera discolor bears nearly a dozen spikes of its pretty marble-white flowers. Cypripedium biflorum, Cattleya bulbosa, Phajus grandifolius and P. luridus, a good number of Dendrobiums, Masdevallias, Odontoglossums, Oncidiums, and the usual run of the more popular Orchids are all in flower, so that altogether there is a good show of Orchid blooms at Kew just now.—B.

Odontoglossum cordatum.—Of this Orchid Dr. Paterson, of Fernfield, Bridge of Allan, sends us a ten-flowered spike of the finest variety we ever saw; indeed, it is so distinct from the ordinary form of O. cordatum that one would easily mistake it for another species. The flowers have longer and more attenuated sepals, which curl in a fantastic manner. The colour of the whole flower is a very deep shining brown, while the heart-shaped lip is mottled with white. It is, in short, a really beautiful Orchid, and one that would be especially pleasing to an artist, the tones being so rich, yet so quiet. We saw the same variety, with a fine spike, in full flower in Baron Schroeder's garden at The Dell, Egham, a few days ago.

QUESTIONS.

5156.—**Strelitzias.**—I have a Strelitzia in bloom in my conservatory. It has a very handsome and remarkable flower, and I should be much obliged for information as to the manner of propagating it.—Subscriber.

5157.—**Auriculas.**—The roots of my plants are very much infested with mealy aphis, which must, I think, be very injurious. How can I best get rid of it? Of course I cannot repot now. Will it be effective and safe to water with Fir-tree oil?—A. J.

5158.—**Camellia border.**—Will some of your correspondents kindly give me a little information on the following point: What would be the least depth and breadth for a border for Camellias at the side of a small conservatory, 8 feet by 12 feet? The border must be on the stage. There is no idea of growing big plants. What is wanted is healthier culture than can be got in pots and surer flowering.—J. S.

5159.—**Watering Vine borders.**—"J. C. C." says (p. 1), "In October having plenty of manure water in the tank, it (the Vine border) had between 200 and 300 gallons given it." May I ask were there ripe Grapes hanging on the Vines in the house at that time, and how long they will keep sound after that time?—H. G.

SOCIETIES.

ROYAL HORTICULTURAL.
FEBRUARY 12.

BRIGHT as the opening spring shows at South Kensington usually are, the display on this occasion seemed to be fresher and brighter than ever. The large conservatory, filled as it was completely with all kinds of early spring flowers and a good sprinkling of Orchids and new plants, presented a gay spectacle, enhanced by the bright sunshine of Tuesday last. It is matter for regret, however, that such feasts of flowers provided here are visited by so few of the general public. Most of the visitors on this occasion were *habitues*. Surely such shows should be sufficient to attract a larger company. There were fewer novelties than usual submitted to the respective committees. Among them the following were awarded first-class certificates:—

CATTLEYA PERCIVALIANA ALBA.—This variety has pure white flowers save a blotch of deep yellow in the throat of the labellum. The flowers are similar in size and form to those of the type; this variety is unquestionably a real acquisition to cultivated Cattleyas. Shown by Mr. Percival, of Birkdale, Southport.

SAXIFRAGA BURSERIANA.—The most beautiful of all the white alpine Saxifrages. It grows in dense cushion-like tufts, and at this season are thickly studded with white flowers as large as a shilling, which with the red stalks are highly attractive. Shown by Messrs. Carter & Co., High Holborn, from their Forest Hill Nursery.

ODONTOGLOSSUM POLLETTIANUM.—An exceedingly fine hybrid variety which may be best described as a very heavily spotted form of O. Andersonianum, yet it is somewhat distinct from that variety as regards the form of the flowers, which are white deeply spotted with cinnamon-red. Exhibited by Mr. H. M. Pollett, in whose garden at Bickley it originated.

LÆLIA ANCEPS WILLIAMSIANUM.—A chastely beautiful and extremely rare variety. The flowers are as large at those of a fine form of the type. The sepals and petals are of snowy whiteness, as is also the lip, except that it has pencillings of yellow and purple in the throat. It is one of the loveliest of all the varieties of this Lælia. A fine plant of it was shown by Messrs. Sander & Co., St. Albans.

ODONTOGLOSSUM CRISPUM AUREUM.—A charming Orchid, quite distinct from any other form of this variable Odontoglossum. The flowers are large, with broad sepals and petals, which are of a soft canary-yellow, spotted with cinnamon-red. The spike is tall and wavy, and the flowers are much crisped and crimpled; these characters render it distinct from the other yellow form of O. crispum named flaveolum. Shown by Mr. F. A. Philbrick, Q.C., Oldfield, Bickley.

ONCIDIUM JONESIANUM.—A new species belonging to the section of the genus in which the leaves are very fleshy and quite round, or Rush-like. This is the finest of the section we have seen; in fact, it is an extremely handsome Orchid. The flowers, produced in lax spikes, are about 2 inches across. The sepals and petals are greenish yellow, spotted with cinnamon-red, while the broad labellum is pure white, and also spotted. Shown by Mr. A. H. Smee, The Grange, Wallington.

ONCIDIUM ANTHOCRENE.—A rare and very distinct species. The plant shown bore two spikes, each about a yard high, both thickly furnished with flowers about 2 inches across, with petals and sepals of a bright reddish brown with conspicuous yellow lips. Exhibited by Messrs. F. Sander & Co.

EPACRIS DIADEM AND THE PREMIER.—Two new and exceptionally fine varieties, both possessing long massive spikes of wide-tubed blooms. The colour of the first-named is a beautiful rosy carmine, that of the second being a clear rose-pink. Shown by Messrs. Veitch, Royal Exotic Nursery, Chelsea.

PARROTIA PERSICA.—This rare shrub was sent in flower by Messrs. W. Paul & Son, Waltham Cross, the branches shown being profusely furnished with small clusters of male flowers, the crimson-tipped stamens of which make the shrub quite attractive for some weeks at this season. It is perfectly hardy, and is most remarkable for the brilliant and varied hues of its decaying foliage in autumn.

CYCLAMEN GIGANTEUM DELICATUM.—A lovely variety, having large bold flowers, with petals of snowy whiteness and the mouth of a delicate rose-pink. It seems to be a very floriferous variety and of sturdy growth. Shown by Mr. Edmonds, Hillingdon.

CINERARIA GREAT EASTERN AND LOTTIE WILLIAMSON.—Two superb varieties, both remarkable for the large size and perfectly circular outline of the flowers, which, moreover, possess overlapping florets of great substance. The colour of the first is a brilliant magenta, that of the second a maroon-purple. Shown by the raiser, Mr. James, florist, Woodside, Farnham Royal, Slough.

PRIMULA EMPEROR.—A variety of P. sinensis, having extremely large flowers and perfection as regards shape and substance. The colour is most captivating, being of a clear salmon-pink, and the flowers, being borne well above the sturdy foliage, are shown to advantage. Exhibited by Messrs. Cannell & Sons, Swanley.

CYCLAMEN DAME BLANCHE.—This is, without doubt, the finest pure white Cyclamen persicum that has been exhibited. The flowers are not only large, but the petals are unusually broad and of thick texture. The plant, moreover, is of good habit and very floriferous. Shown by the raiser, Mr. H. B. Smith, of Ealing.

NARCISSUS PALLIDUS PRÆCOX.—The earliest flowering of all the forms of N. Pseudo-narcissus. It is most distinct, moreover, as regards the colour, which is a delicate sulphur yellow. The committee awarded the certificate on the presumption that the flowers had been gathered from open-air plants. Shown by Messrs. Barr and Son, King Street, Covent Garden.

Persian Cyclamens, Chinese Primulas, Cinerarias, and other bright spring flowers were shown abundantly by various nurserymen, among whom the following were the principal. In Mr. B. S. Williams' extensive group from Upper Holloway, to which a silver-gilt Banksian medal was awarded, were some excellent collections of early forced Hyacinths, double and single Tulips, Cyclamens of the finest strains, Primula fimbriata rubra and fimbriata alba, the red and white fringed Chinese Primroses. All these made a showy display in themselves. A similarly fine collection of Primulas and Cyclamens, numbering about a hundred plants, was contributed by Messrs. Veitch, to whom a silver-gilt Banksian medal was awarded; and a similar recognition was accorded to Mr. Clay's gardener (Mr. J. Wiggins, Twickenham) for an extensive and admirably grown group of Primulas and Cyclamens, the latter being remarkably fine, particularly a specimen plant of a pure white variety, named General Gordon. This plant measured fully 2 feet through. A cultural commendation was accorded to Mr. Wiggins for this object of skilful culture. Mr. R. Clarke, of Twickenham, and Mr. H. B. Smith, of Ealing, both well-known Cyclamen growers for the London flower markets, contributed extensive groups, both of which bore evidence of the high perfection Cyclamen culture about London has attained, which probably is not equalled in any part of the world. Both exhibitors were awarded silver Banksian medals. Mr. Smith showed in his group his two superb sorts, Baroness Burdett Coutts, a beautiful white, and Crimson King, a veritable king among crimson Cyclamens. Rose Perfection and Prince of Wales were also shown by Mr. Smith. Mr. Clarke had some choice new varieties, those named King of the Persicums, Rose Queen, and Cardinal being exceptionally fine. Mr. Edmonds, a Cyclamen grower at Hillingdon, showed some new sorts also, and one was considered worthy of a certificate. The others were named giganteum purpureum, giganteum album, both with large, bold flowers. Flag of Truce from the same exhibitor is a first-rate pure white sort. Messrs. Cannell's Primulas, which comprised a large group, all admirably-grown plants, were much admired, being for the most part new varieties. The chief among them were The Queen, very large pure white; Mammoth, truly a giant of its race and of a clear rose-purple; Swanley Purple, Queen of Whites, Emperor (certificated), Swanley Giant, Swanley Red, and Princess Beatrice, with large blooms of a most delicate mauve-purple were also noteworthy. Besides these were some specimens of the old double white Primula in 4½-in. pots, all forming pyramids of bloom. Rarely has this valuable plant been seen in higher perfection. Messrs. Carter, from their Forest Hill Nursery, exhibited about a dozen varieties (mostly new) of Chinese Primulas, among which the most remarkable was the blue Holborn Gem, which is without question a beautiful and most valuable acquisition to this class of flowers. Those named Holborn Vermilion, Carmine, Ruby, Pearl, Golden-leaved and Elaine were noteworthy.

Cinerarias were in strong force, and the collection from the champion grower and raiser, Mr. James, was remarkable for its great excellence. The plants were well grown, and the varieties, it need hardly be said, were simply perfection as regards size and perfect shape of bloom, and rich and varied colours. About a couple of dozen plants were shown; among them we singled out the following sorts for their distinctness: Brightness, Mrs. Cox, Mr. Baglis, Blue Peter, Mr. Jacques, and Nellie Barnes. Mr. Wiggins also showed a good group of Cinerarias.

In order to add further evidence of the mildness of the season, Mr. Walker sent from his nursery at Thame some fair spikes of Tritoma Uvaria in full bloom. He also sent a well fruited plant of Fuchsia procumbens. Messrs. Stuart & Mein again sent a specimen of the Spiræa under the name of confusa. It was even prettier on this occasion than the last, the plant being larger, more profusely-flowered, and with whiter bloom. Messrs. Barr & Son sent flowers of the new Narcissus pallidus præcox, N. monophyllus, also some fine blooms of the lovely Algerian Iris stylosa and Krelage's variety of I. reticulata—all among the choicest of spring flowers.

A silver Banksian medal was awarded to Mr. A. Waterer, Knap Hill Nursery, Woking, for an extensive and very fine collection of coloured Primroses and Polyanthuses, which had been grown in the open border, but lifted and potted for exhibition. There was a very wide range of variation of colour, and some uncommonly pretty tints were among them, notably one, a sort of blue-purple.

A fine new Violet, named Wellsiana, was shown by Mr. Wells, Fern Hill, Windsor Forest. The flowers were very large, bright in colour, and produced well above the vigorous foliage.

ORCHIDS.—There were some very choice Orchids exhibited. A gathering of blooms of Cattleya Trianæ varieties was shown by Mr. Heims from Mr. Philbrick's garden at Oldfield, Bickley. These included such beautiful forms as Backhousiana, Warscewiczi delicata. There was also Lælia harpophylla shown with numbers of spikes of its showy orange-red flowers. Major Lendy showed the finest lipped variety of Cattleya Percivaliana we have yet seen; the flowers altogether were larger than usual, and the lips were as large as those of C. Mossiæ. This plant was purchased of Messrs. Sander and Co. three years ago as an unnamed species. This plant bore but one spike of expanded flowers. Though a cultural commendation was accorded to the exhibitor, it was not very apparent that a vast amount of skill had been displayed in cultivating it. On the other hand, a finely-flowered plant of Vanda Cathcarti, with three or four flower-spikes, was simply accorded a vote of thanks. This Vanda was shown by Mr. Heriot's gardener, Cholmeley Park, Highgate. Other Orchids shown included a spotted flowered form of Phalænopsis Stuartiana named punctatissima, shown by Mr. Pollett's gardener, who likewise showed a long-branched spike of

Odontoglossum Londesboroughianum and O. Rossi majus rubescens, remarkable for the flowers being suffused with rosy purple. Mr. Smee's gardener showed a nice plant of Comparettia macroplectron, carrying a spike of seven of its lovely pink blossoms.

A silver Banksian medal was awarded to Messrs. W. Paul and Son, Waltham Cross, for an extensive gathering of cut Camellia blooms, which included the choicest varieties now in flower in their large collection. Those we thought the most beautiful were the sorts Delicatissima, Marchioness of Exeter, L'Avenir, Eximia, Leeana superba, Mathotiana, Beali rosea, Beauty of Hornsey, Princess Charlotte, and one or two unnamed seedlings. This display was much admired, such a fine collection not being often seen at these spring shows.

Fruit.—The chief exhibits among fruits were Apples. Some admirably kept collections of these were shown, besides numerous smaller contributions. A first-class certificate was awarded to Mr. Perkins for his new Apple, named Perkins A 1. It was shown on the last occasion, when the committee asked Mr. Barron to test its edible and cooking qualities. This he has done, and has reported favourably of the Apple, and thinks it an excellent sort. It cooks well, is of good flavour and keeps well. On the strength of such a testimonial was the certificate awarded. The two large collections of Apples shown were from Mr. Goldsmith, Hollanden Park, Tonbridge, and Messrs. Lane, Berkhamstead, to both of whom medals were awarded. Mr. Goldsmith's collection was remarkable for the high state of preservation of every Apple he showed, numbering some forty varieties, and as the names of the best of these may be useful to our readers, we append them here. The selection includes: Scarlet or New Hawthornden, a first-rate kitchen Apple; Golden Noble, in excellent preservation; Cox's Pomona, very late for this first-rate sort; Winter Greening; Lincoln Pippin, a fine-looking fruit, but not first-rate; Bedfordshire Foundling; Ribston Pippin, excellent; Kentish Fillbasket; Fearn's Pippin; Norfolk Beaufin; Herefordshire Common Queening, an excellent late sort, which Mr. Goldsmith states that he keeps good up till April; Winter Queening; Hall Door; Blenheim Orange, large, highly coloured, admirably kept; Golden Knob, good until the end of April; Northern Greening; Wellington, large and excellent; Cox's Orange Pippin; Royal Russet, plump and well kept; King Pippin, good; Lord Derby, very fine fruits indeed, and in perfect preservation; Gloria Mundi; Court Pendu Plat; Warner's King; Hollanbury Pippin; Calville Blanche; Cornish Aromatic; and Reinette du Canada. The most prominent in Messrs. Lane's collection, which numbered 60 dishes, were several dishes of their new Prince Albert variety, which seems to be even finer than when shown at Chiswick in October. Every fruit was large, plump, and highly coloured; in short, the Apple looked just what it is—a first-rate sort, and a particularly good keeper. The other noteworthy sorts in Messrs. Lane's collection were: Adams' Pearmain, Cox's Orange Pippin, Annie Elizabeth, Yorkshire Greening, Dutch Mignonne, Norfolk Beaufin, Lemon Pippin, Sturmer Pippin, good as Ribstons, and lasts longer; Cullen Apple, Hanwell Souring, Stone's or Loddington Seedling, French Crab, Spring Ribston Pippin, Mère de Ménage, Hoary Morning, Waltham Abbey, Lane's Prolific (firm, bright yellow, evidently first-rate), Easter Pippin, Forge Apple, Duck's-bill, Wormsley Pippin, and Queen Caroline.

Mr. Barron sent from Chiswick two small green Apples, said to be of first-rate eating quality; they were named the John and Ord's, the latter being the largest, and this was only the size of a hen's egg.

Scientific Committee.—Sir J. D. Hooker in the chair.

Cuscuta trifolii.—Mr. W. G. Smith exhibited young Clover plants with seedling specimens of this parasite just commencing to twine themselves about it; some had the seed skin still attached to the radicle. He observed that, while some seeds germinated in a few days, others required months.

Mushroom spawn.—Mr. Alfred Bennett read a communication bearing upon certain difficulties of introducing the French system of growing Mushrooms in underground quarries. It was referred to Mr. Berkeley for report.

Electric light on plants.—Mr. Boulger called attention to a paragraph in The Garden referring to experiments by Mr. R. Cross on Potatoes germinating under the electric light alone, being kept in the dark during the day. Under these circumstances it was asserted that no chlorophyl was produced at all.

Hyacinths growing in the dark.—Mr. Smee showed a bulb which had germinated in the dark after being left in it for two years, and a malformed blossom of Zygopetalum Mackayi in which the lip had been arrested.

Stanhopea, hardy.—Hon. and Rev. Mr. Boscawen informed the meeting that he had placed a plant in a open cold shed. It withstood 13° of frost in November and again in January, and now is in a most healthy condition.

Diseased Pear stem.—Sir J. D. Hooker exhibited a stem of a Pear received from Belvoir Castle with an injured surface. The bark is smooth and wood dead. The opinion of Mr. Berkeley and Sir J. D. Hooker was that the appearance was due to excessive heat, being sunburnt.

New species of Potatoes.—Sir J. D. Hooker showed drawings of the two new species of Potato prepared for the *Botanical Magazine*, viz., Solanum Maglia from Chili, and S. Jamesi from Arizona. Remarks were made on semi-naturalised condition of Potatoes in various parts of Scotland, as Clova, Genesk, and Glenshee. In some places, according to Mr. Loder, the Potatoes had been growing for forty years after the departure of the original inhabitants, but crops were habitually taken from them.

Lenzites gibba var. tenuior.—Mr. Berkeley exhibited a fine specimen of this fungus growing from a Beech stump. It is usually much thicker, but it has grown with a thin structure from its habit. It was received from St. Leonard's Forest.

On the spore-retaining power of sand.—A communication from Mr. Plowright was read on this subject, containing a criticism of Mr. W. J. Smith's examination of sand (*Gardeners' Chronicle* of Feb 2, p. 153), in which that gentleman gave a fig. of a grain nearly 2½ inches in length, representing a multiplication of 40 diameters. Hence the grain is nearly 1-16th of an inch, but described as of extremely fine sand. Mr. Plowright maintains that it is the size of the interstices that is of importance, not the grains. Experiments were made with sand in tubes, and the excellence of that material as a filter depends upon the fact that the water causes the larger grains to subside first, and the smaller subsequently fill up the interstices. The wedging takes place only at the uppermost part. Experiments were detailed showing that neither a heavy powder, as red lead, nor a light one, as lampblack, were allowed to pass through. Similarly with water charged with Ustilago, so much so that it resembled ink, none passed through; and finally, water charged with Potato spores filtered through and upon fresh slices of Potatoes; the latter, however, were not diseased, though certain specimens treated with the water so charged became diseased.

Further observations of Mr. Jensen upon the Potato disease.—A long communication was received from the same gentleman dealing with the following matters: (1) Rapidity with which the disease spreads. (2) Early disease, a small crop; late disease, a large crop. (3) Influence of temperature upon the disease. (4) Can we do anything to retard the outbreak of the disease? (5) Is the foliage more susceptible to disease when the plants have attained a certain stage of development? (6) The spread of the disease in Nature. (7) Hybernation of the disease. The whole of this communication will shortly appear in the *Gardeners' Chronicle*.

Circumnutation in root hairs.—The Rev. J. Henslow showed drawings by Mr. Saunder, of Ealing, of roots of Poa pratensis growing in water, the abundant root hairs of which showed remarkable coils and spiral twisting. He observed that pollen-tubes grown freely will twist in a similar manner.

Plants exhibited.—Galanthus nivalis vars.—Mr. Loder showed the following vars.: lutecens, angustifolius, poculiformis fl.-pl., Imperati, plicatus, Elwesi, Redoutei. He also exhibited Crocus Imperati var. albiflorus. Dr. Lowe observed that it had been heard of in Italy, but not known for 105 years. He, however, discovered one plant amongst a patch of the purple form, about 30 miles from Naples, at Tocarna. Mr. Loder also showed Crocus ochroleucus and C. Balansæ, as well as a finely-grown specimen of Musa Ensete in flower, though only one year old. He observed that it flowers and seeds in the south of France.

Annual general meeting.—On this occasion the annual general meeting of the Fellows of the Society was held in the conservatory, Lord Aberdare, the president, in the chair. The report, from which we gave an extract in our last issue, was unanimously adopted. The vacancies in the council, caused by the retirement of Mr. J. McIntosh, Sir Charles Strickland, and Mr. H. Webb, are filled this year by Lord Enfield, Prof. Michael Foster, F.R.S., and Mr. F. Du Cane Godman, F.R.S. The list of officers remains unaltered, except that Mr. W. Richards is added to the list of auditors. In commenting upon the prospects of the Society Lord Aberdare said that he thought they were fairly prosperous, though the number of Fellows had been somewhat reduced consequent upon the South Kensington Garden having been handed over to the Commissioners for exhibition purposes, thereby depriving Fellows living in its vicinity of the privileges which it offered as a recreation ground. The scientific status of the Society, his lordship thought, was decidedly improving, and he expressed a hope that it will still further improve. The evening meetings, tried by way of experiment, were an admirable innovation, and calculated to do much good. It was announced that, instead of the usual great summer show which the council had decided to abandon this year, there would be monthly shows held in the South Kensington Garden during the season, in addition to the usual fortnightly meetings. These monthly shows would be managed by the Royal Horticultural Society, but the attendant expenses would be defrayed by the executive committee of the Health Exhibition, which is to be held this year in the gardens. His lordship concluded by saying that he thought the Society might henceforward have a fair start for a prosperous career, as there was a good balance (£1864) in the treasurer's hands.

Mr. Shirley Hibberd observed that he considered money prizes should be given at the fornightly meetings as an inducement to gardeners to contribute more largely. He also thought that the council should expend a little more money on the Chiswick Garden, the labels there, for instance, being in a bad state. He likewise complained about the late date on which the programme of the ensuing year is issued, thereby debarring many from fully preparing for the shows.

Joints for hot-water pipes.—I dislike rust joints because in a country place one is often obliged to have such work done by an inexperienced hand. "J. C. C." (p. 38) will doubtless be pleased with india-rubber rings, but I would recommend him to try good Portland cement, which has answered so well with me that I would not have a rust joint made, not even to connect the pipes with the boiler. When I came here we had in one range of houses about 260 feet of 4-inch pipe, which had only been fixed a few months, when I observed several faulty sockets, and within three years there was scarcely a sound socket in the lot. On enquiry I found that the work of fixing had all been done by an inexperienced plumber, who had used too much sal-ammoniac,

and probably caulked too hard as well.—Laine, *Leeds.*

NOTES OF THE WEEK.

Public parks.—Lord Derby the other day received a deputation from Bury with reference to a proposed public park. Mr. Philips, M.P., introduced the mayor and other officials of the corporation, and stated that the inhabitants were desirous of having some twenty or thirty acres laid out as a public park. Lord Derby said he was favourably impressed with their representations, and should consider the matter.

Auricula and Carnation Societies.—At a meeting of the committees of these societies, held on Tuesday last at South Kensington, it was announced that the annual exhibitions for the present year will be April 22 for Auriculas, July 22 for Carnations and Picotees. It was also stated that the committee of the Veitch memorial fund has offered the Veitch memorial medal and a prize of £5 for twelve dissimilar show Auriculas, to be competed for by amateurs and gentlemen's gardeners at the Auricula show. Also the Veitch memorial medal and £5 for twelve dissimilar Carnations (fancies and selfs included) and six Picotees (all on one stand), to be competed for at the Carnation show by amateurs and gentlemen's gardeners.

Fruit prospects.—After the mild winter we have had it is cheering to note that the appearance of fruit trees and bushes of all kinds, so far as flower buds are concerned, is very good. Pears, Plums, and Cherries, which were a light crop last year, are exceptionally full of flower buds that are not only very strong, but, what is of perhaps more importance, not so unusually advanced for the time of year as the mildness of the season would lead one to expect; therefore, if the spring should prove genial, the year 1884 will in all probability be a very fruitful one. We shall soon arrive at the flowering season, and I would counsel owners of fruit trees to be careful, while guarding against the blossoms being actually frozen, not to rush to the other extreme and destroy their chances of a crop by too much protection, especially of any kind that excludes light.—J. G., *Hants.*

The annual meeting of the Ealing Horticultural Society took place at Ealing a few days since, and we learn from the report of the committee that there are nearly 100 subscribers, in addition to many local tradesmen, who give special prizes for cottagers, all of which are eagerly competed for. The income of the society is over £460; of this sum annual subscriptions and special prizes came to £326; and admissions to shows, £126; the remainder from entrance fees, &c. The society is enabled to hold two exhibitions in a year—one in July and an autumn show in November, at which Chrysanthemums play an important part. Twenty prizes are offered for the best kept allotment gardens and nine prizes for the best kept flower gardens; there are likewise prizes for window boxes, and also for bouquets of flowers shown by school children.

Apple statistics.—At a meeting of the Manchester Horticultural Improvement Society, held on the 7th inst., Mr. W. Neild, Wythamshawe, read a paper on "The Apple." According to statistical returns for 1883, there were, he said, in England 185,782 acres under fruit trees. If 35,782 acres, a liberal estimate, were deducted for Pears, Plums, Cherries, and Filberts, there remained 150,000 acres devoted exclusively to Apple trees. About 70 standard Apple trees can be grown on an acre; therefore the total number of trees would be 10,500,000. There are, however, probably as many Apple trees grown in hedgerows and farm orchards not returned as such, and in market gardens, as are grown on all the land specially devoted to their cultivation. This would bring up the total number of Apple trees to 21,000,000, or nearly one for every individual in England. If one half is deducted for such trees as have not attained a bearing state, 10,500,000 trees still remain, and, assuming each tree to bear two bushels per annum, the yearly crop would amount to 21,000,000 bushels, the market value of which, at 4s. per bushel, amounts to £4,200,000. Supposing the trees to be grown on 150,000 acres, the annual value of the crop would be £28 per acre, which with good cultivation and a better selection of sorts might easily be doubled. It was pointed out that the demand for raw fruit is increasing in a greater ratio than the population, and that the price of good fruit is now higher than when the maximum duty was enforced. We have now from 3000 to 5000 different names for Apples, though Mr. Neild very much doubted if we have anything like that number of varieties in cultivation. The greatest number of sorts ever collected together was at the recent Apple Congress held in London when 1800 named varieties were exhibited; 900 of these were afterwards shown at Manchester and Birmingham. He then gave the names of twenty four varieties of Apples, twelve dessert and twelve culinary, which were found to succeed best in the neighbourhood of Manchester, and pointed out the best way of planting and after treatment of Apple trees, so as to insure an annual crop of fruit. This paper, we understand, will hereafter be published in book form.

Davallia Mariesi.—At the last meeting at South Kensington a charming hanging basket filled with this new Japanese Hare's-foot Fern was exhibited by Mr. J. O'Brien, Harrow-on-the-Hill, who has, we believe, imported it largely from Japan in the form of various devices, such as crosses, boats, and rings. These peculiar devices are formed by the Japanese with the pliant creeping rhizomes of the Fern, and as every inch of these rhizomes or stems produces fronds of the most delicate texture, they have a beautiful effect. The fronds are triangular, very finely cut, and bright green. The value of this Fern is that it is almost hardy, merely requiring frame protection in winter, probably not that, though it is not sufficiently plentiful to risk it unprotected yet. It is deciduous when grown cool, but no sooner is the old crop of fronds dropped than others begin to unfold. The specimen shown by Mr. O'Brien was a globular mass, from every part of which green fronds were produced, and, when suspended, had a most pleasing effect. Apart from the singular appearance of these Japanese devices, this Davallia is one of the most valuable of the genus for ordinary pot culture, and the fronds, not being large, are admirably adapted for cutting.

A fruit preserver writes in the *Liverpool Courier* as follows, respecting fruit farming. He says: "I have for many years been of opinion that if British farmers would put an increased portion of their soil under the cultivation of Gooseberries, Raspberries, Strawberries, Black Currants, Plums, and Damsons, it would pay much better than their present mode of working. The manufacture of fruit preserves is beginning to take a new position in this country, and is now being largely used. Mr. Gladstone is, however, wrong in stating that jam is charged from 7d to 9d. a lb., and also that we are mainly indebted for it to the energy of the French, Belgian, Dutch, German, and American fruit growers. No doubt the first four countries do give a supply of some kinds of fruit for the manufacture of jam, principally Plums, but I am not aware that America sends us any fruit whatever for jam making. By far the largest proportion of fruit used for the manufacture of jam is grown in this country. My usual season's make is Gooseberry, 300 tons; Raspberry, 300 tons; Strawberry, 200 tons; Black Currants, 400 tons; Damson, 500 tons; Blackberry, 100 tons; and they can be bought retail from any ready-money grocer at the following prices: Gooseberry, 5d. to 5½d. per lb.; Raspberry, 6d. to 6½d.; Strawberry, 6d. to 6½d.; Black Currant, 5½d.; Blackberry, 5½d.; Plum, 4d. Mr. Gladstone is therefore in error in stating that the jam consumed in this country is not English-made jam. I have never seen a single package of French, Belgian, Dutch, German, or American jam offered in this country."

OBITUARY.

Dr. John Hutton Balfour died on Monday last, aged 75. Born in Edinburgh, he was educated in the Scottish metropolis, and took both the degrees of M.A. and M.D. in 1831. In 1841 he was appointed Professor of Botany in the University of Glasgow, which chair he filled till 1845, his immediate predecessor having been Sir William Jackson Hooker. In 1845 he was appointed Professor of Medicine and Botany in the University of Edinburgh, and continued to fill that chair until some four or five years ago. He was formerly Regius Keeper of the Royal Botanic Garden and Queen's Botanist for Scotland. He was also a member of many learned societies on the Continent, and vice-president of the Royal Society of Edinburgh. He ranked high as a botanist, and especially as a teacher of botany. He contributed the article on that science to the later editions of the *Encyclopædia Britannica*, and many papers to the Transactions of the Royal Society of Edinburgh and the Botanical Society. His principal works were a "Manual of Botany," "Elements of Botany," the "First and Second Books of Botany," and introduction to "The Study of Palæontological Botany." Professor Bayley Balfour, who was only on Saturday last elected to the chair of botany at the Oxford University, was a son of Dr. Balfour, and assisted his father for eight years at Edinburgh.

Long service.—A service, in each case reaching over half a century, has just been brought to a close through the death of three faithful servants in the employment of Mr. Papillon, of Crowhurst Park, Sussex, and Lexden Manor, Essex. James Head, for sixty years head gardener at Lexden Manor, and five years previously in the same capacity with another member of Mr. Papillon's family, making up a service of sixty-five years in the same family, died January 12, aged eighty-five. Samuel Saxby, five years estate carpenter and fifty years bailiff and woodreeve at Crowhurst Park, died February 3, aged eighty-two; and on the same day, aged seventy-seven, James Saxby, for sixty years sawyer on the same estate.

Cinerarias *(D. D.).*—Evidently a good strain, the flowers being large and well formed and the colours brilliant and varied.

Cyclamens *(Messrs. Webb & Son).*—Your flowers were so much damaged when they reached us that we could not judge of their merits. The box was too small and fragile.

Over four and a quarter million copies of papers exclusively devoted to the arts of rural life were issued from The Garden Office in the year ending December 31, 1883. We believe this is without precedent in any country as regards this or any other branch of class literature.

Gladiolus viperatus.—In reply to one of the questions in the December number of The Garden, viz., "Where is Gladiolus viperatus to be obtained?" allow us to say that we are offering it by the hundred.—Roth & Collingbourne, *Main Street, Port Elizabeth.*

Collapsib'e boxes.—We have received from the Collapsible Packing Case and Parcels Post Box Company, Byfleet, Weybridge, a collapsible tin box which tourists and others will find useful for transmitting plants safely through the post. These boxes are made of various sizes; a dozen or more of them when flat occupy very little room, and they can be readily made up into the box form, means being provided for securely fastening them together.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*S. Deards.*—Lonicera Standishi. ——*Anon.*—Mesembryanthemum croceum——*K. A. S.*—Veronica decussata; Lachenalia pendula; Hedera Regneriana; Doodia dives ——*R. I. H.*—Acacia pubescens.——*J. C. P.*—1, Cupressus Lawsoniana; 2, Pinus C mbra; 3, Biota orientalis aurea; 4, Juniperus (only one kind of growth; cannot name).——*Guernsey.*—1, Arundinaria japonica; 2, Bambusa plumosa; 3, B. glaucescens; 4, B. Quihoui.——*W. B.*—In the way of the variety named O. Wilckeanum, but scarcely so fine.——*S. I.*—A species of Thunbergia; specimen insufficient to name species.——*Coldblow.*—Rogiera gratissima.——*J. B.*—1, Dendrobium chrysanthum; 2, Odontoglossum odoratum; 3, Calanthe vestita nivalis.——*R. F. W.*—1, species of Maranta; 2, Billbergia vittata; 3, Hibbertia volubilis; 4, Asplenium fraxinifolium.——*D. Dowdeswell.*—Imantophyllum miniatum; Primula crosa. We will name the wild flowers if you send good specimens of no more than four each time.——*A. K. B. (Uppingham).*—Doronicum cordifolium (yellow); Omphalodes verna (blue).——*Dr. P.*—Odontoglossum maculatum; almost as fine a variety as that called Donnianum.

No. 640. SATURDAY, Feb. 23, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FIG TREES ON THE SOUTH COAST.

THE Fig flourishes where the salt-laden atmosphere renders the cultivation of other fruits precarious, for unless shelter can be provided from the fierce wind-waving, to which they are so incessantly subjected, they are but short-lived, while the Fig grows on and attains the dimensions of a forest tree. In point of age, too, I question if we have any trees in this locality of such ancient date as the Fig; trees of it in this parish have stems larger than a man's body and a spread of branches that covers a large area, while large, luscious fruits may be counted in the autumn by hundreds. It is singular how the extraordinary fertility of the Fig and its freedom from disease have been overlooked even in places particularly favourable to its culture; in such localities no attempt is made to turn Fig culture to profitable account on any systematic plan; nevertheless, the trees seldom fail to produce fruit, although neither pruned nor trained. In fact, the most fruitful trees I have ever seen have had their roots in the hard-trodden soil of back-yards; under such conditions, the growth made is short and stubby and well ripened, and very rarely is any damage sustained from frost. Judging from appearances, the majority of our old Fig trees have originally been planted against walls, but from long neglect have grown away from them and spread out into broad heads; in most cases the buildings have long ago been removed, leaving the trees standing as landmarks, thus showing that Figs were held in higher estimation a century or so ago than now, for until the last few years these luscious fruits had been most unaccountably neglected; thanks, however, to the increased interest taken in fruit culture, the Fig has come in for its share of attention. As a forced fruit it is well grown, but my present intention is merely to point out what a valuable fruit the Fig is for open-air culture, either as a wall tree or more especially as an open bush or standard. It grows freely in any kind of soil, even where it is poor and stony; on the south and west coasts, where frequent gales are the great enemy of the gardener, the Fig luxuriates and produces fine crops. As a market fruit, the Fig well repays the cultivator; and, I believe, if anyone would plant some of the newer early ripening kinds, so as to get fruit earlier than they now do, it would prove a good investment. As far as I have seen, the sorts grown about here consist nearly all of three or four of the oldest kinds, notably Brown Turkey, White Marseilles, and the Green Ischia, all excellent kinds; but some like Negro Largo, Castle Kennedy, and others that have of late become so popular for forcing, would probably do equally well in the open air on the coasts of Sussex, Hants, and other southern counties; at least I feel sure that anyone giving them a trial would be well repaid. We follow each other too much in fruit culture, as in other branches of gardening, and while attributing our failures to climate we do not turn the advantages which we enjoy to the best account. If Figs produce such an abundance of fruit with little or no attention, let us try them under good and intelligent culture, and see what will be the result. J. GROOM-

Gosport.

FEBRUARY FLOWERS IN THE MIDLANDS.

IT has often been my lot at this season of the year to escape from the winter's chilling frosts and bitter weather to a country

Where falls scarce any rain, or hail, or snow,
Nor ever wind blows loudly; but it lies
Deep-meadowed, happy, fair with orchard lawns,
And bowery hollows crown'd with summer sea.

This year, however, circumstances rendered flight impossible, and I was fain to await in patience (somewhat tried by anticipations of influenza and bronchitis) England's tardy spring. What a winter we have had! The heavy snowstorms, which did not come, and the long hard frosts, so often prophesied and looked forward to, which never arrived, have been replaced by slight fogs in November and December, high winds, and deluges of rain. Still, we have not experienced any really severe weather. What a contrast to the winter across the Atlantic! I received this morning a letter from Canada, dated January 24, in which my correspondent says, "I do not know when this will reach you, as it snows, snows, and snows, and no trains can go out or come in yet. We are having a very severe season like that of last year." Now, three weeks later we in England seem to have left winter behind,

And frosts are slain and flowers begotten
And in green underwood and cover,
Blossom by blossom, the spring begins.

We watch this transformation with deep, absorbing interest, this bright season of the early youth of the year. Here, in mid-England, though much exposed to winds, our garden is full of flowers, one of its chief ornaments being the Berberis Aquifolium, with its dark glossy leaves and spikes of yellowish blossoms. Fine specimens of this handsome shrub have been flowering ever since the year began, and have been freely cut to fill large vases for house decoration. Honeysuckles and Clematises are putting out, while bright flowers bloom thickly on the naked-flowered Jasmine, which came in in December. Several tall spikes of the scarlet Tritoma linger in the borders, uniting, as it were, the past to the present floral year. Christmas Roses are in their beauty, and that bright little gem which lights up January's darkest days, the Aconite, still carpets the ground in untended and undisturbed spaces under the trees. The Nut trees are covered with their catkins, with here and there the crimson Nut-buds giving promise of autumn fruit. Crocuses, Snowdrops, and Hepaticas of various shades grow luxuriantly in patches. These we have always with us at this season, but we were hardly prepared for the clumps of Primroses of many colours and the bright masses of Cowslips and Polyanthuses which fill the garden with their delicate scent. Even in a wood near here Primroses were to be found early in January, peeping up from their covering of Moss and dead leaves. Violets flower here in November when the weather is mild, and we always find enough of them for the house all through the winter, either in cold frames or in shaded places out-of-doors. Now they are growing thickly in beds and borders, and will continue to do so all the spring. The lovely way in which the deep purple Czar contrasts with its leaves always reminds me of Petrarch's description of the first sight of Laura as she stepped out of a church at Avignon, on the memorable Sunday when he first met the lady who was to be celebrated by him in verse, which will live as long as the Italian tongue is read or spoken. Laura de Sades wore on that interesting occasion a green gown ornamented with Violets, and she is thus represented by Taddeo Gaddi in his great picture in the sacristy of Santa Maria Novella at Florence, where she figures in a group of persons, some real, some entirely apocryphal. Anemones, white, purple, and red, are not in full flower: and we shall not see the pretty little Anemone apennina or the Anemone fulgens for a long time yet. To-day I noticed the bright blossoms of the Omphalodes verna under the shade of a Yew hedge; the dull dark foliage which formed the background threw up in fine relief the deep blue of one of spring's favourite children.

Daffodils, that

Frighted Proserpina
Let fall from Dis's waggon,

are a good way above the ground, and in a week or two they will cover the bare spaces in our shrubberies and borders, where Laurels, Berberis, Laurustinus, and other Evergreens are planted.

Strow me the ground with Daffadowndillies,

sings the shepherd in Spenser's "Pastoral," and I do not think he would have chosen better for his April Eclogue. Who would not have a herbaceous garden? It is a never-ceasing source of delight. All through the spring, summer, and autumn fresh floral wonders meet the eye of a lover of Nature as the weeks go on. He hardly misses one favourite flower, which has lived its little day and then departed, before another, perhaps lovelier still, comes to replace it; and even when winter has wrapped the earth in a snowy shroud, or bound the rivers with fetters of ice, when

There's not a flower in all the fields,
And every tree is bare,

he may not mourn Nature's decay too sadly, for over the earth that covers his favourite flowers it is written, "Not dead, but sleeping."

Every year the number of those infatuated persons who sacrifice beauty and fragrance at the altar of the insane fashion for "bedding out" becomes less and less. May this absurd practice soon lack a single adherent! When we might have flowers every month of the year, why should we turn away from Flora's fairest gifts and insist on devoting our time and care on a few formal beds in order to secure a monotonous blaze of red Pelargoniums, Calceolarias, and the like for three months, while during the other nine, blankness and desolation reign—

Bleak December's bareness everywhere?

But I must not forget the birds. They are so at home here, that they cannot be left out in this brief notice of a "Midland Garden." They no doubt manage to get a comfortable living out of our Strawberries, Currants, &c.; and the fame of a garden where no shot is ever fired, and where bird-traps are unknown, has, perhaps, attracted the notice of many vagrant songsters in search of quiet homes. We wink at their thefts, and they reward us by perpetual concerts. The storm cocks and thrushes are beginning to sing and to tune their pipes in preparation for the long delicious days when their "wild music" shall "burden every bough." I expect every day to hear the larks, which later on flood our fields and grounds with their joyous songs. M. N.

Varieties of the Netted Iris.—I send some beautiful varieties of Iris reticulata from Captain Nelson's garden near Godalming. The most striking is a blue form (I. reticulata cœrulea), very brilliant in a mass. I. reticulata major is larger in all its parts than the type, broader in petal, and with leaves 5 inches longer; atropurpurea has a rich red-purple colour, slightly inclining to that of Krelagei. The varieties of Krelagei enclosed do not show the variations in colour that they had a week ago, as they are now rather overblown. These were all seedlings raised by Captain Nelson's brother, the late Rev. J. G. Nelson. Iris Histrio has been in flower in this garden since January. In the same garden, a little Tulip (T. biflora) is extremely beautiful. Its delicately pointed petals are of a pale sulphur colour clouded at the base with pure yellow; several flowers rise together, giving the plant a well-furnished look. Crocus lacteus is a little pale beauty, of an even sulphury white inside and out.—G. J.

*** A very pretty series of forms of this richest in colour of all our hardy spring flowers. The blue (cœrulea) form we had not hitherto seen; nor the major variety, which is undoubtedly superior in size to the others. The little Histrio is

a gem among spring flowers, as are also the milky-white Crocus lacteus and the bi-flowered Tulip.—Ed.

PLANTS IN FLOWER.

Leucojum carpathicum.—We have at present in flower in our nursery, at Broxbourne, the Leucojum carpathicum mentioned by Mr. Brockbank the other day in The Garden (p. 102).—Paul & Son, *Cheshunt.*

*** Kindly send us a specimen, so that we may see in what way it differs from typical L. vernum.—Ed.

Cineraria Lady's Favourite.—I send you a Cineraria, an improvement on C. cruenta. It is called the Lady's Favourite on account of its elegance and value in a cut state.—H. Cannell, *Swanley.*

*** Very pretty and bright, but we fear it approaches too near an inferior strain of C. hybrida, the flowers, though elegant, being starry. The colour, a vivid magenta, is very showy. Better keep the original C. cruenta pure.—Ed.

Soldanella minima alba.—This rare and sweetly pretty alpine plant is now in flower in Messrs. Paul & Sons' hardy plant nursery, Broxbourne. It differs in no way from the original except in the absence of colour in the flowers; it is a pure albino.

Erica carnea.—There is no more useful hardy Heath than this; it will grow without the aid of a peat or boggy soil—in any soil, in fact, that is fairly light. It is best not to resort to cutting to keep it in good form. The better plan is to lift and divide the plants once in four years if they get too large, and then they can be made into large or small specimens according to space. As it flowers in February, and continues in good condition for three or four weeks, it is a useful plant to cut from.—J. C. C.

Hardy Primulas in flower.—Besides the common Primroses of every hue which now enliven the sheltered nooks in the Hale Farm Nursery, Tottenham, there is a goodly display of flowering plants of Primula cashmeriana, the Cashmere form of P. denticulata, in one of the frames, together with numbers of P. denticulata—a somewhat unusual occurrence. No doubt the mildness of the winter has been the cause of these Primulas flowering thus early.

The double Plum for forcing.—This useful hardy shrub (Prunus sinensis albo-fl.-pl.) is an excellent subject for forcing into flower early. Its blossoms are pure white; they are so double, as to resemble diminutive rosettes, and every slender shoot is thickly wreathed with them. There are some plants of it beautifully in flower at the present time in one of the houses in the Royal Horticultural Gardens at Chiswick; an adjoining house is full of well grown and profusely flowered Cinerarias of the best strains, giving quite a glow of colour.

Zephyranthes Treatiæ.—Though this so-called new species does not differ much from the old Z. Atamasco, it is, nevertheless, a most desirable hardy bulbous plant, as it may be had in bloom at the present time if grown in a greenhouse in pots. The flowers have long, narrow petals, which recurve gracefully, and being pure white they contrast pleasingly with the deep green grassy foliage. It is now in bloom in one of the greenhouses in the Hale Farm Nurseries. It has not yet, we believe, been proved satisfactorily whether Z. Treatiæ is thoroughly hardy or not.

Fuchsia-flowered Currant (Ribes speciosum).—This Ribes, whose usual season of flowering is late in spring, is now bearing great numbers of its red Fuchsia-like blossoms on a wall at Kew. They are smaller than those produced at the proper season, and the foliage is only just beginning to appear, though ordinarily it is fully developed at flowering time. The precocious habit of this particular plant has, however, been remarked previous to the present season, so that in this character at least it seems to differ somewhat from the common kind. The mere shelter afforded by a wall would scarcely make so much difference as regards earliness, as has been noticed in this case.—Alpha.

Nuttallia cerasiformis.—This is by no means a common shrub, yet it is especially desirable from the fact of its flowering at the present time when so few others are in bloom. It forms a much-branched globular-shaped bush, generally not more than 4 feet or 5 feet high, and the whole plant is now thickly studded with drooping racemes of rather small white flowers. The arrangement and general bearing of the clusters of bloom remind one of those of Ribes sanguineum, though the individual flowers are rather less in size and quite different in colour. Owing to the frosts that generally occur about the present season, this Nuttallia is seldom seen in such good condition as now, when the blossoms have opened without check. It is generally regarded as a peat-loving plant, but that such is not absolutely essential to its well-doing is shown by a fine thriving specimen of it just now finely in flower near the temperate house at Kew planted in the ordinary soil of the garden.—T.

Acacia dealbata.—Anyone acquainted only with this beautiful pinnate-leaved Acacia, as grown in pots, can form no conception of the magnificent display which a large tree of it makes when in full bloom, as may now be seen in the temperate house at Kew. The specimen under notice reaches almost to the roof, and the beautiful golden flower-balls hang in large masses from all parts of the tree, so that whether viewed at a little distance off, or near at hand, the greater part of the flowers are brought under the eye at once. Besides dealbata, several other species of Acacia are rapidly approaching the flowering stage, and, as seen at Kew, are infinitely superior to small starved specimens in pots.—T.

Dentaria polyphylla is one of the prettiest of all the spring-flowering Crucifers. In damp, sheltered spots on the rockery, where its large pale-yellow flowers are somewhat protected from piercing winds, they may be seen in full beauty in February. As a pot plant for cool conservatory decoration, it is thoroughly well worth growing. Besides being one of the rarest and most handsome of the European species of the genus, it is also one of the most interesting, by reason of the peculiarities in its geographical distribution. A full account of the species from the latter standpoint may be found in Dr. H. Christ's recently published and extremely interesting work, "La Flore de la Suisse et ses Origines." In Switzerland Dentaria polyphylla is found in the humid ravines of some of the Pine and Fir forests.

Early flowering Scillas.—The following species of Scilla are now in flower at Tottenham. The earliest seems to be S. bifolia, the brightest of all hardy bulbous plants. Next in point of earliness is the well-known S. sibirica. There is also a new variety of this Squill well worthy of a special note; it is named ucranica, and is said to be larger, more robust, and of even a richer blue than the original. It is also said to be earlier; but the plants of it in Mr. Ware's nursery were when we saw them scarcely advanced enough to judge of its merits. Another new and uncommon Squill in flower here is Scilla puschkinioides, which, however, is not a very showy plant, and decidedly not so pretty as Puschkinia libanotica, after which it is presumably named. The flowers are loosely arranged on the spikes; each is about the size of a sixpenny piece and of a pale porcelain-blue. It was flowering in an unheated frame.

Lachenalias planted out.—Not until the other day had we seen Lachenalias in such beauty as they are now in Mr. Ware's nursery at Tottenham, where there is a frameful of the handsome L. pendula planted out in free soil. The whole of these plants are in full flower, and the scores of spikes, rising a foot or so in height and profusely furnished with deep red flowers, form really a pretty sight. There can be no question that the best results are obtained from Lachenalias when planted out in this way; when cultivated in pots they require a good deal of attention to grow them well. The frame in the Tottenham nursery is a simple affair and unheated, but it is of course well protected from frosts by means of wooden covers and other protecting material. The only fear in thus growing Lachenalias and other bulbs of a similar degree of hardiness is that they would succumb during a long protracted spell of frost such as we experience during some winters. The present winter has, however, been most favourable for all planted-out tender bulbs, including those from the Cape; therefore the experiment so far has been most successful. Besides L. pendula, which is perhaps the handsomest of all Lachenalias, there are numerous other showy species in flower in the Tottenham nursery. Among these are L. aurea and the new hybrid L. Nelsoni, a strikingly pretty variety possessing massive spikes of flowers of the richest golden yellow. L. quadricolor is flowering in perfection. This likewise is an extremely handsome plant, the four distinct tints in the flowers rendering them most pleasing. To one interested in bulbous plants the sight of these Lachenalias in flower is alone worth a visit to this nursery.

Corbularia citrina.—Both this new Daffodil and the charming little C. monophylla may now be seen in flower side by side in a cool house in Mr. Ware's nursery at Tottenham. We hardly knew which to admire most, the creamy white monophylla or the primrose-yellow citrina, both being equally pretty. The latter, however, possesses the additional charm of novelty, and therefore attracts most attention. Its flowers are somewhat larger than those of the ordinary Hoop-petticoat Daffodil (Narcissus Bulbocodium). The trumpet of the flower is quite crinoline-shaped, and does not reflex at the edge, as in monophylla. The colour, which is soft and delicate, is admired by everyone. These two choice Daffodils are both planted out in an unheated house where they can obtain the full benefit of every glimpse of sunshine, and yet be secure from winds and rains, which would soon mar their delicate beauty.

Rhododendron Falconeri.—In the Royal Winter Gardens at the West Coates Nursery, Edinburgh, a fine specimen of this noble Rhododenddron may be seen in full bloom. Some idea of its size may be gathered from the fact of its bearing thirty grand trusses of large white flowers, each truss consisting of from eighteen to twenty-four individual blooms. The plant was raised originally from seed, and is a very distinct form of this superb Himalayan Rhododendron. Messrs. Laird inform me that it flowers equally profusely every year. R. argenteum is flowering at the Pinkhill Nursery of this firm; though not such a free flowerer, its trusses are fully larger than those of Falconeri, and of a purer white, without the dark blotch at the lower part of the cup—a distinguishing characteristic of R. Falconeri. These are certainly two Rhododendrons that no large conservatory or winter garden should be without.—Observer.

Early Rhododendrons.—Among the smaller Ericaceæ at Kew, a couple of these Rhododendrons are just now objects of interest, being profusely laden with brightly coloured blossoms. One is R. davuricum, a shrub about a yard high, deciduous during severe winters, but sub-evergreen in mild ones. The leaves are small and dark green, and the flowers rosy purple, something like those of Azalea amœna. R. præcox, the second sort alluded to, is a hybrid between R. davuricum and the Himalayan R. ciliatum. In this, both leaves and flowers are twice the size of those of R. davuricum. The blossoms are rosy lilac, but they vary somewhat when produced under different conditions. Another kind is R. Early Gem, said to be a cross between davuricum and præcox, but it most resembles the last-named kind. Though frequently injured by frosts when in the open ground, these Rhododendrons are valuable under glass, as without any forcing they can be had in bloom at a time when forced plants form the bulk of flowering subjects in both greenhouses and conservatories.—H. P.

Diosma ericoides.—This handsome little Heath-leaved Diosma is invaluable for furnishing neat sprigs of green, with a pleasant aromatic scent, for button-hole bouquets. It thrives in sandy peat in a cool greenhouse; the flowers are very minute, of a whitish colour, and borne singly at the ends of the branchlets; it bears cutting to any extent. It is also a good room plant, bearing confinement well, and esteemed for the pleasing fragrance possessed by its flowers and leaves.—A. M., *Cranmore*

NOTES.

Forms of Ivy.—It is scarcely possible for us to be too emphatic in our praises of the most distinct forms of Ivy, since but few other hardy climbing plants ever give to us a tithe of their freshness and variety. A good long stretch of wall covered with a selection of the best green-leaved kinds is always interesting, and never more so than during the winter months, especially if at intervals the golden Japanese Jasmine is planted among them or a few plants of Pyracantha or of Simons' Cotoneaster for the sake of their coral fruitage. The large-leaved golden Ivy is also very effective here and there along a sunny wall, especially if contrasted with the small-leaved kind atropurpurea, which has dark purple or bronzy foliage at this season. Of the large-leaved kinds, one of the most distinct is canariensis, or large-leaved Irish Ivy, and Rægner's variety, with leathery heart-shaped foliage, is also handsome. The Bird's-foot Ivy (pedata) is curious, as it clings to the stones like delicate leaf embroidery, and for shining green leafage but few equal the one called lucida. The two other kinds sketched are hastata and digitata, both free growing and distinct sorts.

Ivy leaves.—Common Ivy is tolerably plentiful nearly everywhere, but it is not common to find a good distinct series of its many varieties even in the best gardens. Of all the different forms of Ivy, I think the large-leaved golden one of the best; certainly the best of the variegated kinds. Rægner's variety is also very bold, its great

Heart-leaved Ivy (Hedera Rægneriana).

Glossy Ivy (H. lucida).

Arrow-leaved Ivy (H. hastata).

Finger-leaved Ivy (H. digitata).

Irish Ivy (H. canariensis).

Bird's foot Ivy (H. pedata)

VARIOUS FORMS OF IVY.

glossy, heart-shaped leaves most effective. Algeriensis is another fine-leaved kind, the form dentata producing foliage even still larger when well grown. For making low evergreen edgings on the turf, for carpeting banks, the covering of bare walls and old tree stumps, we have no other evergreen shrub so fresh and variable, or so easily cultivated as are these forms of the Ivy green. Perhaps one reason why the finer kinds of Ivy are comparatively uncommon is the fact that a strong prejudice exists against Ivy in many minds. It is an erroneous notion that Ivy injures buildings against the walls of which it is planted; it never injures a good wall, nor a sound house, but, on the contrary, hides and softens the stony bareness of the one and adds beauty and freshness to the other.

Seedling Primulas.—Hardy Primroses and Polyanthuses of the ordinary decorative kind (as in the case of Anemones) are never seen to better advantage than when raised from seeds sown every year. The best time to sow is in summer or autumn as soon as the seed ripens upon the plants. In this way a good stock of fresh young plants is obtained for planting out every spring. If any varieties of exceptional merit are thus raised, they may be increased by division, as in the case of named florists' varieties. One can never have too many Primroses for spring bloom, and as good strains of seed are now obtainable, no garden need lack these gems of the opening year. Some rich, dark velvety Polyanthuses and gold-laced varieties (seedlings) sent to me by Mr. W. J. Murphy, of Clonmel, last year, are now really lovely in a Holly-sheltered nook beneath a graceful bit of Japanese Bamboo. Above all others for decorative work are to be prized those giant Polyanthuses of the Cloth of Gold, Butter and Eggs, and Golconda race, great Oxlips of all shades of yellow and orange, and some with huge trusses of a Daffodil-like gold!

Flower-fringed streams.—Of a particular district of the broads, near Wroxham, Mr. Davies has painted a delightful picture. "From Horning Ferry to Wroxham is perhaps the most beautiful stretch on the three rivers. Woods, meadows, corn-fields, eel-sets, yachts, wherries, and boats crowd upon the eye. Lilied pools, green-bordered shadowy dykes, and sequestered broads invite detours and explorations. The clear brimming river laves the drooping Grasses and the blue Forget-me-nots. The deep purple fringes of the Reeds toy with the bending branches and rustling leaves of Oak and Alder. The jewelled kingfisher sways on a Reed, a yellow Iris flower bending over his blue back. As the seasons change, so the colours of the riverside vegetation change, and when the great leaves of the Water Docks are yellow, and the trees drop their many-tinted leaves on the dimpled river, the gorgeous masses of colour and the variety of them are beyond any feeble words of ours to picture." These descriptions bring the flat fen country before our eyes, and remind us of De Wint's pictures of the herons in the Reeds and of the lapwings in flocks, of quaint little villages nestling among the sun-lit trees, of the towers of Lincoln itself against a pearl-grey sky.

Anemones as annuals.—Mr. Smith did yeoman's service in his article on Anemones (pp. 101, 102), and is so exhaustive, that I can add nothing to it of any cultural importance. The greatest difficulty is to obtain seed of a really superior strain. "St. Brigid's" Anemones are by far the finest I ever saw, and, as Mr. Smith says, are the result of rigid selection. Every flower, I believe, must be over 4 inches in diameter and double or semi-double, or seed from it is ignored. Seed so selected yields a large percentage of double flowers of all colours, and as fine, if not finer, than the named sorts of which tubers are sent to us from the Continent. Really good Anemone seed cannot be purchased, or, if so, I have hitherto been unfortunate; but by buying the best-named kinds and selecting seeds from these, no doubt a good strain could soon be acquired. By sowing seed beds at intervals from February until May, Anemone coronaria may be had in bloom all the year. Cut in the bud stage and brought indoors, the flowers grow and open out in water, enduring fresh and fair for many days. As Mr. Smith says, seed sown in February yields flowers from September onwards, and by thus treating this Windflower as an annual, making fresh sowings every year, the best results are to be obtained.

Daphne Mezereum.—Flowering with the winter Jasmine, with Clematis cirrhosa, with seedling Primroses, and with the earliest Snowdrops, the old Mezereon, as it is generally called, is most welcome; its leafless shoots are of a soft ash colour, and they are now closely studded with ruby buds and purple blossoms. If the flowering twigs are cut and placed in fresh water indoors, their fragrance is delicious. A good bed of this Daphne deserves a place in all good gardens; it is always interesting alike in flower, in leafage, and when covered with its coral-red fruits. There is a white-flowered variety which is even prettier than the purple-blossomed type, and its berries are of a soft yellow or amber colour. A very pretty group might be made of these two shrubs, and for company add Rhododendron præcox—also now beautifully in flower—and a few plants of Jasminum nudiflorum trained bush fashion. These, in a bed of peat and loam, with an edging of fresh green Ivy or with a belt of Mr. Davis's hybrid Pernettyas, would form an agreeable feature in any good garden.

Fruit-packing frauds.—We are told that there are "tricks in all trades" except our own, but that note at p. 81, under the above heading, if it be generally true, drives at a weak point in our home fruit trade. At one time I remember the barrels of Newtown Pippin Apples which came from America were heavily "salted" with fruits of a very similar, but spurious variety; but this dodge was soon detected, as all dishonesty must ever be, sooner or later, and latterly the stock of American fruit has improved, and the sample is a true one. Deceptions of all kinds are the ruin of trade, and perhaps it is owing to instances of such deliberate fraud as those your correspondent points out so plainly that agents offer such small returns for home-grown fruit. We did not believe that wholesale market growers ever adopted the "costermonger's dodge" of putting the best fruit at the top of the basket; but our faith, it appears, was misplaced after all.

Fruits and vegetables in Afghanistan.—The extreme fertility of the Kuram district is due to the richness of the soil, abundance of water, and the shelter of closely-encircling hills, so that this valley is really a suntrap, and fruitful orchards and fertile gardens are common From the Apricot, Plum, Apple, Grape, Quince, and Elæagnus, and the Amlok (Diospyros Lotus) fair crops of good fruit are obtained, but not so good as that imported from the Cabul direction. As vegetables the natives cultivate Onions, Beet, Turnips, Radishes, Brinjals (Egg fruits), red, Pepper (Chilies), Pumpkins, Melons, Cucumbers and Water Melons in abundance. The whole of the land is carefully terraced and irrigated Two crops are produced during the year. The Gooseberry is wild at 9000 feet to 10,000 feet altitude, and the Apricot is largely cultivated in orchards up to 9000 feet. A scandent Vine climbs over the largest orchard trees, and of this there are two varieties, one bearing white and the other purple fruit. A small green seedless Grape is grown in bush form, or as standards a yard high. The best Grapes, however, come from the Logan Valley and from the Cabul district.

Tree Ferns.—In the "High Alps of New Zealand" much admiration is expressed at the beauty, freshness, and luxuriance of the Tree Ferns: "Vertical cliffs rose for thousands of feet on either hand, and we drove into Milford Sound before a blast so strong as almost to make steaming unnecessary; the surface of the sea would now and then be torn off in sheets, driven along in spindrift, and again all would be calm as glass. Waterfalls resembling the Staubach came down the cliffs from far above the clouds, and were blown away into mid-air by the fury of the storm. Wherever vegetation could get a footing on these immense precipices, lovely Tree Ferns and darker shrubs grew in profusion, all dripping with moisture, and running up the cliffs in long strips of verdure till lost to our view aloft in the torn white mists. The vivid green of the foliage was the feature of all this wondrous scene which struck me most. . . . The mists now cleared off, the rain ceased, and as we entered the inner basin of the Sound the forests increased in beauty. The Totaro Pines, draped with festoons of grey Lichens, contrasted well with the soft green of the great Fern fronds, and formed a suitable background to the scarlet blossoms of the Rata (Metrosideros lucida), which here and there lit up the surface of the forest with patches of intense colour."

VERONICA.

LETTERS FROM INDIA.

TEA GARDENS AND TEA PLANTERS.—After the Mungpoo plantation I visited a Tea garden, under the management of Mr. Dominy, nephew of Mr. Dominy, the skilful orchidist. The cultivation of Tea is carried on in almost all the available land in British possession on the mountains of India. It extends from the Terai, at the foot of the hills, to about 5000 feet up or more. Some of the best Tea gardens are at an elevation of from 2000 feet to 4500 feet. The Chinese variety is that which is most extensively grown on the mountains, and the Assam variety most in the Terai and Assam. The plants, under ordinary circumstances, come into bearing after three years, and are pruned down every year into flat-topped bushes about 2 feet high. The only reason for such pruning is convenience in picking. Much of this is done by women and children. Manure is largely used by some planters, but it is doubtful whether any beneficial results have been obtained therefrom; besides, it is most expensive and can only be carried out under great difficulties. Evidently, the natural decomposing vegetable soil is the best food for the Tea plant. The Tea-planter who so kindly entertained me is a good specimen of his class. The company he manages for is one of the best in the hills, and I believe that for its prosperity it is indebted greatly to its manager. I should imagine that Tea-planting is not a difficult thing for a man properly trained as a gardener. One or two special qualifications are required perhaps, such as a will of one's own and ability to maintain it. He must be a man qualified to command coolies, and, above all, able to work and willing to show others how work should be done. A knowledge of pruning such as a good gardener would have is also indispensable. I have met many planters in my time of Tea, Indigo, and Tobacco, and my idea is that the wrong class of men are sent out generally as assistants. Men who cannot get their living at home make poor planters; yet this is the class often sent out to manage the affairs of a company. Some director's or agent's fortieth cousin or great friend of some one belonging to the firm is considered to be good enough for a planter. A greater mistake could not be made; such men know nothing about work; most of them have been crammed at college, and thus have lost their wits. Under such management the affairs of the company gradually go wrong. On an estate that had thus got into bad circumstances a gardener was employed to set it right; after a few years it began to improve, and now it pays 15 per cent., besides large extensions having been made and the estate otherwise improved. I do not pretend to say that every gardener would make a good Tea planter; not by any means; but there are amongst gardeners men much better fitted for planters than could be got from any other class, and plenty that would be only too glad to accept such work. When a young man is engaged as an assistant planter he has to sign an agreement for three years, and his salary during that time is barely enough to keep him. It takes twelve months to learn the language, and it is generally a year before he is of much use on a plantation. Hindustani is chiefly spoken, and is not difficult to learn. When a young assistant arrives in Calcutta he goes to his agents, who treat him coldly,

particularly if he is a gardener. He is told to engage a "bearer" or servant (generally an awful rogue) at about 14 rupees per month, and with this "bearer" he is packed off to the nearest station to the plantation, but long before he gets there he wishes he had never left his home, or his 12s. per week in a London nursery. Rupees seem to go easier than sixpences at home, and his thoughts are of the gloomiest description. I once travelled with such a young man from Calcutta to Jelpigori, on the Northern Bengal Railway. I never saw anyone in such a fix. He had no letter of introduction to the manager, could not speak a word of the language, no rug even to sleep in, and it was bitterly cold; he told me he had received no instructions, except to get to such a place as soon as possible, and that place was one of the most unhealthy in the Terai.

Generally the Tea company tries to get as much as they can out of a young Tea planter, and the best thing for a man to do is to show the Tea company or manager how much he is worth. A good man is sure to get on. I was once told by an old employer, "Ask as many questions as you like, but never give advice," and I found this a good maxim to work on. I agree with a man holding his own in an argument with his friends, but never with an employer, even if right, particularly if the assistant happens to be under a self-confident planter. I would therefore advise a young gardener coming out as a Tea planter to thoroughly understand what sort of a man he has as manager before he shows any of his abilities. One thing is certain, and that is that what may be called gentlemen planters are nearly worn out. It will therefore be the gardener's turn next.

It is necessary for a planter to be well up in the propagation of plants; he should also know a little botany, and he should likewise be acquainted with the use of common medicines, as he is sometimes required to doctor his coolies. If he is a naturalist, so much the better; he will be able to amuse himself in his spare time and be a boon to his friends at home. He should be a good scholar and able to talk fairly well. Above all he should be able to command his own temper and will as to drink and other vices. C. Maries.

Flower Garden.

THE NEW AURICULAS.

From my experience with raising Auriculas, and acquaintance with the work of seedling raising in the collections of a few friends, I feel assured that the true beauty of the flower has been much intensified and increased within the last ten years. The exhibitions of the National Auricula Society have been at once most instructive and encouraging—severe tests for the many inferior old varieties and a wholesome check upon the appearance of seedlings unable to stand with credit in the best company.

Old flowers of weak and undecided properties will disappear as the best become more accessible, and the raiser of high blood seedlings values them not by the number of weak sorts they can beat, but by the few, if any, that can beat them. As yet the stock of any first-rate seedling is very small as compared with the distributed stock of an old first-rate variety; and unless the young sort be in good health and fair quantity, it may not be always, or even often, producible in competition on a given day. There will often bloom grievous specimens of the best old cracks in abject poverty of character, and they sorely wound our pride in them thereby. Therefore the errors of youth in a seedling of tried merit must be allowed for equally with the follies of old age. Very few of the best old Auriculas remain unbeaten in points of highest quality, and therefore of truest beauty.

In the self class none; in the green edges none; in the white edges none. Among the greys will ever in our time remain, for the sake of what they can be, Robin Lancashire's Lancashire Hero and Headley's George Lightbody, for at their best these flowers are magnificent Auriculas. Still there will be greys to equal them, even as they, in the honours of a long day, have more than equalled all others of their class. Of the new ones certificated last year from Mr. Barlow and myself, I may speak alike freely, since they were all raised from seed I had saved in the old home at Kirkby Malzeard. I like my green edge Monarch better than my friend's Greenfinch. Monarch was heavier in his black ground colour than when he first bloomed, but Greenfinch will be a tame flower in comparison, the ground colour, a dullish brown, but the edge a pure medium green. Monarch has in him the blood and brilliance of old Freedom in his best days and dress; all the rich depth of Freedom's dark green edge and black velvet body, but Monarch's petal is broad and round, which Freedom's never was, and paste of a radiant broad round white, while Freedom there and elsewhere is a woefully angular flower. Ajax is a quiet little grey I raised some time ago, and always a flower I could trust in a twelve if I had it out. The broad paste is bright and round, and the body colour black and pure, apt to be heavy on a plant grossly grown, and the edge a true silvery grey.

Mr. Barlow's selfs, namely, Adonis and Carbuncle, have in them the blood of my chief favourite seedling Heroine; in fact, I had used no other pollen but hers that season in selfs, but I do not think either of these will ever equal Heroine; the perfect balance of her features and the sweet expression of her intense beauty have not been seen in any of her children yet. I could tell of several distinct lines of progress with the Auricula of late years. The notched petal in the self class is a thing of the past, and in the perfectly rounded outline, now not rare, we have this lovely class greatly improved. White edges, with bluish violet body colours, represented among the old flowers by such as Bonny Lass, owe their best present examples to the efforts of my friend, Mr. Simonite, of Sheffield. He has a very lovely blue-grounded white edge, but perhaps the sweetest example was one that, to our great grief, died after its maiden bloom. In my few successes in this class (*e.g.*, Blue Bell, that very nearly died after it got a certificate) I have so far ploughed with my friend's heifer. The blue ground whites will be a very lovely variety of the class, and more good ones are needed. Another great advance has been the attainment of a good yellow or even golden tube in the light violet or blue selfs. Hitherto in flowers of this type the tube has been pale watery, getting worse with every day of age, and making the whole flower look weak and worn. But the newest light I have had break in upon me with seedling Auriculas has been the advent — I know not whence or how—of a flight of pink self seedlings of tints of rich peach blossom and darker shades of rose. These have fortunately rich yellow tubes and dense white paste, and their delicacy of beauty and the contrast of their colours with all others are most attractive. I should like to say a word here against the opinion I have seen expressed that our edged Auriculas, particularly the green ones, are feeble monstrosities, and so little owned of Nature, that she is loth to let them live! All this I simply deny, as being so much nonsense. Because green happens to be the colour of most leaves, it is not, therefore, the less a colour in a flower that possesses it, and in the edged Auricula it is an intense, and intentional, and true colour, too.

The green edge is as much the colour of health and purpose in the Auricula as it is in the corolla of Galanthus plicatus, the Crimean Snowdrop. In the one the colour is native and in the other acquired, but in both it is natural. Flowers of unnatural hues exist only in millinery and waxwork. Another fallacy against which I would protest is that the florist Auriculas are of a feeble, undermined, inbred constitution. It is the fact that very few amongst a set of seedlings are miffy. I have always had a few such and lost them, but they are quite the rare exception. The plants are hardy enough, and hosts of them in the open country will grow in the open border. But common sense will perceive why these beautifully mealed and edged flowers are not fitted for outdoor exposure; the first shower of rain of course ruins the meal and velvet, and the least that Nature can require in return for the gift of that unique beauty is that it should be taken proper care of. F. D. Horner.

Lowfields, Burton-in-Lonsdale.

FORMING AND REPAIRING LAWNS.

It has been said, and with much truth, that there is nothing which adds so great a charm to English homesteads as the lawns or Grass plots that are generally to be found surrounding them; and as this is the season to form, relay, or repair them, a few remarks as to the proper mode of procedure may possibly be useful. In forming new lawns, it is hardly necessary to say that their extent must be dependent on the ground at command; every endeavour should, however, be used to make them as roomy as possible, and towards this end much may be done by placing the shrubs and trees, or at least the greater part of them, as far away from the house as the boundary will permit; any that stand out ought to be of the best kind. A lawn need not necessarily be flat or level; it may, on the contrary, be undulating, according to the natural formation of the ground. In preparing the latter for the turf, the most important thing is to see that any portion which has been moved is well rammed, for if not it will be continually subsiding, and nothing looks worse than little hollows caused by the settling of earth. Another important matter to bear in mind is that the soil of lawns should not be rich, for if so the Grass not only grows fast, but coarse, and it is impossible under such circumstances to get a good thick bottom or keep it in anything like the perfect order attainable when the roots are less fed. This being so, it is a good plan to use sand, or to cart poor earth for the levelling and finishing off of the top, but when so applied it should be put on regularly, or the Grass will be patchy, which will spoil the effect of the whole. The levelling being completed and the surface raked smooth and fine, the next thing is to either sow seed or use turf, the latter being by far the best way, for though it involves more labour, time, and expense, the work is at once complete, while if seed be sown it takes a year to get a good bottom. The most suitable turf is that from pastures or waste places by the road-side which have been closely fed off and the Grass is short and fine, with a sprinkling of white Clover in it. If turf of this kind can be got a fine lawn may soon be made. The most handy turves to work with are those a yard long and a foot wide, and the thinner they are, so long as they will hang together, the easier will they roll and lay down again. No open joints should be left for the air to get in; to prevent this it is a good plan to pass the roller over the turves quickly after they are down, so as to press them to the earth, in which the Grass will soon take root. If any inequalities of surface should by chance exist after the roller has been used, they may easily be beaten down by means of a rammer when the ground is soft. Where fine turf cannot be had and seed has to be sown, it should be got specially for the purpose from some seedsman, as that otherwise obtained is full of weeds, and never makes a good lawn. The time to sow is about the middle of March, when the seed should be scattered evenly over the surface of the finely-raked ground and slightly covered, after which, if birds are kept from scratching it out and devouring it, it soon germinates and grows at a quick rate if the weather proves favourable. Lawns that are in a thin, patchy condition may be improved in two ways: the one by cutting out the bare or worn parts and relaying with fresh flag, and the other by a top-dressing of rich, finely-sifted soil, to which should be added some soot and fresh-slaked lime, which will not only stimulate the Grass and give it a rich deep green colour, but will also kill all Moss, which on some lawns is very troublesome and if not checked or destroyed soon gets entire possession. Daisies and Plantains, too, are often a nuisance, and to eradicate these weeds there is no plan better than cutting or digging them out, which, unless they

are thick, is no great task if set about in real earnest with a sharp and suitable tool. D. S.

AURICULAS.

5157.—**Woolly aphis in spring.**—In reply to "A. J.'s" enquiry as to what to do now with Auriculas very much infested with woolly aphis, the sincerest answer I can give is what I should do myself. I have had a good many set battles with this insect, not because it visibly affected the health of the plants, but because, as a parasite, it could not be esteemed a cleanly thing, and could do no good if it did no harm. Yet such of my plants as have had woolly aphis have always looked just as vigorous and have bloomed just as well as those that were free from it, and I have not known where it was till I examined the roots or saw a few audacious specimens of the insect attempting a settlement round the neck of a plant. This, I think, the woolly aphis should never at any time be allowed to do. It lies there to await the issue of the newest and best white fibres which the plant throws out at every active period of the year's growth, and especially during March and April, when the rapid and luxuriant foliage and the flower-stem, with its nest of young buds, large of appetite, need all the efforts the plant can make underground. When, however, these vigorous new roots find themselves in contact, not with the kindly soil, but with this dry-coated parasite and all his untidy waterproof cast-off wearing apparel, they can get but feebly or never at all beyond it, turning back upon themselves with some such baffled look as a snail expresses by his horn when he has run the tip of it against something disagreeable. The woolly aphis on the roots, like the red spider on the leaves, belongs to the Great Unwashed in insect life. Water is his bane, and a good wetting to the skin his antidote. Hence he is constructed to turn water as cleverly as a duck's back or a Nasturtium leaf. He will weather the storm of the most thorough watering, and ride on the foamy crest of a soft-soap bubble and ship never a soapy sea! But the simplest liquid that can be well rubbed in is a *quantum sufficit* for his discomfiture. I have abolished him by washing a plant in soft-soap water by laying the roots in the hollow of my hand, and the firm, but not harsh, application of a nail brush among them, and I have found that a weak solution of Fir-tree oil has of itself the penetrating power of wetting this aphis and his wool. I do not water plants with insecticides, but unpot, wash, and repot them after a subsequent cleansing in rain water. Now, as to the action of the moment in your correspondent's case. He should certainly, at all the pains it may cost, keep the insects off the collars and stems of his Auriculas, and he may slay whole groups of aphis by skirmishing around the inside of the pots and the ball of roots with a small stiff brush, wetted with a weak solution of Fir-tree oil, touching it well into the family parties he will meet with in favourite places of resort, such as the crocks and small interstices of the soil and roots. He says, "Of course I must not repot now." Preferably not, if possible, for any repotting that means extirpation of the aphis must be a very complete and searching one. But in his case be utterly extreme, and the plants be really so very much infested that positively the new roots and the old cannot get moisture by reason of the pest, I should commend him to attack it. He will find that at present he need break no new fibres. The plants have not yet pushed from the neck the flight of strong white roots that are to support the full spring foliage and the bloom. The time for that natural stimulus is not yet, but he has no time to lose. My conclusions on the matter are that even much appearance of woolly aphis does not visibly affect the plant. But rather than know the plant was choked by it, and fibres from the neck and stem were unable to strike because of it, I should choose the alternative of a February repotting and careful washing, and trust to the wonderful and immediate spring energy of the plants to gain more than they would lose by the disturbance. Your correspondent's case should be a desperate one to need the last resort. How are his plants looking? Let him at least keep the necks and stems as free as possible, and attack all the insects he can find round the inside of the pots and the balls of roots.—F. D. Horner, *Lowfields, Burton-in-Lonsdale.*

—— Fir-tree oil has been much recommended as a means for destroying the Auricula aphis, but the difficulty is to make it reach them. Standing the pots in water deep enough to cover the surface of the earth for twenty-four hours or so would probably kill them, particularly if a little Tobacco water or soft soap were added.—G. S. S.

Hellebores.—Apotheker Bogren appears to be the best of the spotted section of this family. It is early, free flowering, and the individual flowers are of large size and clear in colour; the latter is a soft light rosy purple, literally covered with crimson spots. I presume it is a hybrid. There are few hardy plants better worth pot culture, and the same may be said of H. Commerzienrath Benary, illustrated in last week's Garden. It is a later kind, nearly pure white, also abundantly spotted with crimson; in fact, pot cultivation seems to be the proper one for this section, as from the pendent habit of the blooms the lovely interior markings are lost out in the border.—J. M., *Charmouth, Dorset.*

Anemone Robinsoniana. — Mr. Thos Shortt says he has a bright crimson and other varieties of this Anemone. I remember seeing one crimson when a boy on the Peak of Derbyshire, on a hill called Wardlow Lay Cop, where there used also to grow Parnassia palustris, Trollius europæus, and Aquilegia vulgaris in groups amongst bushy Thorns and Brambles. I have little doubt that this bright Anemone is there still. There is also a variety of Anemone nemorosa with green and partly green petals near Eyam, in Derbyshire, a curiosity in its way. It grows in considerable patches, and is likely to be permanent. It is also more foliose than the normal form.—Wm. Elliott, *Stapleford, near Nottingham.*

Hellebores as cut flowers.—Referring to what "W. G." says (p. 119), allow me to state that it is but too true that the tall-growing and beautiful Hellebores of which he writes make but unsatisfactory subjects for the flower vase. Many a time I was vexed at finding that fine trusses of H. colchicus and Benary when plucked and placed in water rapidly got limp and the reverse of ornamental. However, a friend told me to place a glass shade over them and to note the difference. I did so, and the result was all that could be desired. The expanded blooms stayed fresh and crisp for ten days or a fortnight, and the unopened blooms grew and opened perfectly. Some of your readers may be glad to know of this simple remedy for the only drawback connected with these charming flowers.—Frederick Tymons.

SHORT NOTES.—FLOWER.

Leucojum vernum fl.-pl.—This is in the collection at Floore as well as the carpathicum variety. The double form is much more difficult to cultivate than any of the others, and very shy in the way of increase; it will therefore always remain a scarce plant.—S.

Salting walks.—The best way to apply salt to paths, to destroy weeds, is as follows: Boil the salt in water 1 pound to 1 gallon, and apply the mixture boiling hot with a watering pot that has a spreading rose; this will keep weeds and worms away for two or three years. Put 1 pound to the square yard the first year; afterwards a weaker solution may be applied when required.—J. H. N., *Tenterden.*

Weeds on gravel walks.—Paint the walks on a very dry day with sulphuric acid one-quarter and water three-quarters; use an old birch broom, and carry the mixture in a vessel of glass, earthenware, or wood. Turning the gravel means a fresh crop of weeds. I do not think salt answers as regards the weeds, but it often kills the Box. —J. G. C.

Diseased Daisies.—Your Daisies are infested with the grub of a fly somewhat similar to the Celery fly; they are by no means uncommon. The best thing you can do is to go carefully over the plants, cutting off such leaves as are useless and destroying them, and pinching the others where the grubs are; this will stop any further injury and greatly diminish the numbers of the next brood of flies.—G. S. S.

Hellebores and Narcissi.—Having read the interesting article on "Seedling Hellebores" (p. 119), I think some of your readers may be glad to know that there is a considerable collection of species and varieties now to be seen nearer home than Newry, viz., at Messrs. Barr and Sons' grounds, Garrett Lane, Tooting. When calling on Mr. Barr on the subject of the Narcissus pallidus præcox, for which a first-class certificate was awarded on Tuesday on the understanding that it would be shown that it was flowered in the open ground, he pressed me to go and see his Hellebores, and at the same time the Narcissus blooming in quantity. I saw both, and Iris stylosa in great beauty. A visit from any of your readers interested in these plants would, I think, be well repaid, but I would advise them to go well shod, as the ground is rather wet.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Violet culture.—Like Mr. Murphy (p. 120), I cannot agree with "R. A." as to growing Violets on a north border. At the same time, I think a little shade is beneficial to them. The best I ever saw were grown on the north side of Currant plantations. The trees, not being overcrowded, broke the scorching rays of the sun in summer, and did not darken them too much in winter. I have seen them grown on north and south borders, but neither made such luxuriant foliage or bloomed so profusely as those just referred to. It is well to bear in mind the severe weather which we experienced last March, when so many were cut up that it was difficult to obtain stock for planting. Boards should be placed round them, in readiness for supporting thatched hurdles, in case hard weather should set in. Where not convenient to cover all, at least a portion might be saved, so as to be able to obtain good runners.—B., *Bristol.*

Hybrid Hellebores.—These seem to be attracting the attention of many readers of The Garden. Some years ago I received a complete collection from the Berlin Gardens, and though some of them equalled the beauty of the true Christmas Rose, I think them well worth growing, and they are attractive from their vigour and abundance of bloom. But there is a curious thing connected with them which I have not seen noticed. Last year and this year several of them show less of their hybrid character, and have thrown up flowers of two distinct colours, which I presume more or less resemble the two parents. It is no uncommon thing for hybrids to revert to one of the parents, but I do not recollect an instance of a reversion, apparently permanent, to the two in the same plant. I should like to know if the same thing has occurred elsewhere.—H. H. Ellacombe, *Bitton Vicarage.*

Iris susiana.—When Professor Foster and I gave our experience respecting the growth of this plant, we did so only with the view of helping such as had failed to grow it successfully. I, however, now know of several places in which it has been cultivated for many years without protection or special care—such, for instance, as in the Archbishop of Canterbury's garden at St. Albans, where this Iris thrives and flourishes in perfection. In this country, where the climate is much more favourable to the requirements of the plant than it is in England, there is nevertheless a marked difference between protected and unprotected roots. A heavy snowfall breaks off some of the foliage, and if hard frost follows the points of the leaves uncovered by snow become entirely destroyed, thus greatly impairing the beauty of the plants. Even when in flower protection may be necessary, for a slight late spring frost destroys the delicate standards. For some fifteen years I have been sowing seeds of Iris reticulata, and to-day my patience has been rewarded. A flower opened this morning which is more than double the size of the type. This great improvement is the result of careful selection and repeated sowings. What a vast field for young horticulturists to improve existing forms does repeated propagation by seeds open up! Bulbs are even more varied by evolution than other plants. Some

examples of Colchicum luteum just now in flower here have acquired three times the size of the typical form. Iris susiana also improves by careful cultivation, and it might be worth while trying what repeated sowings would produce in its case. —Max Leichtlin, *Baden-Baden.*

THE WHITE CUP AND MAIDEN PINK.

It would be difficult to find two other hardy flowers that would have blended so prettily together as those represented in the accompanying illustration. These are Nierembergia rivularis, now generally known in gardens by the appropriate name of White Cup, and the pretty Maiden Pink, Dianthus deltoides, whose light, elegant sprays of rosy pink flowers associate charmingly with the white, bell-shaped cups of the Nierembergia. The latter is a plant of no small merit, although it seems to be rather losing its popularity from its supposed fastidiousness as regards culture. So far from being fastidious, however, my experience is, that it is perfectly hardy, and that it flourishes in almost any kind of soil. I have seen it growing freely in a natural bog in clayey soil, as well as in a border as an edging plant, but although it acquires size rapidly in damp situations, it seldom flowers in so great profusion as on dry slopes or near the edges of stones in the rock garden. It commences to flower about the middle of June, and continues in that condition through July into August. It is a low-growing plant, with prostrate branches rarely more than 1 inch in height. Its wiry stems creep along in snake-like fashion, and its leaves form a thick carpet of dark green. The flowers, which are large, are white, or rather creamy white, and have a slender tube from 2 inches to 3 inches long, the mouth of which is rarely less than 1 inch in diameter. It is increased with the greatest ease either from cuttings, division of the roots, or by seed, the latter being the easiest and most profitable way of propagating it.

The White Cup (Nierembergia rivularis) and Maiden Pink (Dianthus deltoides), both natural size.

This little Nierembergia was discovered and described by Miers, about 1846, in Hooker's "London Journal of Botany," but was not successfully introduced until 1866, when Messrs. Veitch distributed it. It is a native of the Rio de la Plata, where it grows on grassy slopes near the river, but only within high watermark. It there literally covers the ground, and when in flower may be seen from a great distance. It is also found in Buenos Ayres, in company with N. aristata and N. rigida, both of which are stronger-growing species than N. rivularis. They are decidedly herbaceous in character, and, in all probability, hardy enough to withstand our average winter. Even, however, apart from their hardiness altogether, the trouble of growing them in pots for the purpose of plunging outside during summer would be amply repaid by their beauty and the freedom with which they produce their flowers.

The Maiden Pink is so well known to those who grow hardy flowers, that it is hardly necessary to say that it is a plant of easy culture in an ordinary border or in a rock garden. It is a spreading plant, and in the latter part of summer bears a profusion of pretty rosy pink blossoms. D. K.

Chrysanthemums in Japan. — I see nothing very wonderful in the passage quoted by "Veronica" from the *Daily News* (p. 100). The correspondent in question has seen the display in the Temple Gardens, but he cannot have seen a good Chrysanthemum show in England. He says of this Japanese exhibition that, "regarded as a flower show, there is none in the world equal to the spectacle." A bold assertion, truly. Three plants, we are told, occupied a shed of considerable size and bore amongst them 1200 blooms. We are not told how many stems the plants had; but most growers of Chrysanthemums will bear me out in saying that the number of blooms is nothing wonderful. In our own garden I have counted no less than 1400 blooms on a single plant of Pompone Chrysanthemum Bob grown from a cutting within twelve months. A single plant of the large-flowered variety Christine had 300 large blooms on it after they had been thinned out. This, like the last, was kept to a single stem. Some of the Japanese varieties will, if grown in the same way, bloom quite as freely. Some Japanese Chrysanthemums are of lanky growth, and some are not. A large proportion of the new ones are excellent in habit. "Veronica" tells us that the "'florist proper' has lost his power of forming public taste; his mission as a floral schoolmaster is gone." Why, then, trouble himself about the matter? The coast is clear both for him and the market growers to lead public taste in their own way. But who are the men, let me ask, whom "Veronica" condemns in this off-hand manner? Let him name them. — J. Douglas, *Great Gearies, Ilford.*

Fruit Garden.

MELON AND CUCUMBER CULTURE.

In most gardens the culture of both Melons and Cucumbers is a matter of considerable importance. I have grown them in every form of house, and after a rather lengthened experience I still look back upon the half-span-roofed form, which we had at Loxford Hall, as the best for the purpose. The houses there were rather large in size, being 11 feet wide and 10 feet high from the ground level to the apex of the roof. The front sashes were made to open outwards, and the top front-lights to slide, while the back lights were fixed, ventilators being made in the back wall. The beds for the Cucumbers and Melons were 5 feet wide. Two rows of 3-inch pipes were sufficient for bottom heat, but it required four rows of 4-inch pipes to keep the temperature up to 65° in cold, frosty weather. In such houses as these there need be no difficulty in obtaining a supply of Cucumbers all the year round; indeed, I have cut from the same plants for eleven months. For several years I propagated plants from cuttings of the original stock of Tender and True, until, by some mismanagement on our part, the original stock got into bad health and we had to raise some from seeds, but failed to obtain any so good as the original. The supply of Cucumbers from the new year is obtained from plants raised by taking cuttings early in September, or seeds may be sown at that time. The plants are grown on until they cover the trellis, which ought to be a movable one, arranged so that the plants may be trained 6 inches nearer the glass in winter than they are in summer. They must not be heavily cropped during the shortest of winter days; as the season advances they will make good, healthy growth, and bear fruit all the following summer and autumn. If hotbeds are available, Cucumbers do as well in them as anywhere else during summer. In that case the full extent of trellis work may be set apart for

Melons. The latter are much better in quality from a house of this description than from frames. I generally sow our first Melon seeds the first week in January, and if the weather is favourable we look for the first fruits to ripen early in May. Our system of culture is such that the plants have every chance to do well. The depth of soil over the pipes is about 18 inches; it is warmed by the heat from the brickbats placed over the pipes, and its temperature may be set down at from 70° to 75°, which is 10° higher than the temperature of the house. Our beds in the house where we are now located are not so wide as at Loxford, and it is necessary to make them complete at once. I would, however, rather make them up by way of instalments; the 2 feet 6 inches near the glass is made up first; the other portion I generally fill up with fermenting manure. The moist heat from this is very beneficial to the plants, and it also helps to heat the soil in which they grow, thus causing the roots to run at a more rapid rate than they otherwise would do.

This bed of fermenting material is most valuable for purposes of propagation. Cuttings of all kinds strike freely in such a bed. A house of the size above described is useful in other respects besides Cucumber and Melon growing, and it is for that reason also that I so strongly recommend it. For instance, there is plenty of room to fix a shelf near the glass for Strawberries. On these shelves we had good early fruit, and as the house was in four divisions it was easy to obtain a succession. A good stage against the back wall was useful, on which to grow Tomatoes, Figs, and Oranges, or even Vines in pots. The Toma-

toes may be had all the year round, and the best variety for successional cropping is Trentham Fillbasket. The Oranges from these houses were greatly valued. The trees were worked by myself on the Lemon stock, and grew with great vigour, bearing fruit very freely indeed. The best varieties I found to be the Tangierine, St. Michael's, Malta Blood, and Prata or Silver Orange. It is interesting, too, to be able to cut your own fruit with the leaves attached, and perhaps sprays of fragrant blossoms to garnish the dessert plates.

J. Douglas.

STRAWBERRIES IN THE CHANNEL ISLANDS.

That Strawberries can be profitably grown in the Channel Islands has been proved, but it can only be done by early forcing. For the earliest crop it is most important to get the young plants on the way as early as runners can be had, and as this is generally not before the middle or end of June, runners of the previous year, if they had been taken off and pricked out in the open ground, will be found to answer admirably, and give the grower the command of a long season to grow his plants, and get the crowns ripened early in autumn, in time to give them a good rest before he commences to force them. Where, however, none of the previous year's runners are to be had, the very earliest of the current season must be used. They should be pegged into small pots and carefully watered as they require it until well rooted, when they may be removed from the bed and potted into 6-inch or 8-inch pots, in which they are to fruit. The pot should be well drained by putting at least an inch of potsherds in the bottom, or, still better, replace the potsherds with broken bones (½-inch ones). The soil used for potting should be a rather rich loam or good garden mould, with a little admixture of coarse sand; a little artificial manure may be added, such as bone dust or guano; fresh ordinary manure cannot be recommended for Strawberry pots, as its decay and subsequent washing out leaves the soil loose. It is much better, as soon as the roots have reached the sides of the pots, to use manure in the water when watering. Soot is an excellent thing to use in this way; it acts as a manure, and at the same time keeps the soil free from worms and insects of all kinds.

Varieties for forcing.—Black Prince is probably still the best sort for the very earliest crop, though some speak highly of Vicomtesse Héricart de Thury. President is an excellent forcing sort, a sure setter, and of good quality, and withal a handsome fruit. Sir Joseph Paxton has one or two good qualities to recommend it to the market grower; it is, in the first place, a good traveller (and that is very important), it is a good cropper, and a handsome fruit; but it cannot be recommended for the earliest crop. There are many other good forcing sorts, and all have some qualities to recommend them. But the market grower requires but a few, and these few good. For the Channel Islands we should select three, Black Prince for the earliest, President for the next, and Sir Joseph Paxton for the main crop, and any grower who will take these three in hand and follow up their cultivation for a few seasons will become master of their treatment, and find in them everything he requires. The best style of Strawberry house, we believe, has yet to be designed, as well as the best stage for such a house. We should have written Strawberry houses, for to carry on this business properly and successfully two sets of houses of quite distinct design are necessary, besides plenty of cold frames. One set should be rather low, flat-roofed span houses, 10 feet wide inside, with a 2-foot walk down the centre, and a 4-foot bed on each side. There should be a good command of bottom-heat, and the beds or plunging stages should be up as near the glass as possible, having pipes or a hot-water tank beneath and 6 inches of plunging material on the top, which may consist of tan, Cocoa-nut fibre refuse, or leaves, in which the plants should be plunged on being brought from the cold frames. The bottom-heat may range from 65° to 80° and the top heat 10° lower; abundance of atmospheric moisture should be provided, and just sufficient air given to keep the foliage robust and prevent its being drawn. As soon as the plants have well thrown up their flower-stalks, and before the flowers begin to open, they should be removed to

The fruiting house. This house should be higher and more airy than that just referred to. It matters but little whether it be a lean-to or a span, but in either case the angle of the roof should not be flatter than 45°. There should be ample provision for ventilation both at top and bottom, and the air admitted should be warmed by passing over or between the pipes. The arrangement of the stages or shelves is a matter of much importance. The plants must be kept near the glass, and the question is, how to place them so and at the same time have them convenient for inspection and attention. In the "Book of the Garden" the shelves are recommended to be suspended to the rafters by wire brackets, and attention is given to the plants from the back. This affords a good position for the plants, and is a very economical arrangement as regards space, but it entails an extravagant amount of labour, as the plants on the highest shelves must be taken down every time watering is required. In Thomson's "Fruit Culture under Glass" the stage is farther back from the glass, and thus ample room for watering, &c., is allowed from the front, without moving the plants, but it curtails the stage room, the depth or width of the stage being but little more than half the length of the rafter of the house, thus wasting room. What the market grower requires is some arrangement possessing the advantages of these two systems without their inconveniences, and to this end we have designed a travelling stage, which we will shortly describe for the benefit of any of our readers who may choose to adopt it. To facilitate description, let us suppose that stages are required for a certain sized house, say a lean-to, 24 feet long, 10 feet wide, and 11 feet 6 inches high, with a front wall 1 foot 6 inches above the floor. This will give the roof an angle of about 45°, and a rafter 14 feet long. For such a house we should make the stage in two equal lengths, each 10 feet long; this would allow a space at each end of the house of 6 inches between the ends of the stages and the ends of the house, and 3 feet in the centre of the house between the ends of the two stages. The framework of the stages would consist of a number of right-angled triangles, made of wood strips 2 inches by 4 inches, with triangular blocks halved-in on the long side to carry the shelves, fastening together by longitudinal bars the shelves to carry the plants. A section of the stage would be of exactly the same shape as a section of the house above described, only less in size, the measurements being, 6 feet wide from the edge of the bottom shelf in the back of the framework, and 5 feet high from the level of the bottom shelf—which is 1 foot 6 inches from the floor—to the top shelf. There would be seven shelves, each 7 inches wide, the lowest of which would be level with the top of the front wall of the house. Each stage would be mounted on four flanged iron wheels, about 12 inches in diameter, fixed one to each corner, to run on two iron rails, set in the floor across the house. The stages being 6 feet wide, as stated above, and the house 10 feet, it is obvious that when the front of the stage was 1 foot from the front of the house, and the plants standing on the shelves close to the glass, there would be a space of 3 feet between the back of the stage and the back wall, and when the stage was run back close to the back wall, there would be a space of 4 feet between the front of the stage and the front of the house, leaving ample room to water the plants and give them whatever other attention they required without removing them from their places. The convenience and economy of such a stage will be apparent. It only remains to economise the space at the top part of the house not reached by the stage. This can be best done by fixing two shelves to the back wall one above the other, the lowest 10 inches above the top of the travelling stage, to allow it to pass under with the plants on its top shelf. It may be 8 inches wide, and stand out 8 inches clear from the wall, the upper one being of the same width and fixed close to the wall and 7 inches higher; these shelves would be accessible from the front at the same time and manner as the stage when it was run back. It scarcely need be pointed out that these stages are equally well adapted for span-roofed houses as for lean-to structures, and would even more economise the room in the former than in the latter. The moving of the stages would be very easily effected by hand; nevertheless it might be desirable to provide a winch and chain for the purpose where the first cost is not a consideration; this matter of cost will doubtless be the only objection to these stages; the wheels, rails, &c., will certainly make them somewhat more costly in the first instance, but the great saving of space and labour as compared with any other arrangement with which we are acquainted must make them in the long run by far the most economical of any stage invented.

The time to begin forcing must be regulated by circumstance; to have ripe fruit in February operations must be begun by the 1st of November, and to commence forcing by that time, with any prospect of success, the plants should have completed their growth by the end of August; they should have good crowns and well filled their pots with roots, and have been lying on their sides in a cool shady place at least six weeks. If so prepared, and otherwise in first-rate condition, ripe fruit may be expected about the third week in February, but if the plants are not in this well-prepared condition, it is quite useless to commence thus early, but rather wait another month or even two. In fine weather with ventilation Strawberries will set freely without special attention, but it is always safest to go over them daily with a camel's-hair brush, keeping the air in the house rather dry in the meantime, and changed as much as possible, keeping up a good temperature on bright days, and always allowing a drop of 10° at night. A high temperature and a dry atmosphere at night are the worst of all conditions in forcing Strawberries or anything else; they favour the development of red spider and all the other pests and plagues with which plants are affected. Exact figures of temperature, however, can only be properly regulated by surrounding circumstances and the condition of the weather; on dull, dark days 60° might be high enough, while on bright, sunny ones 80° would not be too high; thus we can only suggest ideas to be borne in mind and varied as circumstances may demand.

The profitableness of Strawberry forcing will necessarily depend on its successful working. The prices obtained during February and March generally rule as high as 8s. or 10s. a pound, and even more than that for very fine fruit; it must be a poor crop indeed that does not average 4 oz. per pot, and even this low average crop would pay very well, being about £10 per 100 pots. The small lean-to house already alluded to would accommodate about 300 pots at a time; therefore we may calculate its first crop to be worth, if ready before the end of March, £30—certainly a profitable return. We are aware that there are many expenses in connection with this enterprise and a good deal of labour, but, all things considered, it is a profitable one. The great point to be aimed at by the market grower of Strawberries is size and fine appearance; if his produce has these in the highest perfection, it will meet with a ready sale, and obtain the highest price in the London and other markets.—*Jersey Gardener.*

Vine roots going outside.—My statement is that "a Vine planted midway between an outside and an inside border will take to the outside border by preference, all other conditions being equal." I asked Mr. Baines for an example to the contrary, and he points to a border at Hutton Hall, where the Vines were planted inside and confined wholly to the inside

border for at least two years, by which time every main root would be, perforce, established inside. After these two years an outside border was added, and the roots are now coming outside. Does Mr. Baines call this starting under equal conditions? If Mr. M'Indoe had just reversed the experiment, he would have had much more trouble to coax the roots inside than he had to get them outside. Mr. M'Indoe's borders are worth nothing at present as an example, but I may yet crack the "nut" *in situ* for all that. I am certainly surprised at his statement that he could not coax the roots outside during six years. I do not of course imagine that the roots of Vines established in an inside border two years before the outside one was made or thought of would turn round bodily and burrow towards the outside; it is those roots only which were formed since that, according to my argument, would go out. Will Mr. M'Indoe kindly tell us the length and breadth of his good turf borders that did not receive a root for six years, and also state at the same time why he made them, seeing, as he says, the Vines did not want them?—J. S. W.

PEACHES AS A MARKET CROP.

Market gardeners grow Grapes and Strawberries under glass, and they used to grow Pine-apples until the St. Michaels' growers took the trade out of their hands; but I believe I am correct in stating that very few make a speciality of Peach culture for market. Can anyone say why that is so? No one doubts that good prices can be had for good Peaches—such prices, indeed, as would make Peaches pay better than almost any other crop, provided crops could be secured with any degree of constancy; but I believe it is the fear of failure that makes the market gardener fight shy of Peaches. They are not to be depended on like Grapes, unless skilfully managed, when, however, there need never be much fear of a remunerative crop. From May till the end of July Peaches fetch from 8s. to 20s. per dozen in Covent Garden if they are good, and 8s. is the least I was ever offered at the beginning of July, over the counter, for fruit that was not by any means the best, and which had been kept a week or longer after it was ripe and had become soft. Would these prices pay? Putting aside the original outlay for house construction, Peach culture is not so costly as early Grape culture—in the matter of fuel, at least, as from December till April only moderate temperatures and but little fire heat are required, and after that period the weather gets warmer, allowing fire heat to be partly discontinued. Our cost for fuel for the early Peach house is one of the smallest items in the coal bill, and the labour is not great either. Let us see what a house 100 feet long, with a trellis, say, 20 feet broad, would produce. The area would be 2000 square feet, which, at a moderate estimate, should yield 200 dozen fruit at 10s. per dozen—total, £100. This is a moderate estimate, and I believe the total cost of production would not exceed £20 or £30 at the most, leaving from £70 to £80 to the good. The only question is one of good annual crops, and these, I think, might be depended upon almost as certainly as Grapes, with a proper selection of varieties and careful culture. We have had as good or better crops than the above every year for years, and the prospect this year is as good as ever, if not better. We, however, only dispose of the fruit we do not require for ourselves, and can therefore only guess at what one might have realised in the market from the whole house by what was received for the spare fruit; the figure would be more than I have put it above. I am perfectly confident that with judicious cropping, taking care never to overload any part of the tree, careful training and exposure of the fruit to the sun from an early period, so as to have it richly coloured, good and heavy crops are to be depended on annually, and I would have none ripe till June and none after July. Between these seasons Peaches can be ripened to the highest degree of perfection, and the trees will endure forcing so early year after year for a lifetime if necessary. It tries the constitution of a Peach tree to be forced to ripen its fruit annually in April or the beginning of May, but to have the crop ripe by the end of May does not necessitate starting the trees till December, and they need not be in flower till the middle of January, by which time the days are lengthening and we have more light as well as sunshine, which is what a Peach tree most needs. Two fine trees here that have been forced early every year since 1867, when they were planted, or seventeen years, are just as vigorous now as they were at the beginning, and grow more fertile every year. Facts like these speak for themselves, and the only question becomes one of disposing of the fruit. S. W.

OUTSIDE V. INSIDE BORDERS.

A fortnight or so ago Mr. Baines referred to the Vines at Wynyard in support of his views respecting Vine roots going outside, and stated "there were three large old houses filled with Vines nearly 20 years old that three-fourths of the time had been altogether in an outside border, and that were brought in through the wall level with the outside. Mr. Jones, who was gardener there then, had made a good inside bed, into which the roots ran, &c." All this, I have no doubt, Mr. Baines stated in good faith, wherever he derived the information from, but it was a version that surprised me, for I happened to know a good deal of the Wynyard Vine borders, through Mr. Dick, now of Phœnix Park, from whom I have obtained the following particulars: "Mr. Baines would make it appear that the three vineries had been planted twenty years, and that Mr. Jones made inside borders and led the Vines into the new soil, so that although they were planted outside they took to the inside borders at once. This is incorrect. Some of the Vines to which Mr. Baines refers were planted entirely inside, and I need not say I planted the whole of them, with the exception of one house. When I left, these Vines were in excellent condition, and my successor commenced to show almost immediately after he went. I cleared out an inside pit in the Muscat house for the new border in February, 1869. The mixed house mentioned by Mr. Baines was also planted inside; two rows were originally planted in the pit before the front wall was taken down. The roots of these Vines were allowed to run out under the newly-laid hot-water pipes through holes made in the front wall into the outside borders which I made for them. It is these very Vines Mr. Baines makes most of. The Lady Downes house (mentioned by Mr. Baines in a report at the time of which he speaks) I also planted inside, and they made rapid growth through the front arches into the outside border. I agree with you that Vines will go outside if they can and where they can." The above is Mr. Dick's statement. He was about a dozen years at Wynyard, and I have permission thus to use his name and letter. These facts show how needful it is to investigate all such matters thoroughly and carefully. Mr. Dick can himself, I daresay, furnish further particulars if there be need for them. J. S. W.

——I can confirm what Mr. Baines says respecting the free rooting of Vines in the inside borders at Wynyard Park. At the time to which he alludes I had charge of the vineries there, and I well recollect the borders being investigated. They were specially opened for Mr. Baines' inspection, and were found to be filled with grand roots from surface to drainage. At that time these borders afforded proof that however hard "heavy and frequent waterings may tend to make the soil," it did them no harm at Wynyard Park, though your readers would be astonished at the quantity of water which the borders there received at frequent intervals. I have seen it standing in pools on the surface for hours after being put on, so complete was the saturation.—John C. Tallack, *Prideaux Place, Padstow.*

Fruit prospects.—It is to be hoped in the interest of fruit growers that the very mild winter which we are experiencing may not be succeeded by a sharp spring. I do not remember having seen a better lot of bloom buds on Peaches and Nectarines, and they are firm and plump, and every bit of wood is well ripened. This is particularly the case on trees from which a heavy crop was taken last year, proving conclusively the truth of a remark made more than once by your correspondents that heavy cropping old-established trees this year is one of the best things to ensure a heavy crop next year. We are going over our Peach walls now and giving them a dressing of limewash into which a little Venetian red and soot have been worked. I find the soot useful in toning down the glare of the Venetian red. Pears also promise well; early varieties are swelling up very fast—too fast, I fear. Apricots also show well; we shall have to provide some substantial covering for the blossoms when they open, or good-bye, as was the case last year, to our hopes in this quarter. We are planting a lot of dessert Gooseberries against some wires originally made for Raspberries. The system has the merit of keeping the fruit clean and enabling one to pick it in comfort, and where birds are troublesome they are not difficult to net. Pyramid and bush Apples are likewise well covered with bloom buds. —E. Burrell, *Claremont.*

Two good kitchen Apples.—For the last two months we have been using the Tower of Glamis, and it is much liked in the kitchen. The tree is a vigorous grower, good bearer, and well adapted for the orchard. To follow this we have the Lemon Pippin, and that is also a good culinary sort. It is, however, scarcely vigorous enough for an orchard tree; our fruit is obtained from pruned, bush-shaped trees. They rarely fail to bear well, and for tarts are unsurpassed by any other sort at present in use.—I.

Golden Reinette Apple.—For dessert purposes during February, March and April I know of no Apple to equal the Golden Reinette. It is rather small, but in point of colour and rich, juicy, and sweet flesh, it leaves nothing to be desired. It succeeds admirably as an orchard tree, and nowhere better than in the neighbourhood of Wincanton, Somersetshire. Fruits of it are being sold in this district at the rate of 4s. per bushel, and I consider them cheap at that price. Golden Reinette is a very old sort, but is still one of the most profitable in cultivation.—W. I.

Gros Maroc Grape.—With Mr. Coleman's opinion (p. 125) regarding this Grape I cannot agree. I have grown it for three years and find it to be one of the best of growers and best of setters. It is robust and healthy, and bears large bunches and large berries of a blue-black colour, oblong in shape and covered with a fine bloom. Last year I obtained two first prizes with it at Kettering, where lots were shown against it. It is all that can be desired in every particular, except as regards the eating, and I pronounce it to be decidedly the worst flavoured Grape with which I am acquainted.—R. Gilbert, *Burghley.*

5155.—**Vines trained horizontally.**—"H. W." has made a mistake in not cutting back the young wood sufficiently. Vines will make young wood 20 feet long in a season, but it ought to be cut back to 8 feet or 10 feet, and the way to get it to break regularly is to bend the points of the canes down as low as the point from which they started, thus causing the buds to start uniformly along their entire length. Grafting the one on to the other will do no good. Nor will it be any benefit to encourage the points to root into the ground. The young wood is much too long; that is why it does not break well, even though bent down.—J. D. E.

Shrivelled Grapes.—What I wrote on this subject may be seen in The Garden for Jan. 19 (p. 48). My exact words were, "When this mishap (shrivelling in autumn from want of water) takes place, there is no remedy; no amount of water given after the berries begin to shrivel will cause them to plump up again"—the meaning being water given to the roots, and having nothing to do with Grapes in winter in bottles of water. Most people who had to eat Grapes would, I imagine,

prefer them shrivelled to being filled up with water in the way "J. S. W." claims to have discovered that they can be.—T. Baines.

5143.—**Lichens on Pear trees.**—"F. H." would find, I think, that freshly slaked lime in the proportion of one of lime to five of water, and applied with the garden engine or syringe, would be as effectual a way of destroying Lichens as any that could be adopted. In an orchard here, about two acres in extent, situated in a damp, low-lying part of the park, the trees, though young and apparently healthy, had become so covered with Lichen, that when the branches were thick one could scarcely see between them, and could not discern the shoots at all except the small portion of young growth at their points. Twelve months ago last October we determined to give the plan just recommended a trial. We got a large tub into which the lime was placed; then the water was added and stirred, and as much of the lime was discharged upon the trees as could be kept up in the water—sufficient to cause the trees to become white when the lime was dried on them. The result was all that could be desired; the bark of the trees which could not be seen then was last summer and still continues to be as bright and clean as one could wish to see it; and, further, last summer the trees made a much more satisfactory growth than when infested with the Lichens. Brine, I believe, would have a similar effect, although I have not tried it, and of copperas I have had no experience at all.—C. W. C.

Canker on fruit trees.—In a contemporary, a well-known amateur gardener most positively asserts his belief that canker is caused by insects, but I think it will turn out that he has been too precipitate in his conclusions; at any rate, I, like scores of others, have never found any difficulty about curing canker by lifting and replanting in better soil, a process which could hardly stop the depredations of insects were the affection due to their agency, which it is not, but is solely caused by the roots descending into an unsuitable, badly drained, soured, or stagnant soil.—W. H.

Fraudulent fruit packing.—This is a subject which deserves the serious consideration of all who grow and pack fruit for market. The system of topping up baskets with the best fruits, instead of having them equally good throughout, is, as has been stated (p. 81), suicidal, and the sooner it is remedied the better. I have seen hundreds of bushels of fruit packed for market, and I must confess that the plan of topping up the baskets with the best fruit is very generally practised; it has become so established, too, that it is difficult to get the packers to adopt any other. If remonstrated with as to the deception attending the practice, the ready reply is that everyone knows it. Indeed, salesmen would be quite surprised to find fruit equally good all through a package. Anything that is deceptive in fruit-growing or packing cannot be too strongly condemned. The culture of home-grown fruit has of late made good progress; let us therefore hope that all engaged in selling the produce will recognise the value of the old adage that "honesty is the best policy."—James Groom, *Gosport*.

Jointing pipes.—A neighbour, a market gardener, who has a large number of hothouses, tried Portland cement for making joints in the hot-water pipes, and found it equal to joints made with iron filings and much less expensive, as an ordinary workman can make from six to eight joints per hour; in fact, he was so well satisfied with the result, that about five years since he put up a new forcing house 200 yards long, with top and bottom heat each side, all joints being made with Portland cement. As the pipes are carried into the house they are placed in position on bricks previously arranged. A workman follows and puts into each joint a piece of loose spun cord to prevent the cement from getting inside the pipes, and a second party fills the joint with cement, pressing it in solid with a piece of wood, wiping it round and smoothing it off with a small trowel. So far these joints have given every satisfaction, not a single mishap having as yet occurred.—James Smith, *Waterdale Gardens*.

Rose Garden.

SELECTIONS OF ROSES.

Of recent years there has been wonderful development in the way of Rose culture. The National Rose Society has done much to encourage this, while provincial societies, by offering liberal prizes, special and otherwise, have helped on the good work and encouraged many to take up the culture of the Rose. But it is only here and there one outside the trade can afford space to grow a sufficient number of plants to enable them to enter for the leading prizes given by the National Rose Society. There are hundreds of cultivators of the Rose who cannot grow more than thirty or so varieties, and their aspirations are confined to the competitions that take place in connection with local societies. I am desirous of helping these by suggesting at this season of the year, when Rose plantations are being formed, a list of varieties that may be grown for exhibition. And it will be found that the sorts to be named may also be accepted as highly desirable garden Roses for merely decorative purposes.

Here is a list of twenty-five Hybrid Perpetuals that are well suited for purposes of exhibition: Alfred Colomb, A. K. Williams, Baroness Rothschild, Boule de Neige, probably the very best white Rose grown; Captain Christy, Charles Lefebvre, of which Marguerite Brassac and Paul Jamain are said to be only synonyms; Comtesse d'Oxford, Countess of Rosebery, a beautiful soft carmine rose-coloured flower; Dr. Andry, Duke of Connaught, a variety that, as a rule, seldom comes large enough for show purposes, but yet sometimes it may be caught very fine; Duke of Edinburgh, Edouard Morren, Etienne Levet, John Hopper, La Duchesse de Morny, La France, Gabriel Luizet, a light silvery pink flower of great beauty; Hippolyte Jamain, Madame Lacharme, Madame Victor Verdier, Magna Charta, Marie Baumann, Maurice Bernardin (syn., Exposition de Brie), Ferdinand de Lesseps, and Victor Verdier.

In some country shows it is the custom to offer prizes for stands of crimson and scarlet Roses, and it may prove serviceable if a dozen of the best of these were named. They are Alfred Colomb, A. K. Williams, Camille Bernardin, Charles Lefebvre, Comte Raimbaud, Dr. Andry, Duke of Connaught, Duke of Edinburgh, Duke of Teck, Madame Victor Verdier, Marie Baumann, and Maurice Bernardin.

A selection of the best twelve Tea-scented Roses for exhibition and other purposes will be found to be the following: Anna Ollivier, Catherine Mermet, Comtesse de Nadaillac, Devoniensis, Gloire de Dijon, Jean Ducher, Madame Falcot, Madame Lambard, Marie Van Houtte, Niphetos, Perle des Jardins, and Souvenir d'Elise Vardon.

So far this has been an extraordinary season for Roses. Many of them are quite evergreen, and in warm and sheltered positions, plants, especially of the Tea-scented varieties, have become quite active. It may be that the winter through which we are passing is the third of a cycle of mild winters, yet there is no knowing how soon a time of sharp weather and killing frosts may come. We not long since saw on a warm border a large plantation of Tea-scented Roses showing signs of activity, but provision had been made against injury from frost by mulching with a good layer of short manure, and then placing over this a thick covering of the decaying foliage from Asparagus beds. Such plants protected in this manner could, let the worst come, scarcely be cut down below the snow line. The weather is unusually mild for the season; vegetation is becoming excited; and there is therefore need that precautionary measures be adopted. The rigours of March, April, and May have yet to be encountered. R. D.

Tea Rose Homere.—If this well-known sort is planted in a good border and trained up the roof of a house it is astonishing what a number of good blooms it will perfect in the course of a year. It is one of the most perpetual-flowering Roses we have, and with a little heat, say an intermediate temperature, it may be had nearly all the year round—not puny discoloured blooms, as often seen in the open, but large, full blossoms, with nearly white outer petals and delicate flesh-coloured centres. The scent is very good, and the foliage also good and serviceable. There are many others I like better for pot culture.—W. I. M.

Garden Flora.

PLATE 428.

ODONTOGLOSSUM INSLEAYI SPLENDENS.*

This is one of the oldest of all the species of Odontoglossum in our gardens, having been cultivated in 1840 by that most successful of early Orchid amateurs, Mr. George Barker, of Birmingham. Barker's collection of "air plants," as tropical Orchids were then called, was famous fifty years ago, and it was in compliment to his gardener, Mr. Insleay, that our present species was named by the late Dr. Lindley in "Folio Orchidaceæ," t. 8. One of the earliest of references to this species, however, is a communication from Mr. Barker himself in the *Botanical Register* for 1840 (misc. 21), and the plant was figured long afterwards in Bateman's "Orchids of Mexico and Guatemala," t. 21; in the "Monograph of Odontoglossum," t. 4; and also in Warner's "Select Orchids," 2nd series, t. 25. O. Insleayi belongs to a very distinct section of the genus Odontoglossum, of which at present three rather variable species only are known. These are O. grande, from Guatemala; O. Insleayi, from Mexico; O. Schleiperianum, from Costa Rica. In general habit all three bear a close resemblance to each other, and it is questionable whether the slight differences of structure observable in their flowers are not merely modifications due to the slightly varying conditions under which they grow in their native habitats. All three require more heat and less moisture than the mountain species of the cool and moist Andean ranges; hence it is at once apparent why O. grande and O. Insleayi succeeded so well under the hot treatment of the earlier Orchid growers, who always failed in the culture of cool mountain Odontoglossums and Masdevallias. O. Insleayi grows well in a shady corner of the Cattleya or intermediate house, and when well grown produces bulbs and leaves much larger than those of O. grande, and bears from five to twenty flowers on a spike. It mainly differs from O. grande in having smaller flowers; the perianth segments are greenish yellow, with clouded bars of pale brown, but the lip is bright golden yellow, with bright chestnut spots. Botanically, O. Insleayi differs from O. grande in having red subulate horns or hooks instead of the broad auricles characteristic of O. grande. Some years ago Messrs. Backhouse introduced a highly coloured form named O. Insleayi leopardinum, the pale yellow perianth segments of which were heavily barred with chestnut-brown. It is considered superior to the type. The variety we now illustrate, O. Insleayi splendens, has a much larger and finer coloured lip, but the greenish yellow perianth segments are delicately clouded with brown rather than distinctly barred. It was described by Reichenbach in 1868, having then been recently introduced by Messrs. Low, of Clapton, from Mexico. Both O. grande and O. Insleayi are

* Drawn in Mr. B. S. Williams' Nursery, Upper Holloway, September 6, 1883.

very variable in depth and variety of colouring, as also in size of blossom, and both are valuable as blooming during the late autumn and winter months. O. Schleiperianum is a summer blooming plant of considerable beauty and interest when well grown. F. W. B.

SEASONABLE WORK.

BEGONIAS FOR FLORAL DECORATION.

The shrubby types of flowering Begonias are always useful when employed in association with other flowers in a cut state, or a few distinct kinds look exceedingly well on sideboards grouped by themselves along with their own foliage. Of kinds to be had in flower now may be named B. manicata, one of the prettiest that can be had for trumpet vases to give a finish and relief to larger varieties of flowers. This sort will also last a long time in flower in the conservatory if the plants have not been brought on in too much heat and moisture; when allowed to expand their spikes in a light, airy house they last much longer. B nitida odorata is also now opening its most forward flowers. This sort is not grown nearly so much as it ought to be, seeing that it produces a continuous crop of flowers for several months in succession. It is, in short, one of the most useful, as well as one of the most elegant white kinds grown. A little later on this kind will be used here in the conservatory, in which we find it most valuable. It has also, as its name indicates, the advantage of emitting a slight perfume. In a cut state, well developed spikes look well on a fringe of Maidenhair Fern in a good sized vase, with the addition of other flowers over and above them. B. semperfloreos is another good winter-flowering kind which is always useful. B. Saundersi is likewise a valuable kind; flowering shoots of this variety cut with a good length of stem can be worked effectively into many kinds of arrangements. The tall and straggling growing B. fuchsioides is very effective in a cut state. B. ascoteosis also yields useful spikes. The foliage of some larger growing kind will be valuable to use along with the three last named varieties; we find that of B. metallica useful in many ways. The new variety shown of late under the name of C. socotrana promises to be an invaluable addition to the winter flowering section of these popular plants. All the kinds just named will be found now to be of service in a cut state. Others there are that will do a good turn during the summer in conjunction with the tuberous-rooted varieties, and other sorts are valuable late in autumn, especially B insignis. In gathering flowers of Begonias cut them in each case with as long a stem as can well be had, and also give them as much water as can be safely used. This will help to keep them fresh somewhat longer than would otherwise be the case.

INDOOR PLANTS.

Hard-wooded Heaths.—Of all greenhouse plants in cultivation, Heaths have the greatest dislike to fire-heat if used for any length of time, or in quantity more than sufficient to keep out frost; and in severe winters, when there is a long continuance of hard weather, great care should be taken that the temperature is never allowed to get too high, or the plants are sure to start into growth, which should never be excited except by the natural return of sun heat. On this account, if, as we generally experience after an unusually mild winter, such as the present, we have a continuance of sharp nights late in spring, no more fire-heat must be used than will render the house safe from frost. It is no use attempting to cultivate Heaths except they are well and regularly attended to. Their greatest enemy is mildew, from the attacks of which they are never safe. It is usually more trouble some in damp, mild winters, when the atmosphere of the houses, as a matter of course, is more humid than when there is a necessity for more use of fire-heat. The plants should be looked over closely every week, and the moment the least trace of the parasite is apparent such as are affected ought to be dusted with sulphur. The importance of prompt attention in this matter cannot be too much urged upon new hands in the cultivation of these and all other hard-wooded plants that are in any way subject to mildew, for it speedily destroys the vitality of the leaves so much as to cause them to fall off in a few weeks, leaving the shoots bare, unsightly, and impossible to reclothe with foliage. All the Heath family, but more particularly the hard-wooded kinds, are proverbially impatient of any extreme in moisture, either too much or too little. In winter it is necessary to keep the soil comparatively dry.

Epacrises.—The early flowering kinds should immediately they have done blooming be cut well back, reducing the last summer's growth to one-third its length. This is the more necessary with the erect-habited sorts, otherwise they get into such a weak, straggling condition as to occupy twice the room they should, and be equally objectionable in appearance. Although requiring to be treated similarly to Heaths in the matter of being drier at the roots now than in the growing season, they will bear keeping warmer in the winter; and if after the shoots have been cut in they are put for a few weeks in a night temperature of from 40° to 45° with plenty of light and some air when the weather is fit in the daytime, they will be benefited by it. Treated in this way, they will make growth earlier so as to admit of their being exposed to the open air sooner in the summer, with a disposition to bloom correspondingly earlier in the ensuing autumn. The bushy growing varieties, such as E. miniata, E Eclipse, and E grandiflora, are best adapted for late flowering; and where there is means for keeping them back by the use of a cool north house, a succession in flower may be kept up until midsummer. Their long sprays of bloom, which stand well in water, are most useful for cutting.

Azaleas and Camellias.—Where there is the convenience of a house with a northern aspect, so as to be little under the influence of the sun, it gives advantages in keeping up a display of flowers in conservatories and for other purposes late in the spring such as is not possible where all the stock has to be treated in houses that are exposed to the full force of the sun. The latter soon after this time begins to have power enough for some hours in the day to run up the temperature to an extent that moves the plants rapidly, even if all the air is given that they will bear; for it may not be out of place to note that even when there is no grown in motion, it is not well to subject plants to a full current of air through this and the next two months. If a selection of early and late blooming kinds of Camellias are grown, and they are treated in a manner to have their growth matured at different times, there is no difficulty in having them in flower from the beginning of September up to the end of May; but as a natural consequence flowers that come in as late as the latter time do not last near so long as those produced in the winter. There is little doubt that the growth and flowering of Camellias is less interfered with when the potting is done about the time the season's growth is completed and the bloom-buds just beginning to form, as when it is carried out then the unavoidable breakage of the roots, which are very brittle, has less adverse influence on them than at any other season. But where there are plants that have been kept so long in small pots that their strength is thereby interfered with, it may be advisable to pot them before the growth begins Where this is the case, the work should be done before the shoot-buds show signs of swelling, otherwise the season's growth is sure to be affected, even if no more disturbance of the roots takes place than is necessary to remove the drainage. On this account it will be advisable not to wait until the blooming is over, for the loss of a few flowers now will in most cases be a less evil than failure of the crop of blooms another season.

Cyclamens.—The flowers of these are well adapted for cutting, being both pretty and lasting well, but if too many are used in this way the plants suffer. If the flowers are severed from them in the usual manner by cuttings, the stumps of their succulent stalks remaining generally decay down to the base and rot the young blooms that are springing up later; consequently it is in some respects better in gathering the flowers to pull the stalks out entirely, but if this is carried too far, so as to remove nearly all the flowers as they arrive at maturity, it seriously injures the bulbs; therefore, where the intention is to keep the bulbs or, more correctly speaking, corms, there should only be a moderate quantity gathered. It is well to raise some from seed each year, as though not capable of producing so many blooms the first year as larger plants will, the first season of their flowering is often the most satisfactory. See that the young stock raised from seed last summer are well attended to. If they have been wintered in pans they should have been accommodated with a temperature of about 50° in the night, and stood close to the glass, or the leaves are apt to become drawn and weakly. If treated in the matter of warmth as ordinary greenhouse plants, they make little progress during the winter, and take two years to bring them up to a size that renders them of much use for blooming. The temperature of an intermediate house appears to suit them best until they have attained a strong flowering state. Keep a close look-out for aphides, which conceal themselves on the undersides of the leaves of these plants much more effectually than on most things.

Pelargoniums. — Any plants of the large flowering varieties that bloomed late, and were not cut down until after the usual time, and are not yet put into their blooming pots, should be moved into them at once. If at the same time the points of the shoots are pinched out the flowering will be thereby retarded, so that they will come in after the earliest are over, at which time they will be found useful. Examples of these and many other plants that are kept for late blooming soon acquire a habit of thus coming in late, consequent upon the treatment they receive, and may be had in after the bulk of the stock is over with little trouble in retarding.

ORCHIDS.

East India house.—Plants of C. gigas, placed in a cool-house to rest, should be moved into the cool end of this house, and placed near the glass as soon as they have started into growth. This fine Cattleya does not flower freely unless it has a good period of rest. Oncidium Lanceanum is a very beautiful species, and when its cultural requirements are understood, not difficult to manage. We grow it in a teak basket suspended near the roof in winter, but in summer the sunlight is too much for it in that position. It is now starting into growth, and must not suffer from lack of moisture. O. phymatochilum, a difficult species to flower, taken out of the pot, placed in a teak basket, and suspended near the roof, is now throwing up a spike with the young growth. The character of these two, as well as that of some other allied species, is to throw out a mass of young roots all at once, and if these get injured in any way, the health of the plant suffers permanently. The roots may get dried up by being exposed to an over-dry atmosphere and a high temperature, or they may also suffer from the potting material being packed too closely round them. We have not found woodlice to injure such roots, but a large slug will entirely destroy the produce of a pseudo-bulb in one night, and the plants must be carefully watched in case this should happen. Oncidium ampliatum has thrown up spikes a few inches in length, and these are specially attractive to slugs. We have to closely watch these spikes in their earliest stages at night, or we would never see the flowers of this species at all. Keep the night temperature about 65°, but it may fall a few degrees on cold nights.

Cattleya house.—The first blooms of Cœlogyne cristata are now opening, and also those on spikes of Odontoglossum pulchellum. These

two Orchids will continue to supply choice cut flowers for these next two months, or longer if there is a sufficient number of plants. The commonest form of C. cristata is perhaps the best, although the variety with a pale yellow or lemon blotch on the lip should be grown to prolong the bloom. There is also the pure white variety, likewise a very desirable form. These now require considerable supplies of water, otherwise the bulbs have a tendency to shrivel. One plant turned out the other day, and divided into three, is now flowering as freely, and looks as well as the others. We also potted C. barbata; this species requires considerable supplies of water, and not too much pot room. C. cristata would probably in some cases be improved if it received more water than it does during the growing season. The best bulbs we ever saw were produced in a Cattleya house temperature, and all through the growing season they were kept quite wet, the Sphagnum in which they were growing being beautifully green and growing up amongst the bulbs. Odontoglossum Phalænopsis is now making fine, strong growths, and flower-spikes are also showing themselves. Our whole stock of this species has been turned out of the pots; nearly the whole of the old potting material has been removed, and the plants repotted. O. vexillarium and O. Roezli have also been looked over; in some cases the plants have been repotted, but in others they have merely been surface-dressed. When a portion only of the plants are repotted, a label showing the date of potting should be attached to each, as a guide for future treatment. As all these Odontoglossums are so liable to the attacks of thrips, they should be dipped once in about every four weeks in a mixture of soft soapy water to which some tobacco water had been added. About an hour after dipping, the leaves should be rubbed over with a soft sponge dipped in clean water. Cymbidium eburneum, now so cheap that it should be in every collection, is showing well for flower. Our plan is to repot such plants of it as do not show at this season, as on examining the roots it will be found that they are just starting to grow. Use a compost consisting of about two-thirds good turfy loam to one of turfy peat. Plants showing for flower must have a good supply of water.

Cool houses.—If the repotting of all that require that attention has not been done, let no further delay occur in the matter. Many do not repot until later than this, but the roots of all those potted here during the last few weeks are starting into growth. We used to pot a large proportion of our Orchids in the summer months after the May and June exhibitions were over, but we believe it to be better to do so at this season. We have tried some plants of Masdevallia tovarensis in the Cattleya house and a portion in the cool house, and so far there does not seem to be any difference between them; but the temperature in the cool house is not allowed to fall so low as it has hitherto done. We have had it as low as 35° on several occasions, but when it can be kept at 45° or 50° without much extra trouble, it may be better to keep it, especially at this time of the year, up to the highest figure. Many species of Odontoglossum do not open kindly in the lower temperature, and owing to condensation of moisture on the flowers they are soon rendered unsightly. Amongst Masdevallias there are some that certainly succeed best during winter in an intermediate house, and of these M. Wagneriana is one. It makes a pretty little tuft, and should be grown in small pans suspended near the glass in a shady part of the house. The new, or at least rare, M. rosea is said to like the coolest part of the cool house, and as it is now probably in the hands of several cultivators, we may hope to see it in flower during the current season. The pretty, sweet-scented Oncidium cheirophorum, although it does well in the cool house for the greater part of the year, is now starting into growth, and should be repotted. We found on potting ours that the small fibrous roots were in very active growth. Epidendrum vitellinum and the majus variety were in the cool house until the middle of January; they were then taken out, and some of them were divided and repotted in much smaller pots, and placed in the intermediate house. If it is intended to exhibit the large flowering variety at the early summer shows, it will not be in flower unless it is placed in a much warmer house.

FLOWER GARDEN.

Summer bedding arrangements. — The plants necessary for this purpose may now be propagated. Happily, the increased and still growing interest now taken in hardy flowers does not render such matters so imperative as was the case a few years ago, simply because fewer tender plants are required, and these will gradually grow fewer still, as it is seen that equally pleasing, if less showy, arrangements can be made by means of hardy plants. We, however, by no means predict the entire abandonment of tender summer bedders, but only such a reduction in their numbers that space for wintering and spring propagation shall not interfere with other and more important duties. At this stage of the matter we have already, indeed, arrived, for in computing the numbers and kinds of plants needed, tender second-rate sorts are rejected whenever it is possible to do so without destroying the harmony of the general arrangement. Another way of reducing the number of tender plants is to plant them thinly in a given arrangement, and then clothe the ground beneath with a suitable hardy carpeting plant. One of the most admired beds here last season was one very thinly planted with variegated Pelargonium May Queen, the undergrowth being Herniaria glabra, bright green, which set off to the best advantage the white foliage and rosy pink blossoms of the Pelargonium—altogether an infinitely better arrangement than if there had been 200 Pelargoniums in a mass, instead of which there were not more than a score. We mention this arrangement as it shows what may be done in the direction of subduing the never-ending monotony of masses of colour so prevalent in some gardens. The sorts and numbers of plants required being decided, the next matter must be their

Propagation, and with the hardy section of dwarf carpeting plants that is a small matter, as they are all so readily increased by division, and only need dibbling in on any warm border, or, if the beds are now vacant, they may be at once planted in their allotted spaces, Antennarias, Cerastiums, Sedums, dwarf Veronicas, Ajugas, Herniarias, and all plants of the same thicket-like character of growth must be fresh planted every season, for if left a second year, their dense growth engenders mildew and decay, and the whole groundwork becomes patchy and sickly, faults which it retains throughout the season. The half-hardy and tender section of plants also used for groundwork may, with a moderate amount of warmth, be increased almost as expeditiously as the foregoing. Golden Feather Pyrethrum may be grown from seed sown in pans, and pricked off in cold frames as soon as the plants can be handled. Mesembryanthemum cordifolium variegatum may be increased in the same way, and also by cuttings, which strike freely in pans or boxes set on bricks over hot-water pipes, where a temperature of about 60° is maintained. Gnaphalium lanatum may be raised from cuttings struck in warmth and then transplanted into pots; Alternantheras by means of cuttings struck on hotbeds of leaves and litter, on which frames are placed containing about 4 inches of light soil (peat and loam) made firm. Cuttings inserted about 2 inches apart quickly root, and there they may remain till needed for planting in the beds, air of course being given to induce a sturdy growth whenever the weather admits of it. These plants are so rapidly increased, that it is not necessary to put in cuttings till March has become well advanced; but the stock plants should now be given abundant heat that cuttings may be forthcoming when wanted. Iresines and Coleus strike anywhere if afforded warmth; the only remark to make about them is that they should be used as sparingly as possible. Lobelias should be raised from cuttings only; seedlings are usually so disappointing, being both irregular in growth and weedy as to variety, that one wonders they are ever used at all. We strike them in a brisk heat, and transplant to frames as soon as they are well rooted; pots or boxes are never used. The herbaceous section of Lobelias are most satisfactory when increased by division, though they come fairly well from seed. Ageratums, Fuchsias, Gazanias, Lantanas, Kochia variegata, Petunias, and Verbenas quickly make root in a bottom heat of 70°, and will afterwards thrive vigorously in an intermediate temperature. They should all be allowed plenty of space; a well-developed bushy plant is equal to half-a-dozen lanky ones. Calceolarias in cold frames should be thinned out by transplanting them to other frames, or in the south of the kingdom they will now do at the foot of south walls if protected in frosty weather. Violas and Pansies should be treated similarly, or, if needs be, strong plants of these may now be planted permanently.

Lawns in spring.—These should all be put in order before the Grass begins to grow. Before February is gone or March far advanced every inch of Grass which is kept short and regularly mown throughout the summer should be thoroughly swept with a birch broom. All the little particles of soil thrown up by worms and any small stones or other refuse should be brushed off; then a heavy roller should be taken over the surface two or three times when the soil is damp and soft from recent rains. This is work we never fail to have done at this time, and it is a great advantage in many ways, as it makes the surface smooth and clean for the lawn mower, and it also makes the turf firmer for walking on and less liable to be marked and injured by so doing.

THE FRUIT GARDEN.

Strawberries in pots.—Until we have a change to brighter weather great patience must be practised in the management of plants now coming forward, otherwise the tedious labour of the past year will end in failure. If they occupy shelves near the glass keep the latter clean, and avoid overcrowding during their progress to the flowering stage. When in flower give more air, or remove them to a light, airy house where they can be regularly attended to with water and sufficient atmospheric moisture to prevent the blossoms from suffering under bright sunshine. Give gentle fire heat to admit of a free circulation of air by night and day, thin out weak flowers, and fertilise with a camel's-hair pencil when the pollen becomes light and plentiful. Strawberries under artificial treatment being so impatient of a high temperature until after the fruit is set, a minimum of 45°, with a rise of 10° by day, will be quite sufficient, but when fairly set and removed to a Pine stove to swell off, there will be little danger of overdoing them with heat, moisture, and stimulating food. They must not, however, be allowed to remain in this position if flavour is to be the test of skill in forcing. When fully swelled and partially coloured they should be removed to a warm, airy house, where exposure to light and the gradual withholding of water from the roots will greatly improve the quality of the fruit. As days increase in length and brightness, successional crops may be brought on faster by closing for a few hours, with sun heat, and moisture from the syringe, but air must be again admitted at night, when the temperature may range from 45° to 50° when external conditions are favourable. Where light, shallow pits are at command it is a good plan to use them as feeders to the forcing pit by placing 1 foot or 2 feet of fermenting leaves over the bottom and keeping them filled up with plants from the general stock. The leaves should be made very firm to preserve the warmth, and lightly covered with coal ashes to keep back worms and to raise the crowns to within a few inches of the glass.

Cucumbers.—It is difficult to conceive or wish for a finer winter for Cucumbers than this has

been, and if the rains would cease, and bright sunny days set in, good fruit through the latter part of February and March should be plentiful. Growers who work on for this time of scarcity, by maintaining low, steady heat consistent with safety, and crop lightly, will now have clean, healthy plants capable of giving an abundance of fine fruit, but unless they are to give way early in the spring to make room for Melons, overcropping must be avoided, as checks of all kinds, particularly from overloading, make many Cucumber houses barren at a time when good fruit is in daily demand. As the days increase in length a little more heat may be given them if it can be secured from solar influence, but no great change need be made through the night, as hard firing brings many ills. To avoid these, dry covering of some kind should be placed over the lights every night, and the bottom-heat from fermenting material should not be allowed to fall below 80° at the base of the pots. Another important operation is frequent dressing, to prevent the foliage and Vines from becoming bleached and drawn by crowding, and so leave them an easy prey to the first enemy, be it insect or mildew, which may attack them. Keep the evaporating pans now regularly filled with stimulating liquid, top-dress the roots with fresh compost, and bathe the foliage and stems with warm soft water whenever the house can be run up to 80° or more with sun heat. Young plants in small pots intended for training over a trellis in the Cucumber house may be shifted on from time to time if the bed is not ready, but one shift from the seed pot to the hill is always best, and it is better to throw plants away and fall back upon later sowings than to trust to them when they become potbound and often infested with spider before the points reach the trellis. When young plants intended for pits and frames have made two rough leaves, pinch out the points and keep them close to the glass until the hills are ready for them. If the manure has been well worked and placed in the pits, make it very firm and level on the surface; lay sods of turf, Grass side downwards, across the centre to prevent the roots from striking into the manure, and upon these form a long narrow ridge or small cones of light rich soil. Introduce a bottom-heat thermometer, and when a steady heat of 80° to 85° has been secured, cover the remainder of the bed with sods and plant out in the usual way.

Hardy fruit.—With the exception of a little rain, the weather has been all that could be desired for pulling up arrears of planting or similar work. The same favourable conditions having also helped forward pruning, training, and winter-dressing, attention should now be turned to the preparation of protecting materials of some kind, as we can hardly expect a mild winter like the past to pass away without a few sharp spring frosts. So much having been written upon protection, it may be well to guard beginners against the abuse of materials placed within their reach, as excessive covering very often induces a weak, premature growth which is killed, whilst its judicious application retards, exposes, and protects in time of need. For walls the first requirement is a broad coping of glass, if possible 2 feet wide and portable, as everything should be cleared away when danger of spring frosts is over. In front of the trees several thicknesses of fishing-net may be suspended permanently. Canvas, frigi-domo, or an excellent and less expensive material called grey baize, sent out by Messrs. Veitch, of Chelsea, may be used as curtains or blinds, but they must be drawn up or aside every day, otherwise the danger to which we have alluded will soon be present in the form of weak, blanched flowers, which cannot be expected to set and swell into luscious fruit. Apricots this year well furnished with flower-buds will be the first to require attention. These may be coped and poled, but the nets must not be suspended until the blossoms begin to open. Next will come the early Peaches; but as these are still drawn away from the walls, and nailing in will be deferred until a late period, arrangements must be made for rapid dispatch when the proper time does arrive. Work in orchards referred to lately in The Garden may be carried on as opportunity serves, and stocks may be partially cut back, preliminary to grafting in the spring. A mild season being favourable to early enlargement of fruit buds, small birds are generally troublesome; hence the importance of dusting with soot and lime when wet or syringing with the same in solution after the trees are pruned. As many kinds of Strawberry are already throwing up their crowns, any deferred cleaning and top-dressing must be proportionately early, otherwise the flowers will suffer. Many people have an idea that spit manure is the best top-dressing for Strawberries, but in old gardens, already too full of animal and vegetable matter, a good dressing of soot, followed by 2 inches of fresh loam, will produce better crops of finer flavoured fruit. If not already done, autumn-bearing Raspberries must now be cut over quite close to the ground. Belle de Fontenay is a fine, large-fruited kind and well worthy of general cultivation.

MARKET FRUIT GARDENS.

The season being favourable, the pruning of bush fruits is well advanced; as a rule such fruits as Gooseberries and Currants (Red and Black) are cut in severely, even more so than in private gardens, for in the case of Gooseberries, except when the fruit is gathered green, it pays better to have a fair crop of large fruit than a heavier crop of small, under-sized berries, and in order to have size, only the strongest young wood is left. Red Currants, too, are spurred in very closely; after pruning the cuttings are all raked up to the end of the rows and thrown into heaps to be burned. A good coating of manure is then forked in lightly round the roots, and the soil between the rows is dug up as roughly as possible. As it gets trodden down hard during the gathering season, it is much benefited by exposure, and when forked or pronghoed down in spring to get out coarse-rooted weeds, such as Docks, Dandelions, Couch Grass, or Bindweed, a fine crumbling surface is the result. Cultivating ground in this condition is not only more cheaply performed, but a good layer of finely powdered soil is looked upon as the best antidote against drought, and if the drying winds of spring penetrate to the surface roots, the crop is proportionally reduced in size.

Raspberries are being extensively planted, in some cases as intermediate crops between dwarf Apple or Plum trees, but more generally by themselves. They are planted in rows about 4 feet apart, and in patches of three or four young canes, 2 feet asunder in the row. Small canes with good roots are preferred to even good canes with few roots, as the first year's crop is of little value. After planting the canes are cut down about half their length, and the first and second year an intermediate crop is planted between the rows. They are never staked or supported in any way, but the canes are cut down to between 2 feet and 3 feet from the ground. They are, therefore, stiff enough to stand alone. Some sorts make stronger canes than others, notably Prince of Wales, a very fine Raspberry, but some others, such as Fastolf and Carter's Prolific, are largely grown for market. After the second year's growth they are at their best, and with rich dressings of manure, so as to get large fruits, constitute one of the most profitable crops grown. When gathered they are put into tubs and consigned at once to the jam manufactories, as being very perishable they quickly deteriorate if left on hand any length of time. At present, however, the supply is not equal to the demand. Although the Raspberry delights in a rich, rather moist soil, it is grown to great perfection in soils by no means naturally rich.

Fruit trees intended for grafting should now be beheaded just above where it is intended to re-graft. If left until late in the season a good deal of the strength of the tree is wasted. Shoots about the size of a man's wrist are the best for grafting on. All those done last season should now have their stems cleared of lateral spray left on at the time for promoting root action, and the leading shoots from the graft should be topped about one-third of their length and otherwise treated as young trees forming a head. A supply of grafts should be at once secured and laid in by the heels in trenches in a cool, shady position; do not tie them in bundles, as the centre ones are liable to get dry and shrivelled, but lay in each variety separately with its name or number at the end of the row. The best shoots for grafts are those of medium strength; they are generally better ripened than the largest ones, and weakly shoots have not stamina enough to form a healthy growth. Old-established trees where Moss grown should now be dusted with freshly slaked lime worked well in among the twigs, as, in addition to its beneficial effect in cleaning the wood, it forms a valuable manure when washed off into the soil. See that all freshly planted trees are securely staked and the stems protected from chafing or being barked by sheep or game. A coating of Birch or a surrounding of rabbit-proof netting makes a good protection, and some case the stems in rags or sacking, and smear them with tar or other noxious compounds.

Apples of home growth are now realising fair prices; good dessert kinds, such as Cockle Pippins, Reinettes, and Golden Pippins, are worth from 5s. to 7s. 6d. per sieve; kitchen kinds fetch from 4s. to 6s., and with such a crop as that of last year home growers can successfully cope with foreign competition, at least in the way of Apples, for some time to come.

KITCHEN GARDEN.

Just now is a good time to plant Shallots, than which few crops pay better or command a readier sale. The land which we use for this crop is not rich, but should be well worked and made as fine as a heap of sifted ashes. We draw the drills for them about 1½ inches deep, fill them up to the level of the ground with burnt refuse, and in this we plant the bulbs 1 foot apart. Shallots often become mildewed, occasioned by being too deeply embedded in the soil; hence the reason of planting so shallow, that all the bulbs may be above the soil when matured. A most useful spring crop may be had by planting small Onions just now, to pull and use in a green state. These Onions planted on the edges of borders look trim and smart. Small sowings of Celery may now be made in boxes for very early use, but the main crop we never sow until the second week in March. Of early Cauliflower a boxful should now or soon be sown. The same may be said of Lettuces of the true Cos variety, which stands at the head of its class. We are busy planting Potatoes in frames, sowing Radishes, early Carrots; and here we must remark if clean-grown Carrots are wished for, mix plenty of sand in the compost in which they are grown. Cover up more Seakale and Rhubarb, and keep up a good supply of Asparagus and French Beans. Our young plants of Tomatoes are now in single pots (3-inch ones). We intend planting a house with them next week. The winter plants are now done; therefore directly we can get the house thoroughly cleaned we shall replant. Our winter Cucumbers are still bearing; young plants for pits are now potted, and will be ready quite as soon as they are wanted. As to salads, the large variety of Chicory called Witloof is just now most useful. We place a dozen roots in a large flower-pot, and blanch them in the Mushroom house. Keep up successional sowings of Mustard and Cress, and when well up remove them into cool houses.

Propagating Bulrushes.—How can I best propagate these? Can it be done from seed?—A. D.

*** The best way is to take up the roots and divide them. If it is desired to establish them in some shallow pond or similar place, all that need be done is to obtain a few roots and secure each to a stone or brick, in order to sink them; then drop them into the water where they are to grow. Thus treated, they will quickly establish themselves, often to such an ex-

tent as to take entire possession of the pond in which they are planted. Roots being readily obtainable, seeds need not be used. If employed sow them in a pan, set at least half its depth in water, and afterwards plant out where the plants are intended to grow.—T.

KITCHEN GARDEN.

MUSHROOM BEDS.

"THERE is nothing so convincing as success." Some years ago I built a Mushroom house at the back of a vinery. It is 13 feet by 11 feet and 11 feet high; it contains four beds, each bed 16 ft. by 4 ft. We duly attended to the directions given from time to time in THE GARDEN and in other publications of a similar character. My success, however, was but partial; sometimes my gardener brought in a dish of Mushrooms, but more often the beds turned out badly. There would be an appearance of Mushrooms coming up all over, but they would wither before being half grown, perhaps only half-a-dozen reaching maturity. Before dying off they commonly assumed a brown, unhealthy look. I was at times so disgusted that I thought of abandoning the cultivation of these esculents altogether and turning the house to other uses. But, happening to pass through Covent Garden one day in the January of last year, I met with some fresh spawn, and determined to try again. New beds were immediately made, the spawn very carefully broken up and inserted about 2 inches deep. The watering, to which I shall allude later on, was carefully managed, and in five or six weeks we had a fine crop of Mushrooms, and the beds have gone on at intervals bearing well since that time. In the middle of summer, when the garden is full of green produce, we care less for them. I do not, therefore, keep up having the beds so regularly spawned; but now, when we are reduced to Brussels Sprouts, Celery, and winter salads, we thankfully welcome any addition to the vegetable cuisine. We are now enjoying excellent Mushrooms; they form acceptable dishes at breakfast at this time of the year.

I will briefly describe the method of culture which we have found most successful, hoping that some of your readers may give me a hint towards improving our plan. In forming a bed, we take six parts of horse manure, which has been deposited under a shed and frequently turned. We mix this with one part of soil, rough loam, or chopped sods from a good pasture. This mixture is placed in the partition reserved for it in the house; it is about 1 foot or 1½ feet thick. We then press it down as firmly as possible. We spawn it when at from 85° to 90°. This will be the temperature of the manure in four days' time. We break the spawn into pieces about the size of a walnut, and plant it 2 inches deep and 3 inches apart. We also break up some spawn and strew it over the bed, sprinkling fine soil over it. I am not sure whether it would not be better to treat all the spawn in this way instead of planting the larger pieces.

Each bed requires two bricks of spawn. From five to six weeks (as I said above) is the usual period which elapses before the Mushrooms make their appearance. We syringe twice or three times a day, and keep the evaporating pan full. In the summer more water is necessarily required. The temperature of the house is from 55° to 60°. We used to water the beds, but this invariably turned the Mushrooms brown, and seemed fatally to check their growth. We find syringing and watering the floor sufficient. I forgot to mention that the house is on the north side of a vinery, which is heated by one flow and two returns. We are just beginning to heat the vinery, so that we may rely on having good crops from our Mushroom beds all through the spring. It would perhaps be invidious to mention the name of the firm from which we obtain the spawn when there are so many who supply it in perfection. I am, however, perfectly satisfied with that sent to me by our seedsman, a well-known dealer in spawn. W. N.

5142.—**Mushrooms.**—"B. J." asks if there is any way of growing Mushrooms outdoors by spawn or other artificial means. If he has or can get stable manure, and will go to the trouble of making up beds after the manner of those formed by growers for market, he will be able to grow Mushrooms out-of-doors. Growers for market get their manure, as a rule, from London; they shake out some of the straw and put it in heaps to ferment. This it soon does, when it should be turned to let out the fiery gases and moderate the heat, when it is ready for putting together. The way to make the beds is to place the manure ridge fashion, say 3 feet or 4 feet through at the bottom and about the same in height, making it narrow at the ridge and treading it down quite firm as the work proceeds. When thus made up and the heat has subsided to 75° or 80°, it is ready for spawning. This should be done by making holes in the sides of the bed a foot or so apart. In these put pieces of spawn about the size of small Apples, and cover the bed thickly with long straw to ward off wet and maintain an equable temperature. In a couple of weeks or so the spawn will have run sufficiently for the bed to be earthed up, which should be done by placing an inch thick of soil all over it and patting it down firm and smooth. Then replace the straw as a protection to the Mushrooms, which will make their appearance in eight or ten weeks. To be successful, the site for the bed must be a high and dry one, for if low and water lies or soaks into the manure, it will drown and perish the spawn, and failure will be the result. If the object is to have Mushrooms during summer, the position chosen for the beds should be a cool, shaded one, a good place being in an orchard under trees, or at the back of a north wall or building where the sun does not shine, as Mushrooms cannot endure hot air and must have plenty of atmospheric moisture, in imitation of what they get naturally when they come up in pastures and other places during the autumn. The thick covering helps to give them this, as it arrests evaporation, and the vapour escaping from the soil is held in suspension under the straw. Even in some Mushroom houses it is necessary to cover the beds, as when the houses are lofty or not closely ceiled, the atmosphere becomes arid, and the Mushrooms die off as soon as they show themselves through the bed.—S. D.

TREES AND SHRUBS.

SIMPLE METHOD OF TRANSPLANTING LARGE TREES.

THE transplanting of large trees is always attended with more or less difficulty; therefore too many methods for the purpose cannot well be made known. The more simple and inexpensive a method is, the greater are its claims to be generally adopted. A transplanting machine of the most approved type is not always at hand; nor do I consider, if such were the case, that the expense or success of the operation would be much in favour of the machine as opposed to the system I propose to describe, and which has been successfully adopted in transplanting trees 15 feet high, with a spread of branches of 25 feet, and a stem diameter at 4 feet from the ground of 15 inches. The amount of earth attached to the roots was about 3 tons, which, with the tree, would make a total weight of about 5 tons. With powerful appliances very much greater weights than these, however, could be moved with facility.

THE EXCAVATION is commenced at about 6 feet from the trunk of the tree, according to its size, a trench being opened round the tree of sufficient width to allow of the work being carried on with ease; the depth should be about 4 feet, all the large roots coming within the trench being carefully cut. The earth is then opened out in front and behind of sufficient width to allow a strong timber carriage to pass when the tree is ready for loading. This is called the road, and the depth and length of this cutting, as also its levels, will depend upon the shape of the ground. The earth is then excavated from underneath the tree, in order to let it fall on its side, ropes having previously been made fast for the purpose of pulling it over in the desired direction, and others acting as guys, to prevent its swaying to the right or left. Before letting the tree fall, a pair of cross or shear legs, made of two strong scaffold poles lashed together at about 3 feet from their tops, should be placed in such a position as to catch the stem at about two-thirds of its height, for the purpose of holding up the head about 8 feet from the ground. When the tree is firmly settled on the cross-legs, the next thing to do is to make a strong support for the butt, which is managed in the following manner: Strong planks or other pieces of timber are passed under the stem, as close to the roots as possible, the ends resting on packings placed perpectly level, and sufficiently wide apart to allow room for the carriage to pass between them. Pressure is then applied to the ends of the longitudes with screw jacks, thus making them tightly packed up, so that the butt of the tree may rest firmly on them. The excavation may now be proceeded with under the ball, until it is perfectly free from the ground. Pressure is again applied with the jacks, and the ball raised, packing up as the work proceeds, until it is about 2 feet from the ground. The ball may then be reduced with an ordinary garden fork to any desired size, by removing any loose or unnecessary soil. The ball should then be thoroughly covered with mats tightly laced together, having first pruned the roots. This is done in order to protect the roots and prevent the ball from failing to pieces, a necessary precaution in all cases. It is then raised by aid of the jacks until it is about 5 feet from the ground, according to the height of the back pillar of the carriage which is intended to be used for the removal of the tree. The tree will then be in a horizontal position, or nearly so. The carriage is then run back, so as to allow the ball when lowered to rest directly over the front pillar between the iron pins, strong planks having previously been placed on the carriage to make a platform. The ball is then lowered on to the planks; short pieces of plank are laid across the back part of the carriage close to the pillar, and the head of the tree is lowered on to them; these should be of sufficient height to prevent the branches dragging on the ground. The tree to be properly loaded should be exactly along the centre of the carriage, and, having taken its bearing, must be firmly secured by lashing with ropes to prevent its rolling or slipping forward. This should be very carefully done, as, in passing over rough or soft ground, the load might possibly shift to an inconvenient degree. The branches should also be tied in to the main stem as closely as possible, in order to prevent any liability to damage when passing through gateways, narrow roads, or under overhanging trees.

THE SITE for the tree having been selected, it is drawn as near as may be necessary, so that when it is raised it may be in its right position. The unloading is performed in the same manner as described above for loading; that is, the head is propped up by the shear legs; having been raised by the aid of a screw jack sufficiently high to allow of the removal of the packings, the butt is lifted, and the carriage taken away. Assisted by the jacks, the butt is lowered by taking the packings out one by one until it is firmly settled on the ground. Nothing now remains to be done except to rear the tree into an upright position, which is performed as follows: An ordinary timber jack, with a clawed foot, is placed on a packing for a foundation under the tree; at about half its height, a plank of convenient length is then placed, so as to rest one end on the claw of the jack, the other butted up to a suitable place on the under side of the trunk. Force is then applied to the jack, which will lift the plank and carry the tree with it to a height corresponding with the lift of the jack. Shear legs are then pressed tightly up against the trunk, in order to retain it at its height. The jack is let down, and the operation repeated by using planks of various lengths, or packing up under the jack, as may be most

convenient. When the tree has been lifted by these means to an angle of from 65° to 70° it may in all probability be reared into an upright position by the aid of ropes previously made fast in the head of the tree. During the operation of lifting, guys should be used to prevent the tree swaying either to the right or to the left, in order that the jack may perform its work in a position perfectly vertical to the trunk. In the whole work connected with the transplanting, particular care should be taken that in every case where pressure is applied, or where ropes are made fast, a quantity of sacking or other similar material be wrapped round the tree, and tied, in order that no injury may arise.

Materials necessary for the work are a strong timber carriage, a quantity of planks and packings, two screw jacks, one timber jack with clawed foot, a few strong scaffold poles, some old sacking, and some ropes. Care should be taken in loading that the best side, if any, should be placed uppermost, and that the carriage is drawn to the side in such a position that that side is in the desired direction when the tree is in an upright position. The advantages claimed for this system are, that it is simple, inexpensive, and effectual, two labourers being able to do the whole of the work, with the exception of rearing the tree into an upright position, when it may be necessary to employ eight men for a few hours to attend to the jack, the shear legs, and guys; that the tree, being loaded nearly horizontally, is capable of passing in the least possible space with a minimum liability as to injury; that a large ball of earth may be removed unbroken with the roots, thus ensuring maximum of success; that the whole of the materials necessary for carrying out the work may generally be found in most country villages; and that skilled labour is not a necessity. C. D.

A Group of Exotic Ferns.

Aucuba japonica.—The regularity with which this Aucuba fruits every year is somewhat remarkable; it is even more regular in bearing a crop of berries than the Pyracantha, and that is saying a good deal. Not the least interesting matter pertaining to the Aucuba, too, is the fact that it fruits even if the male and female plants are a hundred yards or more apart. I have also observed that since our plants have borne heavy crops of berries they have not grown nearly so fast as they did before doing so—a circumstance which clearly shows that the production of fruit in the case of this plant has its drawbacks, although the fruit is so attractive when ripe.—J. C. C.

Pieris japonica.—This shrub seems to be better fitted for greenhouse or conservatory decoration than for the open ground unless in sheltered spots; the flower buds are so far advanced before winter sets in, that they generally get so much injured by frost that they fail to properly expand. The plant itself is perfectly hardy; at least it has been in no way injured during these last four winters. Where protected a little it is a beautiful object, and when better known will no doubt become popular for greenhouse decoration in early spring, the blossoms being produced very freely even on small plants. I have found cuttings of it to strike root much easier than those of most others of its class. They should be taken during the summer just as the plant has made its growth, and inserted in sandy peat in well-drained pots. After making the soil firm about the cuttings, they should receive a good watering and then be placed in a close frame in the propagating house. This structure is kept at about an intermediate temperature in which the cuttings root in about six weeks. They should then be potted off; the shoots selected for cuttings should not be too succulent, or they will damp off, while, on the other hand, if too woody, they take months to strike, and then many will fail to do so satisfactorily.—T.

5154.—**Beech trees.**—"G. F." (p. 114) "has a row of fairly large Beech trees, standing at 8 yards or 10 yards apart, and is thinking of cutting out every other one, in the hope that those left may grow into really good specimens. He has, however, been advised not to do so, as the lower boughs are to some extent crippled by their proximity to their neighbours, and will never grow so as to make graceful trees." To this I may say that much will depend upon the age and health of the trees in question, as well as the position which they occupy. If they have not attained maturity, and are still in a growing state, free of disease and in good soil, I see no reasonable objection to cutting out every other tree, as Beech likes plenty of room for development, and where thinning has been attended to it makes a noble specimen tree for a lawn. On the other hand, should the trees have arrived at maturity, and making little or no progress in growth, and especially if beginning to show any marks of decay, I think it unlikely that they will ever produce sufficient side branches to make really fine trees. They had therefore better be left as they are.—J. B. Webster.

—— If the Beeches in question are not materially injured, the best way would be to thin out every alternate tree. It may also be desirable to cut back some of the outer branches to make the trees more symmetrical. When a tree has been injured by another growing near it, it takes many years to get uniform all round in shape, but cutting back the more perfect side gives the damaged portion a better chance to get right than it otherwise would have.—J. D. E.

Ferns.

Ferneries and their Arrangement.

Next to good cultivation comes tasteful arrangement, especially as regards Ferns, which, owing to the variety that exists amongst them, afford a vast field for the exercise of ingenuity in the way of effective grouping. Although most Ferns are individually graceful in habit, yet the appearance of a fernery is greatly enhanced by skilful arrangement. Amongst the many different ways of arranging Ferns so as to produce a satisfactory result, and at the same time show each plant off to the best advantage, there are two which may fairly claim superiority over all others. The first relates to ferneries in which all specimens, large and small, are planted out without reference to regularity or symmetry—allowing them, in fact, to grow comparatively wild, so as to imitate as much as possible natural growth. Under such conditions, plants with broad and bold foliage, intermix with others of a different character, and form masses of vegetation remarkable for picturesque beauty. A fernery of this kind is not, however, within the reach of everyone; many cannot afford space for grouping of this kind; on the contrary, they have to content themselves with a few specimens in pots and with arranging them at intervals so as to form various combinations. In all arrangements of this kind striking contrasts should be always kept in view, and which can be easily effected by selecting species of totally different habits, and grouping them, not only according to size and form, but also colour. Even a few plants judiciously put together, as shown in the annexed illustration, in a comparatively small space may be made to look well, provided the best mode of grouping is adopted, spreading species being so disposed as not to interfere with the growth of such as are more upright. For example, broad-foliaged sorts, such as Balantium Culcita, most of the Polypods, Marattias, the bold-looking Davallias, &c., should not be brought into too close contact with kinds having more finely divided fronds, such as Lastreas, Pteris, or Davallias of the finely cut section, nor with plants of upright growth, such as Blechnums, Lomarias, &c, but all should be so arranged as to make a pleasing group. It may be also stated in favour of this last mode of growing Ferns that it is the most useful, as it allows the same plants to be used in different ways for decoration in rooms, and for mixing with flowering plants in the conservatory, &c. In all cases avoid symmetry in grouping Ferns; they certainly do not gain anything by being set in a formal manner, and overcrowding is also another evil. If placed thickly together individuality is lost, and wherever there is convenience they should stand on either a solid bed of earth or on a layer of ashes kept constantly moist. Thus circumstanced, very few insects will make their appearance, and where practicable, this way of placing them will be found much superior to that of setting them on wooden stages where the air between the plants is constantly in motion, and cannot get sufficiently saturated with moisture to be beneficial to them. S.

5139.—**Filmy Ferns.**—Although it is immaterial at which time of the year Todeas and other Filmy Ferns are repotted, that operation is

generally attended with best results when performed in February or March. The soil most suitable for them is good fibrous peat broken fine, to which may be added a dash of silver sand. In potting Todeas care must be taken that the crowns are kept well above the soil, which must not be pressed too hard, and great attention must be paid also to the size of the pots, as overpotting is very injurious to them. Perhaps the most important point in the operation is the drainage of the pots, which must be carefully done, for although Filmy Ferns are fond of natural and especially condensed moisture, stagnant water at the roots is very injurious to them.—S.

Indoor Garden.

NEWLY-IMPORTED LILIUM AURATUM.

I believe it is pretty well understood by those who have had any lengthy experience of this Lily that it is rather a precarious subject to deal with, and that, to secure a constant supply of its lovely flowers, it is necessary to secure fresh imported bulbs every year. Such, unfortunately, is my experience. A certain number of bulbs may, perhaps, retain their vigour the second year and flower fairly well, but this is the exception rather than the rule when cultivated in pots. Acting on the experience of past years, I have secured the usual annual supply. I like to do so early in the new year, because I find that the sooner they are taken in hand after they have arrived in this country, the stronger they grow and flower; besides this, there is not a doubt that early orders get the first pick of the bulbs, and in a general way the larger the latter the more numerous the flowers. The way in which we treat our newly-imported bulbs may be described in a few words. As soon as they come to hand, we prepare some pans or boxes by filling them half full with Cocoa-nut fibre refuse. On this we place the bulbs in such a way that they do not touch each other: between them we sprinkle some more fibre, so as to cover the base of the bulbs about half an inch. The pans are then covered with slates to keep them in darkness; they are then taken to a cool greenhouse. After they have been in this position about a fortnight, an examination will show that the bulbs have plumped up greatly. It appears that, under this treatment, they can extract sufficient moisture from the fibre to excite activity towards growth. If we find that the fibre has got rather dry, the slates are removed, and a nice sprinkle of water is given to moisten both that and the bulbs. The slates are, however, not put on until next day, because it is better for the bulbs that they should not be shut up in a confined, damp air. Our bulbs probably remain in this position six weeks, and some of them more. At the end of a month they are carefully examined every week, and such as are showing new roots are taken out and potted. This may seem troublesome, but long experience in the treatment of freshly imported bulbs of this Lily has shown me that it is the only satisfactory way of dealing with it. I used to pot the bulbs as they came to hand, and entrusted them to the care of an assistant; but I soon found that such a practice did not pay. To confine newly imported bulbs of this Lily to a cold damp soil in the early months of the new year will certainly weaken them considerably. Potting the bulbs after their probation on the Cocoa-nut fibre is a simple matter. We prefer to grow them singly in 6-inch pots, using a compost consisting of half loam and half leaf soil. As soon as potted they are taken to a cool Peach house, and placed on the floor for the first few weeks; after that the soil must not be kept wet; sufficient water to keep it moist is all that must be given. As soon as the stem is a few inches above the soil, we may be sure the roots are in an active state, and then water may be given more liberally. We do not change the position of our plants from this house, but let them flower at their own time. We generally secure bulbs about 7 inches in circumference, and from these we get from four to six flowers on each stem. They flower from the middle of June to the middle of September. Some of the bulbs may flower the next year, but they are very uncertain.

J. C. C.

DOUBLE WHITE CHINESE PRIMULAS.

Horticultural writers frequently regret that certain plants are not more generally known and cultivated than they are. In offering a few hints on double Primulas, more especially the old double white, I cannot consistently make use of this phrase, simply because every cultivator with any pretension to experience is well acquainted with this Primula. This being the case, it is really surprising how few there are who fully appreciate its value. Growers for market, however, make no mistake in the matter; and if the truth could be arrived at, those who grow the old double white extensively find it to be quite as remunerative, if not more so, than any other plant grown. In our case, for fully six months in the year, we are almost daily cutting quantities of trusses or whorls of bloom, and find them most serviceable for any purpose for which white flowers are in request The more we cut, the more bloom is produced, the plants rapidly increasing in size all the time. Single crowns in June are by the following June of a size to admit of being divided into twenty crowns, and sometimes even then blooming abundantly.

When we first commenced with our present stock of plants, they were standing in a cold frame, and in a wretched over-potted sour condition. My first proceeding was to have them shaken clear of the sour soil and repotted into 3-inch pots, and in a compost consisting of two parts fibrous loam, one part each of peat and leaf soil, with a liberal addition of sand and charcoal. Any that could be were divided, and all were cleared of the lower leaves and potted deeply; that is to say, the whole of the stems were buried, only the hearts being clear of the soil. This deep potting—not only with double Primulas, but also with the single varieties—is an important detail, for the reason that, if exposed, they are almost certain to canker, this resulting in the loss of the plant; whereas, if properly buried, the stems freely emit roots into the soil, and, instead of being a source of danger, become a source of strength. A well-grown Primula ought not to require supporting with stakes. Our repotted old plants were placed on a shelf in a moderately warm house, were shaded from bright sunshine, and carefully watered, saturation being particularly guarded against. In about a fortnight they were rooting freely, and were then shaded from very bright sunshine only. Before becoming root-bound they were shifted into 4-inch and 5-inch pots, according to their strength, the compost employed being similar to that given above, only broken up more roughly. They were returned into the heat and treated as before. Directly they were found well established in their fresh quarters, they were transferred to a sunny pit and stood on a bed of ashes. Here they received abundance of air, being shaded from bright sunshine, watered as required, and all bloom pinched out as it formed. A few of the very strongest were shifted into 7-inch pots. No attempt is ever made to secure strong sappy growth, as we find that those with sturdy growth and yellowish green foliage, provided they are well established, bloom the most freely, and are less liable to damp off during the dull winter months.

During winter, say from October onwards, we do not repeat the mistake perpetrated by so many cultivators, of endeavouring to flower our stock in a cool greenhouse, or under the same conditions as suit some of the larger double and semi-double and single-flowering Chinese Primulas. The whole of our batch are placed on airy shelves originally put up for Strawberries, and which are disposed not far from the hot-water pipes and near to the glass, at the back of a half-span range of forcing houses. Here the night temperature during the late autumn and winter months ranges from 45° to 50°, the day temperature being about 10° higher, according to the external conditions. In such a position well-established plants do not form strong growth, but, with the aid of liquid manure about twice a week, they bloom continuously. I have tried them on a moist bottom and farther from the glass in the same houses, with the result of the plants producing stronger and greener foliage, but much less bloom. Those plants required for decorative purposes are not much cut from, and when the blooms are well above the foliage they prove very effective and very serviceable. At the end of March the stock is transferred to a swing shelf in a greenhouse, and here they continue to flower till the end of May, at which time they are again taken in hand. Having abundance of large spreading plants, we merely pull them to pieces, and pot all that have plenty of roots and a good-sized ball of soil attached. These are repotted into 4-inch, 5-inch, and 6-inch pots, according to their sizes, are placed in a pit which is kept rather close, and shaded during bright weather. In this manner we soon have them rooted and getting strong for the winter, those in small pots only being shifted into larger ones. For Primulas the pots should be clean and well drained, and large shifts ought never to be given.

When I find it necessary to largely increase the stock, as the old plants are being divided any pieces that have few or no roots attached were placed in the centres of 2-inch pots filled with sandy peaty soil: and, to steady them till such time as they are rooted, three small stakes are pressed in closely to their hearts, and a piece of raffia is wound round them. Such divisions have to be placed in a good heat, and shaded till rooted. A quicker and more certain plan is to add a rim of potsherds to the pots containing large plants, and then to surround the stems to a good depth with fine sandy soil; or Moss may be substituted for the soil and extra rim. In either case, to encourage quick rooting, the plants require to be stood in a warm, lightly shaded house or pit, where a rather moist atmosphere is maintained, and the soil or Moss also kept uniformly moist. When the stems have emitted roots into the top-dressing, the plants can be pulled to pieces, and each rooted division be potted off singly into small pots, returned to heat, and grown on as above advised. None of the newer double Primulas I have tried, nor the seedling semi-doubles, will thrive or bloom satisfactorily in the same heat we give the old double white, nor are they half so serviceable. We find the latter travels well and lasts well when cut. Vases filled entirely with its expanded blooms and Maiden-hair Fern fronds are very charming for the dinner table, and the blooms are not to be despised for bouquet work. W. I. M.

CHOROZEMA CORDATUM SPLENDENS.

This Chorozema blooms almost continuously throughout the winter, and that, too, in an ordinary greenhouse temperature. A few small bushes so situated have been in flower for months, and there are still a number of unexpanded blossoms that will keep up a certain amount of gaiety for some time to come. It is one of the most vigorous growing of Chorozemas; so much so, indeed, as to be a good rafter plant, or, better still, useful for spreading out to cover the end of a greenhouse or to form a screen therein. By stopping the plants freely when small, bushy little specimens are quickly obtained, but as they increase in size the support of a few sticks will be necessary, otherwise the long flexible shoots are liable to be broken off at the base. The plant is, however most attractive when training is as much as possible dispensed with.

This Chorozema may be readily propagated either by seeds or cuttings, but the latter is the method generally employed, as seedlings are often very variable both in leafage, habit, and in the colour of the flower. The best time to strike Chorozemas is in summer, just as the young shoots commence to become woody, but before they get hard. The pots for the reception of the cuttings should be filled to within 2 inches of their rims with broken crocks, on which the soil must be

placed and pressed down very firmly. Equal parts of peat and silver sand form a good compost, to which should be added a slight layer of sand on the top. When a few pots have been thus prepared and a slight watering given, they will be ready for the cuttings. As they do better under a bell-glass than exposed, the first thing is to put the glass in its place, so that its mark on the sand may be a guide for the insertion of the cuttings. For these from 2 inches to 3 inches will be a suitable length, leaving a joint at the base, and removing no more leaves than is absolutely necessary in order to allow the bottom part to be buried about an inch in the soil. When the pot is filled, without undue overcrowding, a good watering should be given, and after a little of the superabundant moisture has dried up, the glass should be put on and kept close. A shady frame is a suitable spot in which to place the cuttings till they have formed a callus, when the pots may be removed into gentle heat. After that rooting will soon take place. When struck, air should be given by degrees and the young plants should be potted off as soon as possible, using for that purpose well drained pots and a soil consisting of sandy peat. In raising seedlings all that is necessary is to clear the seeds from the pods and sow them in the same kind of soil as that in which the young plants are potted.

The principal insect pests that trouble Chorozemas are red spider, to the attacks of which the cuttings are liable if kept close a little too long, or if in a hot and dry atmosphere. In the case of small plants they may be removed by sponging, and larger ones may be cleaned by a liberal use of the syringe. H. P.

Glazed flower-pots.—That these are in every way suited for all kinds of plants I have no doubt. At Drumlanrig Mr. Thomson grows the majority of his stove plants and many others in glazed pots, and amongst all the gardens which I have seen I cannot name one in which plants are cultivated to a higher state of perfection than in the glazed pots at Drumlanrig. These glazed pots, too, always looked so clean and proved so durable, that I am not surprised Mr. Thomson should advocate their use.—Cambrian.

5151.—**Aspect of span-roofed houses.**—There is no good reason why houses of this kind should not run east and west as well as north and south. I have seen span-roofed houses built to run both ways, and the plants do quite as well in the one as in the other. Plants also succeed well in houses that run south-east and south-west. The houses running east and west are well adapted for having Ferns and Lycopods on the north side. It is also the best position for Moth Orchids, Lady's Slippers, &c.—J. D. E.

Iris reticulata Krelagei.—I need hardly say that I appreciate your praise of I. reticulata Krelagei. I may add that this kind varies very much both in colour and size. I have some blooms out now which are almost as large as those of the Spanish Iris, and to those of your readers who care for this early Iris I would give two hints: 1. Do not be always moving the bulbs, but if they are doing well, let them remain untouched year after year. 2. Secure for next year some of the bright blue variety which Haage and Schmidt have been sending out during the last two years.—M. F.

Grafting Cytisus filipes.—This elegant winter-flowering Cytisus does well grafted on the common Broom or the Laburnum, its growth then being more vigorous than on its own roots; besides, if grafted, say, at the height of a couple of feet from the pot, the long drooping shoots then show themselves off to advantage. If the stocks are in pots, grafting can be performed at any time during the summer months, when they must be kept perfectly close and shaded till a union takes place. As the stocks are by no means liable to perish, they can be headed down to the height required and cleft grafted, when, if tied on securely, no wax or clay will be needed, provided there is an air-tight case in which to keep them. If there is not a case in the propagating house deep enough for them to stand upright in, they can be laid down horizontally, or nearly so, without injury.—T.

Chrysanthemums in January.—In our market this year in the first and second week in January I was astonished at seeing large quantities of really superb Chrysanthemum flowers. On making enquiry, I learned that they came from the southern districts. The varieties were of the large-flowered class. Elaine and Mrs. George Rundle were extra fine, and quite equal to those produced in November. Perhaps some of your correspondents will kindly give us their experience as regards producing such flowers in January with the necessary treatment. Such information would be of interest to many readers of The Garden.—T. R., *Manchester*.

Two plants for the conservatory.—Coleus Mrs. G. Simpson and Francoa appendiculata are two most useful plants for the summer decoration of a conservatory or large greenhouse. A group of well-grown specimens of the Coleus, with its very bright foliage, and a liberal percentage of long feathery spines of the Francoa judiciously mixed amongst them, has a very pleasing effect. Cuttings of the Coleus may be inserted at once and grown along sharply. It is about the strongest grower in the genus, and will consequently stand close pinching to keep it in good shape. The Francoas which have been up to the present housed in cold frames or pits may now be overhauled and a shift given where required. They should be grown along steadily in any cool structure.—E. B.

Azalea mollis is doubtless destined to become one of the most useful of plants for forcing, either for decoration in pots or for supplying cut flowers; for the latter purpose it is especially serviceable, as it comes into flower at a very early date with but little heat, and the colours of the flowers are very varied and pleasing, soft shades of pink and blush predominating. In short, Azaleas of this class constitute a valuable addition to the list of good things that flower during the early days of the year. When cut, a good length of stalk can be had with the flower without materially injuring the plant; the blossoms buds being all on the top of the shoots, the flowering ones of this year can be cut away, and yet leave a good head of weaker shoots that will, under good culture, develop into flowering shoots for next year. The only danger is that, being hardy plants, they may be too suddenly turned out of doors after their flowering season is over, treatment which the hardiest plant in cultivation will not endure. Give them shelter until their young growth is pretty well matured, and then, under warm, genial weather, they will enjoy being out of doors for a time. Not the least of the merits belonging to these Azaleas is, that having such fibrous roots, they can be lifted in the early part of winter and placed under glass, when, with the aid of only a slight rise in temperature, they can be had in bloom very early in the new year.—J. G., *Hants*.

Freesias.—Mr. Smith, of Guernsey, sent me last spring a spike of the Freesia mentioned in the note (p. 74), and later on most kindly sent me a very fine bulb of the same plant. This bulb flowered with me some time back, and I showed a bloom at the scientific committee of the Royal Horticultural Society. It appears to me to be identical with the plant figured in *Botanical Register* (fig. 135) under the name of Tritonia refracta, its distinctive characters being the narrow, dark, rigid leaves, the long-pointed, divergent, very scarious spathe-valves, and the small greenish yellow flowers, with very unequal segments arranged in two very distinct lips. From the point of view of beauty it has no great merit, but botanically it is of interest. It presents, of all the Freesias known to me, the most marked contrast to the form known as F. refracta alba, the flowers of which have segments almost quite equal, and the other Freesias may be arranged as so many stages between these two. I should propose to call this plant from Mr. Smith F. refracta (the Freesia figured in Redouté's Liliaceæ as Gladiolus refractus comes very near it). F. refracta alba I would shorten into F. alba. That these may be considered as two most distinct forms I have no doubt. As to the three intermediate forms at present known to me (Leichtlini being one), I am waiting to learn more before I make up my mind. It is rather singular that each kind of Freesia seems to have a distinctive odour, which is, however, in all instances pleasing.—M. F.

Orchids.

Orchids at Hammersmith.

Though the Orchid flowering season is scarcely at its height, the spell of bright and open weather of late has hastened it on considerably, so that the great Orchid collections in and about London are looking as gay as they usually do in March. Thus in Mr. Peacock's grand collection at Sudbury House, Hammersmith, where the evil effects of the impure London atmosphere are felt as keenly as anywhere, there is an unusual amount of bloom just now, notwithstanding the fact that the fogs some time ago decimated the incipient spikes of the more delicate kinds. Almost every visitor to this garden seems to be astonished at the prodigious quantities of Orchids grown, the more popular species being not represented by a few plants, but by thousands; hence the display that Mr. Peacock is enabled to make. Within a few years only this collection has grown larger and larger, until it occupies no fewer than thirty houses, and most of them capacious structures affording room for thousands of plants. Beautiful and interesting as Orchids are, it is to be hoped that they will not ultimately oust the unique collections of Cactaceous and Bromeliaceous plants for which Mr. Peacock's garden has become so widely celebrated, and which are a perennial source of interest. No matter at what season one visits this garden, there is always something worth seeing, but the full flower-tide, so to speak, is from now onwards till the end of June. The display now consists chiefly of Odontoglossums, Cattleyas, Lælias, Dendrobes, and Lycastes.

The Odontoglossum houses are a charming spectacle, as may be imagined from the fact that there are hundreds of spikes in perfection of O. Alexandræ, Pescatorei, gloriosum, and numerous others. The most remarkable plant in all the Odontoglossum houses is, we consider, the true yellow Alexandræ (flaveolum), which is one of the loveliest Orchids in cultivation. It combines, with the characteristic elegant growth of typical Alexandræ, soft primrose and canary-yellow flowers. This variety, moreover, possesses the charm of rarity, for probably the individual plants of it in this country may be counted on the fingers of one hand. There are also numerous flowering plants of what one might term the Andersonianum group, which would include Ruckerianum, hebraicum, baphicanthum, and others of a similar stamp. The distinguishing characteristics of these so-called species are so minute, that it is difficult to define them, or to say where those of one species end and those of another begin. There is, however, a wide difference between what is generally regarded as an extraordinary form of say Andersonianum and a poor one of the same kind, both as regards the size of the flowers and their depth of colour and profusion of markings. On the day of our visit there was sufficient material among the scores of distinct forms in bloom for a day's study to anyone interested in hybrid Odontoglossums. Besides those just named we noticed a remarkably fine form of O. Coradinei, a much superior variety to that usually seen; in fact, its flowers were really handsome, about twice the ordinary size and with a richer ground colour of almost a canary yellow, and enriched with large and well-defined heavy blotches of cinnamon-brown. The varied forms of O. crispum (Alexandræ) are likewise a study in themselves, so diverse are they in size, form and intensity, and copiousness of markings. It is evident that we must soon begin to classify the multitudinous forms of this variable Orchid into groups or sections founded upon a

character common to certain members of individual plants. For instance, in Mr. Peacock's collection all, or nearly all, the plants which we saw in bloom could be ranged into three or four groups, such as the Blunti group or those with broad-petalled flowers more or less stained with purple; the virginale group also with broad petals, but entirely spotless; and the guttatum or spotted group, in which the flowers are profusely blotched. This plan of classifying the forms of O. crispum is carried out here to a certain extent by Mr. Vicary, the gardener, and in a large collection, such as this, some such arrangement is necessary. O. Pescatorei is not so variable, though an entire houseful of this species affords a considerable range of forms, some being greatly superior to others, particularly those which exhibit a tendency to partake of the blotched character similar to the Veitchi variety. The wall of one of the Odontoglossum lean-to houses is entirely covered with hundreds of plants of O. Rossi majus, which is, as may be imagined, quite a picture of floral beauty, every plant carrying spikes of flowers, which, from their pretty colouring and elegant growth, are very charming. The plants are for the most part growing on trellises, hung flat against the wall, and admirably they seem to answer—a fact proved by the profusion of roots which run off the trellis and fasten themselves to the damp wall. It is evident that Rossi majus revels in partial shade and a cool moist atmosphere and a moist foothold for its roots. O. cirrhosum was just beginning its flowering season, and already some tall branching spikes are unfolding their curious long-tailed flowers. In a small house somewhat drier and warmer than the main Odontoglossum houses, there are numbers of species in bloom, notably O. Insleayi, figured in our columns this week. Of O. maculatum there is the finest form we have yet seen. It is named Donnianum, and is greatly superior to the original, inasmuch as the flowers are large, and the colour, a canary-yellow, spotted with olive-brown. It is, in fact, a strikingly handsome Orchid and one of the very choicest. In this small house growing close beneath the roof is a long row of O. Cervantesi and membranaceum, both bearing an unusual profusion of flowers; one which we singled out has its concentric markings of crimson so much deeper than those in any of the other plants, that an appropriate name for it would be superbum. O. Uro-skinneri is another species flowering beautifully in this house. This is really a beautiful Orchid, and it is singular it is so seldom seen. It is in the way of the better-known O. bictonense, but the flowers are large and have broader heart-shaped lips of a pleasing rosy pink grained with white. The new O. Sanderianum may be seen here in its true colours; one plant of it bearing a long arching spike is really very fine; the large pure white lips of the flowers and soft cinnamon-brown sepals make it so distinct from any other. Those who regard it only as a mere form of O. constrictum or Lindleyanum may here see the wide difference between the three kinds. O. pulchellum and tripudians are among others which contribute to the display of Odontoglossums.

The Cattleya house is scarcely at its best, though numbers of C. Trianæ, in infinite variety, give it a glow of colour. C. Percivaliana is prized here as an excellent acquisition to winter flowering Cattleyas. Some late plants of Lælia autumnalis help to enliven the house, as do also the bright L. harpophylla, with its glowing orange-scarlet flowers, L. albida, pedunculata, and anceps, the last named being particularly fine. Cattleya citrina will shortly make a grand display; it is grown better here than we have seen it anywhere. Plants of it may be seen both on suspended rafts and in shallow pans, but those in the pans are by far the finest, the bulbs being twice the size of those on the originally imported plants and quite plump. This Cattleya is grown here by the hundred in an intermediate house, the pans being suspended close to the roof.

The Dendrobes in flower include quantities of D. Wardianum, crassinode, nobile, primulinum giganteum (one of the finest of the genus), and luteolum, with primrose-coloured flowers produced among deep green foliage. The finest sight in the Dendrobe house shortly will be D. Findleyanum, here represented by about half a hundred fine plants, all with large, well-grown bulbs thickly set with flower buds. Some hundreds of plants of Lycaste Skinneri in flower had a striking effect, the variety of tint among the flowers being really remarkable; there are some plants of the rare white variety (alba), and from this to the deep blood-red form (atro-sanguinea) there is every conceivable gradation. This Lycaste is grown well here in a light span-roofed house kept moderately cool and moist. Cypripediums in bloom include a houseful of the old insigne, bearing hundreds of flower-spikes, and as the plants are grouped in one mass they have a fine appearance. The plan here is to place the Cypripeds in fully exposed frames during summer treatment which so hardens and ripens their growths, that they flower more profusely than when managed in the ordinary way. The flower-stalks, moreover, are shorter and stiffer, and the colour deeper. The hybrid C. Ashburtoniæ, between C. insigne and barbatum, has been in bloom since Christmas. The Phalænopsids promise well for an excellent show of bloom; of P. Schilleriana there are some grand branching spikes; also of P. Stuartiana. Last, but not least, in importance is Cymbidium eburneum. This has just commenced to flower, no fewer than 86 flower buds being ready to expand on a group of plants arranged at the end of the Cattleya house.

HARDY CYPRIPEDIUMS.

Few are aware what a number of hardy Lady's Slippers there are whose beauty may be enjoyed in any cool, moist, shady spot in gardens. The best place in which to plant them is a snug nook in a dell, where they can be kept, sprinkled occasionally when making growth, the point being to keep their foliage healthy, so as to enable them to form and develop fine crowns. Another good situation is a corner under a north wall, but wherever planted it is necessary to prepare a sort of bed for them consisting of fibry peat to the depth of a foot or so, as they will not flourish in ordinary soil; in peat, however, or in that and a mixture of leaf mould with a sprinkling of Sphagnum they delight. It holds the moisture and just suits their roots. The most charming of all the hardy Cypripediums is C. spectabile, the slipper-like labellum of which swells out to a large size, and is suffused with a delicate rose colour, while the petals and sepals are white, thus forming one of the most striking of contrasts. Being found tolerably plentiful in some parts of North America, whence quantities are now imported, strong clumps of it may be had cheap, and as they contain several crowns they flower freely soon after they are planted. C. japonicum is, perhaps, the next best; it is a very fine variety, introduced, as its name implies, from Japan. C. Calceolus is a native species, but, unfortunately, somewhat rare. It may, however, be had for a few shillings, and is well worth the price. The lip of this Cypripedium being yellow like a Calceolaria, it forms a pleasing contrast, when in flower, to those just mentioned, especially when seen together, which is the best way of growing these Orchids. C. pubescens is another desirable kind; it resembles the last named, but has larger flowers and is very easy to cultivate. C. acaule, also a fine sort, produces flowers quite 2 inches in length of a delicately-tinted rose colour on a white ground. There are several others, but none approaching those here referred to, which, massed together, form a magnificent group. When growing, it is a good plan to mulch the surface of the soil around them with Moss or Cocoa-nut fibre, either of which, by acting as non-conductors, keep the roots fresh and healthy by maintaining the soil in a uniformly moist state. S. D.

Odontoglossum Sanderianum.—I fail to see any specific difference between this plant and the older O. constrictum, unless size be looked upon as a character upon which species of Odontoglossum are to be made. In the cool Orchid house at Kew there are plants of both these Orchids in flower, and, beyond the fact of the Sanderian plant having flowers twice as large as those of O. constrictum, it would not be easy to point out any difference between the two. I have long since despaired of ever learning how to distinguish the innumerable so-called species of Odontoglossum without the aid of the labels. As Mr. Baker expresses it, "splitting" up plants of variable character into a large number of species goes a long way towards discouraging all who try to follow the "splitter." Odontoglossum Sanderianum appears to differ from O. constrictum only in point of size. O. gloriosum is supposed to be, along with O. constrictum, the parents of O. Sanderianum. There is little to distinguish them beyond size and spots. However, Sanderianum is the best of the three.—B.

Cattleya Percivaliana.—Some good varieties of this Cattleya have made their appearance during the autumn, but, as in the case of many other Cattleyas, the best forms are few and far between as compared with the ordinary run. There would seem to be a disposition to make it appear that the disappointment so freely expressed about this time last year respecting this Cattleya was unfounded, but it is well to bear in mind the cause of the disappointment then complained of. If the plant had not had the name of the fine old species labiata tacked to it, there would, in all likelihood, have not been a disparaging word said about it, and it would have been accepted as a fairly good kind deserving of cultivation, yet standing lower in the scale than C. labiata, C. gigas, C. Warneri, C. Mossiæ, C. Reineckiana, C. speciosissima, C. Mendelli, C. Trianæ, and C. Dowiana. When a new Cattleya that can claim any relationship to C. labiata is brought under the notice of Orchid growers, nothing less than something extraordinary will satisfy us. C. Percivaliana, as might be expected, is now showing more of its true character than hitherto as regards size; still, with few exceptions, the varieties run small, and not the least of its faults is, that neither the sepals, petals, nor lip open so far as to show to the best advantage. One thing in its favour is, that it appears to be a free bloomer.—T. Baines.

Orchids at Mark's Tey.—The Orchids in Mr. Horsman's nursery at Mark's Tey are rapidly increasing. A short time ago there was no trade in them there; now there are many houses, and ere long more are to be erected. Odontoglossums were represented when I was there but sparsely; a good variety when bloomed soon passes from the nursery into private hands, but there were a few good spotted forms opening. Their growth and promise were all that could be wished for. Cattleyas as usual are plentiful. I noticed especially some C. Sanderiana that had been established and grown remarkably well, for this Cattleya, as a rule, is an obstinate one to recover its sea voyage and become a thriving inmate of a glass house. Its rhizomes often rot off quite black, and then the mischief spreads upwards into the bulbs, and woe betide the plant thus affected; it is impossible to save it. The Cattleyas here showed signs of vigorous health, and are a credit to the management. C. Eldorado and the variety called splendens were here in quantity, and starting well into growth. This also is not such a good one to establish as C. Mossiæ and those belonging to that section. Oncidium Jonesianum (which by the way is new, and of which but a small stock remained) was in good order; it much resembles a Brassavola in habit, but the spikes on the largest plants must have been very large, for their remains were almost as thick as my little finger. Lælia albida was present in the finest strain that could be desired; the blooms well shaped, and the lips deep mauve, the throats being almost black with a copious collection of dark spots. Too small imported bulbs of Lælia albida do not usually bloom, but here there were a dozen doing so, and some with only one back bulb. A fine specimen of Cœlogyne cristata Lemoniana 2½ feet across was in bloom. The delicacy of colour

of this variety to be really appreciated must be compared side by side with the ordinary type in equally sized and bloomed plants. Dendrobium thyrsiflorum and Wardianum were well grown in baskets, the new bulbs being as large almost as the imported ones. One of the last importations arrived here is a consignment of Odontoglossum Alexandræ. Mr. Horsman gave me a bloom which expanded on a small two-bulbed plant in boxes. The spotting and shape of the lip are worth a trifle as an evidence of the character of the large plants. It is much to be desired that collectors would send over dried blooms along with their consignments, so as to in some measure indicate their character.—De B. C.

ORCHIDS IN FLOWER.

The Orchid houses in Mr. B. S. Williams' nursery, Upper Holloway, have already begun to assume their customary gay appearance in spring, and we have rarely seen the nursery looking brighter than it is at present, for, besides the Orchid houses, which teem with bloom, there is a beautiful display of other spring flowers, which altogether well repay the visitor. The following Orchids are among the most noteworthy of those now in perfection :—

Cattleya Trianæ, as may be supposed, constitutes the gayest part of the show, and certainly this Orchid is alone well worth the journey to see. We luckily hit upon the time when a good many of the choice named varieties which Mr. Williams prides himself upon were just in perfection, so that we could judge of their respective merits when flowering side by side. It is, however, a difficult matter to make an intelligible description of the distinctive characters of the various sorts, as they, in most cases, relate to subtle gradations of tint. We made note of about a dozen named varieties of Trianæ which we considered exceedingly beautiful. The finest of all in point of colour is that named Williamsi, after Mr Williams himself. It may be best described as being in the way of the superb Backhousiana. The flower is large, with broad petals, which hold themselves firmly out; the very ample labellum is entirely of an intense magenta, extending to quite the edge and running throughout the whole length of the throat. This vivid rich colour is intensified by the delicate mauve hue of the sepals and petals, which exhibit a tracery of magenta veining and pencilling. This variety was our choice of the whole collection as regards colour, though others rivalled it in other respects. One called Thomsoni, a Clovenfords variety, is remarkable for an uncommonly broad, shallow labellum, richly tinted and charmingly frilled. Another, named rosea, though somewhat under size, is an exquisitely-formed flower of delicate tones. A most distinct form is that called tyriantha, whose flowers, like the last, are not particularly large, but are admirably shaped. Its delicate petals and sepals are in fine contrast to the lip, which is half white and half of a glowing amethyst, with a sharp line of demarcation between the two colours. There are several plants of a variety appropriately named marginata, on account of the distinct white frills of the labellum. The flowers of this are pleasing in colour, though it lacks substance somewhat. This marginata variety, Mr. Williams says, constituted an entire importation, and every plant has borne flowers exactly identical, a remarkable occurrence in C. Trianæ. Indeed, Mr. Williams observes that throughout his long experience he has not seen a similar instance of a number of plants of this Cattleya producing flowers exactly alike in colour. One of the largest and best varieties is named formosa It has a grand lip, finely crimpled and brilliantly coloured, and broad petals almost pure white. Splendidissima is, indeed, a splendid variety, as may be inferred that it is marked by six crosses, each cross representing a degree of excellence. Its lip is large and magnificent in colour. Rougieri is similarly fine, and so is Reginæ, which is one of the finest Trianæs we have ever seen. The petals are some 3 inches broad, white, and of firm texture. The wide lip is of an intense magenta frilled with white, and with a large blotch of orange-yellow extending to the throat. These are a few of the Trianæ varieties that have been considered worthy of distinctive names, though there are numerous others in bloom. Among other Cattleyas may be seen one of the best forms of C. Percivaliana that has yet flowered. The blossoms are the ordinary size, the petals of rose-pink, several shades deeper than usual, while the lip is broad and splendidly coloured.

Odontoglossums.—Besides the crowds of crispums of the finest types which one may find here nearly every week in the year, the houses occupied by this popular genus contain several choice things that a connoisseur would like to see—for instance, there is a fine flowering plant of the rare deltoglossum, a plant that we only remember seeing once or twice before. It falls under that debatable race of hybrid crispums. Our own impression is that it is midway between Andersonianum and Ruckerianum both as regards the form and the colour of the flowers. It is unquestionably a very handsome Orchid and most graceful. O. angustifolium has a fine spike; it is rare, and that is all that can be said in its favour, for it is no great beauty. O. Halli magnificum took our attention considerably. It is the finest thing we have seen in its way; the flowers are unusually large and the colours are bright. Among the many forms of O. crispum, the very distinct and handsome Horsmani may be singled out at a glance from all the rest, and so might another of a smaller stamp, which is remarkable in having the three sepals heavily spotted, while the lateral ones are spotless white. It surely deserves to be christened. The charming little O. Erstedi, so seldom seen in a good flowering condition, is grown well here in hanging pans; one plant has some half a dozen of its neat white flowers expanded Other Odontoglossums worth noting are the true O. nebulosum, which Mr. Williams says is identical with that first figured in Bateman's "Monograph;" O. odoratum striatum is abundantly distinct from any other form we have seen; O. cristatum and hystrix.

Dendrobes.—The least common species in bloom is D. Boxalli, a pretty species in the way of crystallinum, but not often seen. D. crepidatum is in perfection, its long stout bulbs being wreathed with bloom. D formosum Berkeleyi is a most handsome Orchid, the white flowers with lemon-stained lips being as large as those of the giganteum variety. The new D. Draconis may also be seen in beautiful condition; it is really a fine species, in the way of D. eburneum; the flowers are pure white and wax-like, with a dash of Indian red on the labellum. D. Findleyanum is attracting a good deal of attention just now: the best forms of it may be seen here. D. superbiens, luteolum, Ainsworthi, and lituiflorum are among others that contribute to the display. Flowering Cypripediums include the hybrid C. melanopthalmum and calophyllum, both handsome; and of other genera are Brassavola lineata, a large white-flowered, sweet-scented species with terete foliage; Phalænopsis amabilis Dayana, a superb variety remarkable for its large flowers with lower sepals spotted and a red stained lip; Cologyne cristata Lemoniana and the Chatsworth variety, and Pleurothallis lamphrophylla, a most graceful species with a long spike of small insect-like flowers of a pea-green and sweet-scented. Calanthe Regnieri is worthy of special mention on account of the delicate beauty of the flowers. The plate given in The Garden last year gives a fair idea of it. It is certainly an acquisition, as it flowers after all the other Calanthes are past. Besides this Calanthe in bloom there are nivalis, the snow-white form of C. vestita and C. Turneri, both of which are lovely Orchids.

Cattleya Sanderiana.—Not having been very successful with this fine Cattleya I have been wondering if my treatment of it was correct I had it in the same house as C. Trianæ, C. Mendelli, and others, and up to a certain stage it did well When, however, the young growths were about half grown they turned black nearly all over. I intend to try it in a cooler house this season.—H. T.

Phalænopsis Stuartiana.—Mr. Fowler, of Ashgrove, Pontypool, sends us a spike of this lovely Orchid, representing a very marked variety, having the three upper sepals minutely spotted with violet on a white ground and the two lower sepals and lip heavily blotched with cinnamon-red. This variety seems to be exactly identical with that shown at South Kensington last week by Mr. Pollett under the name of punctatissima. Mr. Fowler also sends a flower of a grand variety of Cattleya Trianæ; flowers large, petals almost pure white, lip broad and vivid carmine-magenta.

Prices of Orchids.—There are week be week two or three sales by auction of large importations of Orchids, so large that they must by getting a glut upon the market; yet nurserymen and others keep up high prices, 5s. and 7s. 6d. being the usual price charged for any moderate sized plants of the commonest types. It is time that these prices were reduced by at least 50 per cent., so that lovers of this interesting and beautiful class of plants with but moderate means may be able to indulge in the luxury of a few dozens of them. If you will kindly give publicity to this statement, some of the large cultivators of Orchids may feel disposed to act upon this suggestion.—An Amateur.

Cattleya Trianæ.—Again we have to record a magnificent variety of this popular Cattleya. It has been sent to us by Messrs. Thomson and Sons, Tweedside Vineyard, Clovenfords, who fortunately had it turned up from among an imported consignment. Judging it by the two-flowered spike before us, and with no other with which to compare it, we consider it one of the finest forms we have ever seen; indeed it would not be too much to say that it is a rival even to the much-coveted Russelliana, of which we gave a descriptive note about a fortnight ago from Baron Schroeder's collection. Messrs. Thomson's variety measures 7 inches across the outspread petals, which are 2½ inches wide, of oval outline, and of a delicate pale mauve, tinged at the edges with a deeper hue. The labellum is truly splendid; it is 2 inches across, very firm and rounded. The colour of the lower part is a glowing carmine-magenta, which extends down the throat until it meets a broad blotch of orange-yellow, beyond which is pure white. Such a superb variety as this is surely worth a distinctive name, being so far ahead of others in point of beauty.

A new Cattleya.—Among the shower of novelties in the way of Cattleyas that we have seen of late, few have captivated us so much as one we saw the other day in flower at Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham, being one of an importation recently received from Popayan, a new hunting ground for Orchids in South America. This Cattleya is as yet unnamed, but it evidently belongs to the Trianæ race, as the growth is identical with that of C. Trianæ. The flowers are about the size of those of a good form of Trianæ, with the petals broad, of good texture, and of a delicate mauve. Each of the lateral petals are adorned with a heavy blotch of the deepest amethyst placed near the points similar to the Backhousiana, but not so streaked. The lip is exceedingly beautiful; it is large, of rounded outline, and frilled; the colour of the lowermost lobe is of the intensest crimson magenta, while the throat is as yellow as a guinea — a singular combination of tints, but in perfect harmony. We regard this new-comer as peerless among the particular race to which it belongs, and if the remainder of the importation turns out the same as the plant we saw, Messrs. Shuttleworth and Carder ought to congratulate themselves upon their lucky venture.

Oncidium fuecatum.—When this species is represented by its finest variety, it is undoubtedly an extremely handsome Orchid, and, moreover, distinct from all the rest of the family, no other being even similar to it excepting O. Weltoni, with which it is often confused. Messrs. Shuttleworth & Carder, who have recently imported it largely, have in their nursery several plants of this Oncidium in flower, varying considerably as regards

the depth of colour. The extreme forms are those having flowers of a very pale rose-pink, in fact almost white, and those in which the colour is a deep claret, while other varieties may be found to represent the intermediate shades. The dark variety is a very handsome Orchid indeed, and one that is much sought after, while the palest variety is equally rare. The free-flowering tendency of this Orchid and the length of time the blooms last make it valuable for growing for cut blooms, and as it is a Colombian species it may be grown admirably in a cool house. O. Weltoni, also a beautiful Orchid, may be distioguished from fuscatum by the labellum, which is half white and half vinous-purple.

NOTES OF THE WEEK.

We have authority for stating that Mr. Owen Thomas, who was for several years head gardener to Sir Robert Peel, at Drayton Manor, has been appointed to succeed the late Mr. Speed at Chatsworth.

The Royal Caledonian Horticultural Society's Exhibitions will be held in the Waverley Market, Edinburgh, on April 2 and 3, July 9 and 10, and September 17 and 18. At the first show £350 are offered in prizes, and at the second £256. Prizes amounting to £270 will be given at the autumn show, chiefly for fruit.

Mrs. Pinces Black Muscat.—We have received from Mr. J. C. Clarke, Cothelstone, Taunton, a very fine bunch of this Grape, concerning which Mr. Clarke writes as follows: "The bunch which I send has been two months in a bottle of water. I have been severely criticised whenever I have recommended this kind for late keeping; the colour, I admit, is not good, but in flavour it beats Lady Downes, and sometimes it keeps equally well as that kind." All we can say is that the bunch sent to us was in every way perfect; true, it was not so black as some kinds, but the berries were plump and uncommonly good—rich and sweet with that fine Muscat flavour which this Grape possesses when in perfection.

Stoke Newington Chrysanthemum Society.—In "Notes of the Week" for the 19th ult, concerning the National Chrysanthemum Society, you say such is the title by which the Borough of Hackney and Stoke Newington Chrysanthemum Societies will henceforward be known. So far as the Stoke Newington Society is concerned, this is inaccurate. This society is the oldest Chrysanthemum Society extant; through a period of over forty years its continuity has been unbroken, and it still, as a society, retains its youthful enthusiasm for the golden flower. The first-named society originated in a secession from the Stoke Newington Society somewhere about 1858 or 1859, therefore dating only from that time. The old society has traditions, originality, and prestige, and it is manifestly unfair that its name should be associated with its offshoot. The original society is more than able to hold its own, its latest exhibition in November last being in every way the most successful, both as regards quality of exhibits and finance, it has yet held. At the general meeting, held last Friday evening, a balance in favour of the society was reported for the first time in its history. At a nearly full meeting of the committee last Tuesday evening, so far from any declension in zeal being manifested for the objects of the society, every portion of the schedule for the next exhibition was well discussed, and some interesting additions made. — William Chitty, *Stamford Hill.*

Rainfall in 1883—It may interest some of the readers of The Garden to know the rainfall of 1883 on two points of the United Kingdom—one in the centre of a midland county in England, the other in the centre of a midland county in Ireland. The rainfall at Belvoir Castle, in the county of Leicester, was during 1883 32·80 in., and the number of rainy days 231; while at Belvedere House, in the county of Westmeath, it was 37·39, and the number of rainy days 135. The height of Belvoir Gardens above sea level is 237 feet, and the height of Belvedere Gardens 367 feet. It is remarkable that the number of rainy days at Belvoir should exceed those at Belvedere by 96, while the rainfall at the former was only 4·59 in. less than the rainfall at the Irish station. Brinsley Marlay, *St. Katharine's Lodge, Regent's Park.*

Flowers by Parcels Post.—The following notice has been issued from the Post Office: "The season is now approaching when, according to a very general custom, Primroses, Violets, and wild flowers of all kinds are entrusted to the post for transmission between places within the United Kingdom. As the Parcels Post may be extensively used for this purpose, the attention of the public is drawn to the expediency of properly securing the parcels so sent. The box in which flowers may, in each case, be contained should be of a material so much stronger than cardboard as to bear pressure and friction in transit. Cardboard boxes are frequently reduced to pulp by moisture from freshly cut flowers or wet Moss soaking through them, and are, therefore, not suitable."

Disastrous frosts in the United States. — We have had the coldest winter weather for about seven weeks ever known in this country, the thermometer reaching as low as 30° below zero (Fahr.) twice during the month of January. As a result nearly all our tenderest fruits are killed, except Strawberries and Grape Vines that were laid on the ground and covered with snow. Reports from the following places, which are well-known fruit centres, with the annexed results, have been received: Kentucky (Bowling Green): Peach buds usually killed. Illinois (Cobden, Villa Ridge, Alto Pass): Peach trees usually killed: Apples (tenderest varieties), fruit buds killed. Missouri (Carthage, Bluffton, Shelbina, Springfield): Peaches, Raspberries (except Turner), and Blackberries killed; Grapes (except the hardiest) killed: Pears and Cherries badly injured. Arkansas (Little Rock, Bentonville): Peaches badly injured; a large proportion of trees killed; Apples badly injured; Cherries injured.—L. B. Case, *Richmond, Indiana.*

NEW GUIDE TO THE KEW MUSEUMS.

The unrivalled collections of vegetable products contained in the three museums at Kew have acquired gigantic proportions within a comparatively short period. It is now a little over thirty years since the late director, Sir W. J. Hooker, conceived the idea of forming a museum devoted to vegetable products, and presented to the public his own private collection. This has been added to by purchase partly, but chiefly by the liberality of "many eminent firms engaged in the importation and manufacture of vegetable substances, by the different Government departments, by colonial officers and foreign representatives, and by numerous private collectors." Besides these, the transference of the India collection from South Kensington to Kew has largely increased the collection, so that in addition to the one building (No 2) originally set apart for these specimens, there are now three, one of which (No. 1) is of great size.

The present arrangement is in every way satisfactory, No. 1 being devoted to specimens of Dicotyledonous plants, No. 2 to Monocotyledons and Cryptogams, and No. 3 to specimens of wood, &c. The first two are full of interest and instruction for the horticulturist, the fine collections of Conifer fruits, of Acorns, of Palm seeds and Cycad cones and stems being so complete and so well arranged for purposes of study and comparison, as to render them of great service for botanical and horticultural purposes. These are but a few of the collections to which gardeners may be directed for useful information, and we mention them from an impression that their existence is unknown to the greater portion of the visitors to Kew, who look upon the museums as "old curiosity shops," containing little that could be of any service to them. "The object of the museums," says the guide, "is to show us the practical applications of botanical science. They teach us to appreciate the general relations of the vegetable world to man. We learn from them the sources of the innumerable products furnished by the vegetable kingdom for our use and convenience, whether as articles of food, of construction and application in the arts of medicine, or curiosity. They suggest new channels for our industry; they show us the variety, in form and structure, presented by plants, and are a means of direct instruction in most important branches of useful knowledge. In brief, the museums show us how little, as well as how much, we know of the extent to which herbs, shrubs, and trees contribute to our necessities, comforts, and numberless requirements."

The little manual under notice, although intended to serve only as a guide, is really a valuable handbook to what is now termed economic botany. It contains short paragraphs on the principal contents of each case, and conveys in a few words a wonderful amount of information of interest and value to those who study plant life or are interested in the sources of some of our most important medicines, articles of food, clothing, &c. As an example, we extract the following note on Atta or Otto of Roses: "This is obtained by careful distillation from the petals of sweet-scented species of Roses (Rosa gallica, R. centifolia, and R. damascena), cultivated on the lower slopes of the Balkans, in Roumelia. For the manufacture of Atta the flowers are collected before sunrise in April and May; they are distilled as soon as possible after gathering. The first portions of the distillate are returned to the still; the second is set by for a day or two, and kept at a temperature not lower than 60° in order that the oil may separate. The oil in a fluid state is then skimmed from the surface of the water. The average annual produce of Roumelia, from whence the London market is chiefly supplied, is about 4000 lbs., valued at £60,000. Some Atta is also obtained in the south of France, Tunis, and Persia, as well as at Ghazepore, in India. The Turkish Atta is almost invariably adulterated with the oil of an Indian Grass (Andropogon)." Articles on tea, coffee, fibre-yielding plants, &c., are both instructive and interesting, and we commend this little manual of 150 pages, printed on good paper, and possessing an excellent index, to everyone who cares to know what we eat and drink and wherewith we are clothed. The small charge (3d.) renders this little book within the resch of all. This number is devoted to the contents of No. 1 museum only; a second number is, we believe, in preparation, which is intended to contain information on the contents of the other museums. B.

Gardeners' Royal Benevolent Institution.—A sum of £500 has been bequeathed to this institution by the late Mrs. R. B. Dodgson, Beardwood, Blackburn.

Camellia buds bursting—Can any of your readers tell me the cause of my Camellia buds bursting? The plant is in an 8½-inch pot and has had 27 blooms on it, but they all burst before opening, the same as the one sent. I have 44 plants; they have all had the same treatment, and flowering well except the one I mention.—S. E.

Names of fruits.—*J. W. Nowell.*—The Apple you send is probably a local variety, as it is not known at Chiswick.

Names of plants.—*R. Gill.*—A very fine variety of Cattleya Trianæ, almost identical with that figured in Williams' "Orchid Album" as formosa——*W. B.*—Your Cattleya Trianæ is nearest to the rare variety named Wilhelmsi, though the flower is scarcely so large; the other flower sent is Miltonia cuneata.——*G. G. (Blackheath).*—Odontoglossum is hebraicum (not the best form); Phalænopsis is a form of amabilis known as Dayana, having the lower sepals slightly spotted and a deeply stained lip.——*F. J. H.*—Apparently Helleborus antiquorum; Helleborus orientalis ——*K. A. S*—Helleborus colchicus; Crocus susianus; Nephrolepis exaltata; please send a specimen of the Oxalis again.——*J. F. C.*—1, Eriostemon buxifolium; 2, Chimonanthus fragrans (No. 1 by cuttings; No. 2 by layering or cuttings).——*L. S T.*—1, Alyssum (by cuttings); 2, Selaginella cæsia arborea; 3, Adiantum; 4, Pteris serrulata cristata.——*C. W. H.*—1, Pteris serrulata cristata; 2, Sedum; 3, Asparagus plumosus nanus; 4, Begonia maculata.——*Hellborus.*—1, Helleborus colchicus; 2, Helleborus orientalis; 3, apparently a hybrid between Helleborus colchicus and olympicus; 4, Helleborus atrorubens.——*F. C. Wilson.*—Cypripedium Roxalli; it is, as you observe, very nearly allied to C. villosum, probable only a variety of that species. The Chinese Primrose is indeed a very fine colour—as fine as has been produced.——*Mrs Cannings*—1, Lachenalia luteola; 2, Santolina incana; 3, Saxifraga cæspitosa.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

PROFITS OF STRAWBERRY GROWING.

SOME interesting details were given in THE GARDEN last week (p. 146) respecting the forcing of Strawberries for market in Jersey, and in that favoured spot, and with the aid of the appliances mentioned, I do not doubt that good crops of early fruit can be produced. Market fruit growers only cultivate what will yield a good profit, and therefore changes are constantly going on in regard to the crops they cultivate. Pines, for example, have been well-nigh discarded, and Tomatoes have taken their place, and plenty of other instances could be adduced to show that growers for market are alive to the rapidly varying phases of fruit culture brought about by foreign competition. I have from time to time endeavoured to show that home growers do manage to thrive even in the face of foreign competition, but no good purpose is served by giving exceptional prices as reliable guides to what the real profits of any business may be. For instance, in this locality Strawberries are grown as a field crop in quantities, and in some seasons extraordinary returns per acre are made, but a general crop, like last year, brings prices down to a fairly profitable return. If high prices are upheld for any kind of crop for a length of time, everybody rushes into its cultivation as if a gold mine had been discovered. Thus things get overdone, a reaction takes place, and, while unwilling to deter anyone from giving forcing Strawberries a trial, I would distinctly state that they must be content with a lower yield and lower prices than those given in last week's GARDEN. Not that such prices are not sometimes obtained, but they are no guide as to the profitableness of the industry; for instance, I find in my own notes of salesmen's returns that during February I have on two or three occasions realised the high price of 2s. 6d. per ounce for Strawberries, and with a little calculation I could make it appear that a house with 300 pots would yield £150; but I never yet got 4 ounces per plant from early forced Strawberries, and I feel sure that many of our best fruit growers will agree with me that such a crop is above the average. Some plants will doubtless yield that weight, but allowance must be made for failures. Moreover, prices come down rapidly in March and April. I have frequently had lower prices for late crops in pots than for the earliest crops out-of-doors. Last year the earliest Strawberries on warm south borders and banks in this locality realised high prices, but before the season was far advanced they did not pay for carriage to London, and were hawked in the streets here at from 6d. to 9d. per gallon. It is only by taking the average of the year that one can arrive at correct conclusions, and I believe that English cultivators can grow Strawberries at a profit. But the figures given last week are likely to mislead; at least such is my experience after more than twenty years' careful study of the matter. As regards varieties, Black Prince is nearly superseded by Vicomtesse Héricart de Thury, simply because the latter produces larger fruit and better crops.

JAMES GROOM.

Gosport, Hants.

EARLY FLOWERS.

FEW will be likely to think we have undervalued the beauty of our early garden flora, or claimed too little for the duration of the season of that beauty. But we are inclined to think we have done so through seeing the many flowers open in cottage gardens in Surrey and Sussex during a walk taken last Sunday, ending in a garden full of flowers, the names of which are in the following list. The introduction of many new hardy flowers during the past few years has very much added to the stock of obtainable spring flowers, though many of these have not as yet spread into cottage gardens. What is not least noticeable in the following list is the great beauty of many of the species. That in an English February one may enjoy nearly 100 kinds of flowers in the open air is not "generally known," and certainly the fact has not as yet led to the improvement in our early gardens that it should lead to.

HARDY PLANTS AND SHRUBS IN FLOWER AT MUNSTEAD ON FEBRUARY 24.

Helleborus niger and vars.
colchicus and vars.
orientalis and vars.
olympicus
fœtidus
Narcissus Pseudo-narcissus
pallidus præcox
obvallaris
minor
Primroses and Polyanthuses
in great variety
Primula denticulata
rosea
viscosa
elatior (of the Alps)
Auricula
Anemone coronaria vars.
fulgens vars.
hortensis
blanda
decapetala
Iris stylosa
reticulata
r. cœrulea
r. atropurpurea
persica
tuberosa
Galanthus nivalis
Elwesi
Imperati
Redoutei
Cyclamen Coum
Atkinsi and vars.
Crocus Aucheri
Imperati
sulphureus
stellatus
Sieberi
Dutch garden vars.
Eranthis hyemalis
Erythronium dens-canis and vars.
Scilla sibirica
bifolia
b. alba
b. carnea
b. rosea
b. alba major
Scilla bifolia taurica
b. t. pallida
Puschkinia libanotica
Chionodoxa Luciliæ
sardensis
Leucojum vernum
Muscari botryoides
Sisyrinchium grandiflorum
Triteleia uniflora and vars.
Myosotis dissitiflora
Omphalodes verna
Iris sempervirens
gibraltarica
Aubrietia purpurea
Arabis albida
Gentiana acaulis
verna
Saxifraga coriophylla
oppositifolia
o. alba
o. major
Draba cuspidata
Dondia Epipactis
Claytonia virginica
Potentilla alchemilloides
Soldanella alpina
Pulmonaria officinalis
Vinca major
minor and vars.
Doronicum caucasicum
Tritoma Burchelli
Wallflowers
Double Rocket Wallflower
Pansies
Erica herbacea
Veronicas (shrubby)
Daphne Mezereum
Andromeda floribunda
calyculata
Rhododendron præcox
Azara microphylla
Cydonia japonica
Jasminum nudiflorum
Berberis Aquifolium
Chimonanthus fragrans
Spiræa Thunbergi
Rose Gloire de Dijon

NOTES FROM THE RIVIERA.

SO much has been said about the beauty of gardens on the Riviera at this season, and yet so little that is definite has been written as to the component parts that go to make up the beautiful whole, for such undoubtedly it often is, that to-day I feel tempted to send a somewhat detailed account of what may be seen on many a hillside, where blue sea, green Pine trees, and bold mountains, snow-crested, all help to shelter, guard, and beautify man's creations. Or, again, in some sheltered nook where no view may be gained, so that our attention can be given to the garden alone, we can take our stand and look round with admiring eyes. Would it be possible, I wonder, to reproduce in England, in some slightly heated orchard house, something of this garden beauty? The idea seems to me worth trying, if only a fairly large space be given, and suitable and characteristic subjects be chosen for planting out. Here, as elsewhere, at times there are bitter storm blasts, keen frosts, and withering drought to contend with, which under glass at least may be avoided, though we cannot yet command the sun to shine as on these coasts. Look up into the blue sky some fine day in February, and you will see, first, the silvery white, crimson-flecked blossoms of the Sweet Almond clothing each twig (the Bitter it is that has the pink flower); then perhaps next it the green and silver of the finely-cut leaves of Grevillea robusta, the silky Oak of Australian colonists, or it may be the more sombre grey and deep green of the Olive. Next comes the full green leaf and primrose blossom of the Violet wood or Myall (Acacia melanoxylon), a tree that deserves to be planted largely wherever it will thrive for its beauty of growth, foliage, and flower, in addition to its exceedingly hard and valuable heart wood. Leaving out of the picture the various large-growing Eucalypti (which are often out of place in gardens here, and under glass may always be so), we next come to the favourite, but somewhat garish, Acacia dealbata, with its canary-coloured plumes and delicate sea-green leaves, a tree which has added greatly to the attractions of Cannes, but which is almost too gaudy when laden with its feathery masses of bloom.

In close proximity, as may be seen in some good gardens, and contrasting strongly with the light growth of the Acacia, comes next Magnolia Soulangeana or M. Lenné, covered with massive lilac or purple-red, half-opened cupped blossoms and budding leaves, with a tangled growth of the green-leaved Pharus reclinatus before it On one hand, one may look across a lawn of considerable extent blazing with Anemones, principally of the dwarfer-growing fulgens type; on the other the eye rests with pleasure on feathery green Bamboos that wave gently to the breeze, or on the rich harmonies of green, brown, and yellow afforded by the velvety leaves and yellow thyrse of the shrubby Senecio macrophyllus. A bank planted with blue-green Aloes long ago, as the tall flower-stems shooting up from among the bristling leaves of younger suckers testify, slopes down to gay bushes of scarlet Salvia gesneræflora and yellow or white Marguerites, so thick with flowers as almost to dazzle all beholders; while the delicate lavender of Iberis gibraltarica at one's feet and cheerful Carnations of varied hues complete the foreground down to the verge of the autumn-sown Grass, which here is too precious a thing to be trodden under foot. Walking onwards a little, the most beautiful of all the Acacias (*me judice*), Acacia pycnantha, we hail with delight, for its terminal-spreading panicles are as elegant as those of A. dealbata, and the richer yellow of the fluffy flower-balls, combined with the red-brown stems and substantial undivided leaves, throw quite a summer glow around. Bushes of hairy-leaved Sparmannia, crowned with white flower-heads, back up a bed of rich purple Stocks; and Triteleia uniflora, starred over with its white flowers, prettily carpets the ground under a bush of Pyrus japonica—a perfect pillow of flame. Hakea laurifolia and H. eucalyptoides, its new congener, are both handsome bushes, with red or reddish brown flowers collected together in heads, so as to resemble in size and shape the flowers of the Blue Gum—so much so, that I heard the name of the scarlet Eucalyptus given to them. I can only hope that that beautiful West Australian bush may some day grace these gardens with its splendid flowers. Linum trigynum still flowers on profusely under a southern wall, where sprays of purple Bougainvillea and precocious buff Banksia already mingle; where the crimson trumpets of Bignonia Cherere hang and Heliotropes and Mignonette scent the air that perversely to-day has a touch of keenness in it quite out of keeping with such surroundings.

It is hardly worth while to fill in every detail in such a garden, but I venture to think that after eliminating the few plants that really need the clear sunshine of the Mediterranean, enough is still left that would make any light and airy cool greenhouse in England far more beautiful than we make it, with our unbroken round of Camellias, Azaleas, and forced bulbs; but of course such a house should have its contents planted out, and

under no pretext shaded from our summer sun whenever it may deign to shine.

E. H. WOODALL.

PLANTS IN FLOWER.

Helleborus olympicus.—In the light rich soil of Mr. Stevens' garden at Byfleet this Olympian Hellebore seemingly finds a congenial home, as he sends us a flower-stem fully 18 inches high, deeply forked, and carrying half-a-dozen of its beautiful cup-shaped white blossoms. Rightly placed in a snug sheltered nook, much beauty may be derived from the coloured Hellebores in February and March.

Soldanella alpina.—This gem among mountain flowers is already in bloom in several gardens about London. Mr. G. F. Wilson has sent us a twin flower-stem 5 inches high, an unusual growth at this season. The flowers, which are about the size of a sixpenny-piece and of a pale violet-purple, are so divided as to resemble fringe. Mr. Wilson grows this plant at Wisley on an exposed elevated mound in loamy soil. A form of the common Snowdrop as fine as Imperati and Narcissus minor accompany the Soldanella.

Anemone fulgens—Flowers of three varieties of this brilliant hardy plant received from Messrs. Collins & Gabriel strikingly show the extreme beauty of both single and double varieties of this showy Windflower. They were named grandiflora, a kind with larger flowers than those of the type; multipetala, distinguished by its multiplicity of petals, arranged in rows around a central boss; and the double kind furnished with dense compact rosettes of petals The colour of all these is of the brightest vermilion-scarlet, a colour unsurpassed in brilliancy by that of any other flower.

The Tenby Daffodil.—The first blooms of this handsome Daffodil (Narcissus obvallaris) were sent to us last week by Messrs. Collins & Gabriel, Waterloo Road, the flowers having been received from Tenby, where this Daffodil is now flowering freely in the open air. Of all Narcissi this is one of the most desirable, and if only a dozen kinds were grown this should be one of them. Its golden almost self-coloured blossoms are produced before those of any other Daffodil of the Pseudo-narcissus race, except the early sulphur-coloured pallidus præcox.

Nuttallia cerasiformis.—This Californian shrub may be best compared with the common flowering Currant, but its racemes of flowers are pure white, and accompanied by the tender green of the unfolding leafage. As in the Currant, they wreath the long slender shoots in a graceful way. Some sprays of it have been sent to us by Mr. Joseph Stevens from his garden at Byfleet. He also sends flowering branches of Erica carnea, an indispensable hardy Heath, very bright and cheerful; Veronica imperialis, a finely-coloured form of the New Zealand V. speciosa; Lonicera fragrantissima, a sweet-scented white Honeysuckle; Andromeda floribunda and A. calyculata, both pretty hardy shrubs; and long, thong-like shoots of Forsythia suspensa, completely covered with golden blooms.

Gardenia Stanleyana.—From the Carnation-shaped blossom of G. intermedia to the long tubed, trumpet-like flowers of G. Stanleyana we have an unusually wide gap in the floral characters of a single genus; but when we have seen the intermediate forms of some of the less known African and Indian species of Gardenia, it is not difficult to perceive the different stages of transition through which G. intermedia or G. florida have passed before developing into so markedly different a flower as Stanley's Gardenia, or *vice versâ*. It is, however, much easier to study the flowers as they are than to endeavour to trace out their pedigrees on the lines adopted by Mr. Grant Allen; in the genus Gardenia we find some strange and interesting flower forms and others of great beauty and fragrance. Although neither of these terms may be applied to the flowers of G. Stanleyana, yet in their size, shape, and colour we may find characters of sufficient interest to deserve favour among cultivated plants. The curiously horizontal habit of the branches, from which the long pendulous port-wine-coloured flowers, with yellow markings, hang, add to the effect of a well-grown plant of this Gardenia. Coming to us from the hottest parts of Western Africa, G. Stanleyana will thrive only in a tropical temperature, where both at the roots and overhead an abundance of water can be supplied. A flowering specimen of it may now be seen in the Begonia house at Kew.—B.

Chinese Primroses.—Some blooms of about a dozen sorts of Primula sinensis, representing the very finest yet produced, have been sent to us from Messrs. Cannell's nursery, Swanley, where these beautiful spring flowers are now in the height of perfection. The sorts are not named, but we can readily single out some of the most distinct, such as Swanley Red, brilliant carmine-crimson; The Queen, a sort with flowers over 2 inches across and of a delicate blush tint; Princess of Wales, one of the most charming of all, its flowers being 2 inches across, fringed at the edges and of a lovely clear pink tint. Among others we recognise the Swanley Giant variety, a kind with flowers nearly 2½ inches across and vivid purple. Then there is a very large pure white, and another with an uncommonly large yellow centre, rendering it one of the most remarkable of all. Judging by these flowers, we imagine that the Chinese Primulas alone are a sight worth seeing just now at Swanley.

Himalayan and other Primroses—Mr. G. F. Wilson's garden at Wisley must present just now a gay appearance, judging from the beautiful gathering of Primroses and other spring flowers which he brought us a few days since. Of these the most remarkable were flower-spikes of P. denticulata and its varieties, pulcherrima and cashmeriana, all of which Mr. Wilson says thrive and flower in perfection in his good loamy soil. Their spikes were stout, and terminated by large and dense heads of flowers—evidently the production of fine vigorous plants. Among the other Primroses were some of the acaulis section, of which Mr. Wilson possesses one of the finest strains, particularly as regards rich and varied colours. A finely shaded crimson sort named Herman Wilson was conspicuous among all the rest. Then there were the beautiful old double mauve, white, and sulphur-coloured varieties; likewise a fine, bold yellow Oxlip in the way of Golden Plover. One of the umbels of this sort carried no fewer than twenty flowers.

Hepaticas.—A charming series of thirteen varieties of the common Hepatica has been sent to us by Mr. Ware from his nursery, at Tottenham, embracing, we imagine, every form he has of the single-flowered kinds. They represent every conceivable shade, from snow-white through violet-blue to a deep rosy red. Beautiful as the white and the deepest tints are, the intermediate shades are even more beautiful. Some of these have a faint suggestion of blue in the flower; others again are shaded with pink. The gradations of tint, however, are so subtle, that one cannot attempt to describe them. We cannot help noticing, however, a white variety in which the central tuft of stamens is tipped with pink instead of white, as in the ordinary white sort. These pink-tipped stamens render the flowers distinct from those of any other kind. There is not a more lovely sight in the outdoor garden at this season than beds of Hepaticas, and a garden is really not complete if it lacks such beauty as these afford at this season. Hepaticas never show themselves to such advantage as when studded thickly on undulating knolls where they can catch every glimpse of sunshine at this season. There is, moreover, sufficient material among them as regards tint to make charming displays of colour harmony.

Varieties of the Spring Snowflake.—I send herewith a small flower of the golden spotted variety of Leucojum vernum, to which I propose to add the name lutescens. It is only a small flower, but it shows the variety very clearly. All the matured flowers I can find are too far gone to show the lustrous golden interior; otherwise it is in all respects like the ordinary Spring Snowflake, L. vernum, which has green spots on the perianth segments and a greenish hue. It is figured by Mr. Wooster, but it is quite a lost flower at present. I also send you what I believe to be L. carpathicum. It is from amongst a host of L. vernum, but I believe it is the true lost flower. I likewise send a very poor flower of L. pulchellum; it grows much finer, but is only just appearing It is not generally known, as even Mr. Burbidge was not sure of it.—W. BROCKBANK.

*** The specimen Mr. Brockbank has sent of Leucojum vernum, which he proposes to call lutescens, is very small and a little out of character, but if it is a fixed variety he is, we consider, justified in calling it lutescens, as the perianth is almost entirely yellow interiorly, and the green-tipped sepals of the type are in this variety represented by tips of yellow. L. carpathicum is apparently the same form of L. vernum as Dean Herbert named Erinosma carpathicum in his "Amaryllidaceæ." It is distinguished from typical vernum by its bearing two flowers from a spathe instead of one, and by its having yellow-tipped sepals instead of green. It is the Leucojum (Erinosma) vernum spatha biflora of the *Botanical Magazine*. L. carpathicum has also been sent to us by Mr. Kingsmill, of Eastcote.—ED.

Streptosolen Jamesoni.—This plant appears to have been in cultivation some thirty years ago under the name of Browallia Jamesoni. It has again been reintroduced under the name of Streptosolen, so probably old cultivators may fail to recognise it by its new name. It is a showy plant, of shrubby growth, and attains in its native locality a height of from 4 feet to 6 feet. It is somewhat bushy in growth, the branches being densely furnished with small ovate leaves. The flowers are about the size of a shilling; the limb is circular in outline, and the tube slender and about an inch in length. They are borne in broad panicles, which terminate almost every shoot, and as they open in quick succession the plant remains a long time in bloom. The colour varies from a bright orange-yellow to a deep reddish yellow. It is a native of elevated districts in New Granada, and was discovered by Dr. Jameson about 1850. It succeeds in a warm greenhouse under ordinary treatment. We have received flowering specimens of it from Mr. J. Ratcliff, gardener at Hessle House, Ewell, who apparently grows it admirably, and finds its flowers most useful in a cut state, the flowering twigs lasting a week or ten days when placed in water. It is also finely in flower in Messrs. Cannell's nursery at Swanley.

New Epacrises.—So seldom do we hear nowadays of new varieties of Epacris and similar hard-wooded plants, that the fact is worth recording that there are no fewer than half-a-dozen new and distinct varieties now to be seen in Messrs. Veitch's nursery at Chelsea, all in every respect a long way ahead of older kinds. The flower-spikes are more massive and the individual flowers a great deal larger than those of older sorts, while their colours render them most attractive. Our selection among the half-dozen would be one aptly named The Premier; the flowers of this are very wide-mouthed, while the colour is a deep rose-pink; Diadem, which, with the preceding, was considered worthy of certificating at the last South Kensington meeting, is also rosy pink, but of a different shade; Princess Beatrice, a lovely sort, is a pale pink, deepening in the tube to a dark rose; Rose Perfection is deeper in tint than Princess Beatrice; Her Majesty is a most charming sort, possessing massive spikes of pure white wax-like flowers in the way of the well-known candidissima, but far more vigorous. Indeed, the whole series is remarkable for extreme vigour, and even the original plants, though hard pruned for cuttings, are in robust health, and furnished with deep green foliage much broader than that of the older sorts. These new Epacrises must be regarded as decided acquisitions.

TAYMOUTH GARDENS IN DECEMBER.

Aberfeldy to Kenmore is a pleasant drive even on a cold, misty day; the road skirts the Tay till you enter the Taymouth woods, in which the river is hidden. A pretty effect was given to the foliage by the contrast between the deciduous trees, their branches silvered with the frost rime, and the deep green of the Firs and Spruces. The gardens are situated some distance from the house, and to reach them from the village of Kenmore one has to pass the Established church, which is handsomer than the majority of the parish churches in Scotland, and the bridge. But here let us stop; the view is as magnificent as any we shall see for many a long day. I will not attempt to describe it at length, but I may slightly mention the component parts and the glamour which the misty day threw over the scene. At one's feet, stretching away into the mist, are the slaty waters of the loch; to the right, Drummond Hill, thickly wooded to its summit. On the opposite side rises another hill, differing in its aspects from Drummond Hill, being more barren. But the terrestrial smoke which writhed along its side gave it a sombre appearance, which it lacks in the glare of the sunlight. The really imposing effect was, however, the veil thrown over the hillside forest. The mist, in colour almost identical with the prevalent stone of the neighbourhood, the whinstone, shrouded in dense gloom and silence the black-green of the forest. In the rear the river escapes slowly from the loch and winds through the park. The gardener's house is just "ayont the brig," and the entrance to the gardens opposite the house. It is the prettiest situation for a garden imaginable. Being at the foot of the aforesaid Drummond Hill, from all the walks one gets glimpses of grand sylvan scenery. The glasshouses are new, and some are still in course of erection, so that perhaps I did not catch the gardener, Mr. Young, at his best: but still a cursory glimpse at his houses, occupying all the time the coach allowed, showed points of interest and everything to be well grown and tended to. It is always interesting at this season to notice the plants in bloom in the forcing and stove pits. In addition to the usual flowers seen in every garden, I noticed Jacobean Lilies, some plants of which Mr. Young said had flowered three times during the year. Bouvardias, including Alfred Neuner, are especially well grown here. As the castle is at a great distance from the gardens, decorative plants are necessarily small, but they are all vigorous and clean. The Pines alone are worth going some distance to see, and one hanging up, with the date of its execution appended, and which many a gardener would be proud to own, was modestly described as a "wee one." There are some grand Smooth Cayennes; and Lady Beatrice Lambton, from its giant growth, ought to be something out of the common, although Mr. Young has not yet proved it. In the peacheries the men were busy painting the branches with Fir-tree oil instead of the old mixture of lime, cow manure, and sulphur. It is far cleaner and, I was informed, more effective. It would be well perhaps for those, who have not adopted its use as yet, to experiment with it on one or two trees in their houses. It can be laid on with a very light brush, so there is little or no danger of wrenching out or injuring any of the buds; and of course the lime scales, which often enough litter the ground, are dispensed with. The favourite variety of Peach is Stirling Castle, and young trees of it and other varieties have made astonishing growth. There are in all twenty houses, including eight vineries, one of which is devoted to Gros Colmar, Mr. Thomson's Grapes do not do well at Taymouth, although The Duke is still grown. At the head of the garden are fine specimens of the Araucaria imbricata and of Cryptomeria japonica. The fruit trees are somewhat old, but chiefly consist of the best-known varieties. The young trees are those that have been proved to be specially suitable for a northern atmosphere, such as Tower of Glamis and Stirling Castle. Although the garden is within a few yards of the loch, there is nosuch prevalence of spring frosts as formerly, when the gardens were nearer the castle and close to the river. It was difficult to leave abruptly such a grandly-situated garden. If any of your readers wish to unite the picturesque with the horticultural, let them go to Taymouth. Standing and gazing from the bridge, they will find it "plus admirable que l'église et le théâtre," as Georges Sand says.

C. A. M. Carmichael.

NOTES.

Two good Snowdrops now in flower are Galanthus Elwesi and G. Melvillei—the first-named a wild species, and the latter a very distinct variety raised by Mr. Melville in the gardens at Dunrobin Castle. Our sketch shows a flower of each variety of the natural size. It does not appear to be generally known that there are at least a dozen species and varieties of Snowdrop in cultivation. Of these the best are G. Imperati, G. plicatus, G. nivalis, and the two above named. All are far too rare in our gardens; even the common kind is rarely met with in profusion. It is one of the earliest and prettiest of all our native wild flowers, and at home everywhere in gardens and woods, or on lawns and meadows alike. Once well planted, Snowdrops rarely die out, but increase in beauty and profusion year by year. If stock is desired quickly, replant the bulbs every June. In Lincolnshire (the great Snowdrop county) they are grown by the acre for sale, but I never yet saw a garden where there were too many Snowdrops, or a field too full of Daffodils.

Galanthus Melvillei and Elwesi.

Irish Anemones—A lady writes to ask why seedling varieties of Anemone coronaria should be called Irish Anemones, seeing that they are wild on every hillside near the Mediterranean. I must inform my fair correspondent that double varieties of Anemone coronaria are rarely wild, and our best Irish Anemones yield a large proportion of double and semi-double blossoms as raised from seeds, and they are, moreover, so hardy, that by sowing their seeds in February or March, they flower in England or Ireland as well, or nearly so, as they do in the south of Europe, and this is surely a great gain to our gardens. As to the mode of sowing the seed, Mr. Smith sends me the following directions: "Choose a sunny open spot, sheltered from rough winds; put on a good dressing of rotten manure—cow manure is best—and well dig, covering the manure at least 5 inches deep, and as soon in February as the surface is dry and friable sow the seed (this must first be separated by rubbing with a quantity of sand), taking care to distribute it as thinly as possible; it is almost impossible to sow too thinly. Keeping clean from weeds and an occasional watering with liquid cow manure during very dry weather is all the after attention they will require. Bloom will commence in October, and continue through the winter and spring months. They are best not transplanted." I may add that the most vivid of scarlet Windflowers from the open air, with the purest of white Christmas Roses for our New Year's Day bouquet is, as I take it, a precious boon, and this much may be done in all sheltered seaside gardens by sowing good seeds at once.

Veronica.

WHAT IS A GILLIFLOWER?

In further illustration of the question, as to the origin and application of the name Gilliflower, allow me to invite the attention of your readers to the following passage, which I extract from Mr. Leo H. Grindon's interesting little volume, the "Shakspere Flora." On page 168 Mr Grindon says, referring to the Carnation and the Gilliflower:—

"About the Carnation there is no doubt. Introduced from the Continent, probably in the time of the Normans, it took at once the place of honour in English gardens, never since challenged. All the old poets have something to say in its praise, now and then indicating the derivation of the name, which is simply a condensed form of Coronation, a flower adapted for use in chaplets, and which has never been given to anything else. Gilliflower, often supposed to be the same, had a much wider meaning. In Lyte, 1576, it covers the Carnation, the Pink, the Sweet William, the Marsh Lychnis, the Soapwort, and a couple of Silenes, all members of the same botanical family; also various Crucifers, including the Hesperis, the two Matthiolas the Dentaria, and the Wallflower; and, besides these, the Hottonia and the Tagetes patula." Essentially, nevertheless, Gilliflower was understood to mean certain varieties of the Dianthus Caryophyllus, the typical form of which is the Carnation ipsissima, as shown by the derivation supplied by Caryophyllus, the latter word referring to the Clove-like odour. Again, of the Carnation ipsissima, the varieties in question were doubtless those which to-day are called bizarres, and which the florists of the Elizabethan age thought to multiply by means of the odd and futile process described in that curious old black-letter volume, "Hyll's Art of Gardening," 1574, p. 88. "Perdita," whose character is distinguished by its love of truthfulness, will have none of these artificial things. She is no horticultural experimentalist; she takes the flowers just as they were made. In her innocent ignorance she thinks that all the "pied Gillies" have been obtained by the artificial process she detests. No botanical name ever experienced so many imitations. In the literature of the fifteenth and sixteenth centuries may be found Gyroflée, Giroflée, Gilofer, Gillofer, Galofer, Gylofre, Giroffe, Gelofer,

Gyllofer, Gelouer, Gillyvor, Gelyfloure, Gilofloure Gillofloure, Gelliflower, Gilloflower — no fewer than seventeen different spellings, and probably others not observed.

HARRIETTE SMITH-BAINBRIDGE.
Shaw Heath, Stockport.

FLOWER GARDEN.

GOOD SUMMER FLOWERING PLANTS.

SPIRÆAS.—There are some four really good border kinds of these. Spiræa japonica is in perfection about midsummer on the open border. This is the sort so much forced for market purposes about London in spring. It is a most useful border plant, and is easily and quickly increased by division of the roots, one good root making many plants in a year. Plenty of plants should be grown, and some of them may be taken up annually for forcing, and put back into the border again, when, if the forced shoots are cut away, fresh ones will be produced, and good flowers in the autumn. The plant grows freely in any situation. The best variety of the family is S. palmata, which grows about 18 inches or 2 feet high, producing broad palmate leaves and broad corymbs of rosy red flowers, that are exceedingly pretty either in a cut state or on the plants. Indeed, this is one of the best of hardy plants, and a great favourite. Some complain of its not growing well, but here, in a dry, but strongish soil, it grows and flowers with great freedom. We have many fine clumps of it, all propagated from one small plant received a few years ago. It should be increased by division of the roots in October. S. venusta is a taller-growing variety, producing pink flowers, and flowering later than palmata; it is a pretty variety, but not so effective as the latter. S. Filipendula flore-pleno and S. Ulmaria flore-pleno, the Meadow Sweet, are also pretty varieties, with creamy white flowers produced in July.

DELPHINIUMS.—These showy border subjects are too well known to need description, and yet they are not so extensively grown as they should be. Mostly all the varieties of the formosum type are tall, running from 3 feet to 6 feet in good soils, and producing spikes sometimes nearly a yard long, often branching out below the main spikes, which are always perfectly erect and symmetrical. The prevailing colours are blue, purple, azure, and indeed almost every shade of these, and all of the most lustrous description. There are many named kinds, and both double and single varieties; but the siogles are the most effective. It is desirable to start with a collection of the best named sorts, and afterwards raise the plants from seed, by which means an almost endless variety of shades may be produced. Seedling plants grow and flower best, and a batch may be raised every two or three years; but old plants live a long while, and may be readily increased by division of the root in autumn and spring. The seed ripens in August, and should be sown as soon as ripe, either in boxes or in a favourable spot outdoors, and the seedlings will flower the next year. Seed sown in February produces plants that flower freely, but not strongly, late in the autumn, and this is a good way of securing flowers at that season. Old plants cut down when about 1 foot high in spring will also flower late, but not so late as spring sown seedlings. The Delphinium delights in a good deep rich soil, and sends its top roots down deep; it is very hardy.

PHLOXES.—There are two sections of these popular herbaceous hardy border flowers, viz., Phlox suffrutiosa and Phlox decussata, the first being an early flowering kind, and the other a late flowerer. Between the two it will suffice to say that Phloxes may be had in flower from July till November without a break. In our late district some of the varieties we notice are so late, that they never open their flowers at all, while some of the earlier varieties come into flower in July. The best plan is to grow both sorts. As a rule, the early varieties are not so tall, but some of the late kinds reach a height of 5 feet. As regards the flowers, there is not much to choose between the two. The early kinds are, of course, the summer flowerers. Phloxes propagate most readily by division of the roots, and may be propagated by cuttings of the young shoots in early summer. All are hardy and easily grown, and afford numerous shades of colour, such as white, purple, crimson, red, lilac, vermilion, &c., but no blues or yellows.

IRIS.—This is a numerous family, so far as variety goes, and nearly all bloom about midsummer—German, Spanish, and Japanese. They should be planted extensively, as they are well able to take care of themselves, and grow in almost any soil, doing tolerably well, even in the wild garden, where they are not choked up during the summer by long Grass.

CARNATIONS AND PINKS.—Carnations flower from July till frost sets in, but July is their month. They need only to be named to excite one's wonder that such fine border flowers could ever have been neglected in gardens. Carnations and Picotees are propagated by layers or cuttings. Varieties vary in constitution, but all are hardy, and when grown in masses and mulched during the winter, do better than when grown in pots, so far as flowers are concerned. Some of the best border Carnations consist of the crimson, scarlet, and white Cloves, Royal Purple and Duke of Wellington Carnation, but all the intermediate shades are very pretty, some soft and pleasing. The common rockery Pink flowers during June and July; there are single and double forms of it, mostly white and bright pink in colour, and all are exceedingly pretty and effective. Plants soon extend, and produce dense masses of fragrant flowers, easily propagated by cuttings under handlights in July and August.

POTENTILLAS.—The hybrid kinds of these are a great improvement on the old garden form, their flowers being much larger, semi-double and single, and unique and striking in colour, mostly all bearing a golden or bronzy velvety hue. They flower in June, and will continue to flower till late in August; they are propagated by division of the crowns early in the autumn or in spring; any portion of the crown with a bit of root to it will grow.

AQUILEGIAS.—These may be said to have come into popularity only of late years; but the old Columbine is well known. Mostly all the forms are good growers outdoors and hardy. They are easily propagated by seed sown as soon as ripe, in autumn, in a slight heat, and the seedlings will bloom the season following, and strongly the third year. We have had three-year-old seedlings 5 feet high. Plants of them continue to flower for six or seven weeks. The finest sorts are Aquilegia chrysantha, glandulosa, californica, cærulea, and the hybrid varieties.

LILIES.—There are now many so-called hardy Lilies, but they are not all alike sure growers. Probably the best sorts for planting out permanently are Lilium candidum, pure white, fragrant and beautiful; L. auratum, L. lancifolium, and the Martagon Lily. The first is one of the best, if not the very best outdoor sort, as it is hardy, and grows almost anywhere if left alone and not disturbed at the root. The scarlet Martagon is, however, the best grower and flowerer, and is a very effective flower in the shrubbery or border. L. auratum does very well almost anywhere the first year, after planting imported bulbs; and in many places in the south it succeeds permanently, but in the north it dwindles away in two or three years, or becomes weak and flowerless. Much depends on the situation, however. We had stems last season close upon 7 feet high, showing over thirty flower-buds, from roots planted in 1881 in the open ground in front of shrubs.

LYCHNIS VISCARIA RUBRA FLORE-PLENO.—I regard this plant as about the very best of its class for the border, and can compare it to nothing so much as a vivid rosy crimson Stock. The plant seems all flower together when it is in flower, and is a most telling subject. Some masses of it here last season were the first objects that arrested the attention of visitors. It is not a very strong-growing plant, and we have occasionally lost plants in winter, but it is easily increased by division, and seems to thrive best on a warm border.

LUPINES.—The herbaceous forms of these flower in June, and are good, especially the old common azure-blue and milky-white varieties, which have a pretty effect in the mass. They will grow well for years on the same spot, and are quickly increased by division of the roots.

VIOLAS AND FANCY PANSIES.—These begin flowering in April and continue to flower through the whole summer and autumn, but are at their best at midsummer. They grow in any situation, but love coolness and moisture, and if the seed-pods are picked off before they fill, the plants will grow and flower considerably longer. Cuttings strike freely in a sandy compost on a shady border under handlights all through the summer and autumn.

ST. BRUNO'S LILY (Anthericum Liliastrum).—This beautiful pure-white flowered Lily-like plant lasts but a very short time in flower, but it is well worth growing, and plenty of roots should be put in pretty thickly together. It is delightfully fragrant.

SWEET WILLIAMS.—A wonderfully rich and effective display can be made with these alone. There are all shades of colour amongst the varieties, from white to vivid scarlet and crimson; indeed, the Sweet William affords some of the richest and most intense colours among garden flowers. Stock is easily raised from seed, which is the best way. The seed should be sown in July on the open border, in a favourable position, and the plants will be fit to transplant in spring, and will flower the following year, and strongly the third year. It is wise to sow seed every two or three years, as old plants run out. Good varieties may be preserved and propagated by cuttings of the young shoots inserted under handlights, like Pinks, from July till the end of August.

PYRETHRUMS.—Both single and double kinds of these are very pretty. We think the single kinds are best, some of them, large Daisy-like flowers with vividly coloured petals, being very striking; but both sorts are good border plants. They flower in June or July. Their great fault is that on some soils it is hardly possible to prevent the slugs destroying the young shoots as fast as they push, for they are very fond of them; otherwise Pyrethrums are good growers, and, once established, they do well.

JAPANESE PÆONIAS.—For telling plants, either on the Grass or border, commend us to these. The colours are numerous, and pretty as well as showy. All the varieties are good growers, and are best planted in good soil and left alone, when they will soon form good stools, and bloom with certainty every year about midsummer.

GIANT THRIFT.—The common Thrift, so well known as an edging plant, is very pretty when in flower, and the giant form is much like it, only the flowers are a good deal larger, and borne on much stouter stalks. It is a good subject for carpeting borders among other plants.

DAY LILY.—There are several varieties of this, mostly pretty, some of them tall and attractive with orange or yellow flowers. The plant is a good grower, and flowers in June and July. There are few better subjects for cutting for large vases.

J. S. W.

Gladioli.—Now is the time to prepare ground for Gladioli for summer flowering. The value of these magnificent and showy plants can scarcely be exaggerated. The ease with which they can be grown, and their exceedingly low price, make them the most desirable of all flowers for decorating shrubberies or grounds. Certainly the best and most showy variety amongst them is brenchleyensis, vivid scarlet, and very free flowering; it is also the cheapest, and the effect of a clump consisting of about a hundred bulbs of it is truly grand. Next come gandavensis, scarlet and yellow; psittacinus,

bronze-yellow; and ramosus, rose and white. The ground should be light and well pulverised, and an inch or so of silver sand should be put round each bulb, which may be placed from 4 inches to 6 inches deep. March and April are the best months for planting; after flowering, when the leaves turn yellow, the bulbs should be carefully removed and stored in silver sand for the next season, and with care they will last for several years. While flowering, liquid manure may be liberally applied.—C. C.

NEW CARNATIONS AND PICOTEES.

I would refer Mr. Dereham to Vol. XXIV. of The Garden (p. 85) for some remarks on the new Carnations and Picotees exhibited last year. Our whole collection has now been potted. Many would say that it is too early to begin potting in February; but as a rule we are always early with our potting, and it depends a great deal upon the treatment the plants receive afterwards. I put them in somewhere under glass, and we are careful not to supply them with much water for a week or ten days after they are potted. Other growers may say, Why pot them at all? Plant them out in the open border, and let them take their chance. I am afraid if we were to plant them out in the open air at this season of the year there would be numerous losses, which is a matter of some consequence with Carnations and Picotees at 10s. a pair. There are many people so much captivated with Carnations, that they do not think it too much trouble to grow a collection in pots, and when blooming time arrives they form a most interesting feature in the greenhouse or any other convenient position under glass. They want no artificial heat. As to the new varieties mentioned at p. 122, as far as I can judge of them, I think they are real acquisitions in their several classes. Your readers will observe that no scarlet bizarres are mentioned, but there have been so many really good varieties brought out during the last three or four years, that we can well afford to go without any this season. In six years Mr. Dodwell introduced no fewer than twenty-five varieties. Some six varieties stand quite in the front rank. I have grown nearly all of them, and would select the following as the six best: Arthur Medhurst, Edward Adams, Fred, George, Philip Thomas, Robert Lord.

Crimson bizarres.—Samuel Barlow, exhibited for the first time at Slough last year, is a distinct and good flower of excellent properties. The plant is not a very robust one, but the flowers are of the largest size, rich in colour, bright crimson and full purple on a good white ground. Mrs. Anstiss, like the above, selected from Mr. Dodwell's seedlings, is a good addition to the pink and purple bizarres. As shown at Slough, the flowers were only medium sized, but the bloom which gained the first prize in the class to which it belongs was one of the best marked flowers in the exhibition. The petals are beautifully formed; the flowers themselves are better adapted to be shown in classes than in stands, although it will make a good front-row bloom William Skirving, raised by Mr. R. Gorton, of Eccles, and now being distributed, has won the highest awards north and south during the last two years. It is of a very vigorous constitution. The flowers are of the largest size, the outer petals being well formed and beautifully marked. This variety has quite revolutionised this class in conjunction with Mrs. Anstiss. Squire Whithourn is the only real good purple flake that has been sent out since Mr. Simonite, of Rough Bank, Sheffield, introduced James Douglas. It is not a flower of the largest size, but it is well marked, the petals being of good form and substance. It is a really good addition to this class.

Henry Cannell is a very distinct scarlet flake. Probably it may not beat Sportsman, but that variety, being merely a sport from Admiral Curzon, is getting worn out, while Henry Cannell is yet in the heyday of its youthful vigour. If I were to choose only one scarlet flake it would be this. The flowers are perfectly full and well marked with bright scarlet on a good white ground. Mr. Dodwell says it is the best he has yet raised in this class. Figaro and Matador, raised by Dr. Abercrombie, of Cheltenham, and being sent out by Mr. Turner, have been honoured by the National Carnation Society. I think that Matador is perhaps the better of the two. They are distinct and good. Rose flakes are represented by Dorothy (Dodwell), a flower of the largest size and finely formed, of a pale rose colour on a good white ground. It is not quite of the exhibition type, but beautiful for the garden. Tim Bobbin and Rob Roy are two very good additions to this class; they are from Mr. Gorton's seed bed, and are two of the most valuable additions to this class that we have had since Sybil was sent out. Tim Bobbin is the better of the two, but Rob Roy is also good and quite distinct in its bright cherry-rose colour.

The Picotee Esther Minnie (not Minnis) is a lovely heavy rose-edged variety. I grew it last year, and think it much superior to any of the same type. It is a seedling from Niven's Fanny Helen, but Fanny is declining in vigour, and never was at its best so good as this offshoot from it. Mrs. Webb, exhibited in fine form by Mr. Turner at Slough, is more of what is termed a scarlet edge; it is very large and full, making an excellent back row flower in a stand.

J. Douglas.

SOME PLAGUES OF THE ROCKERY.

Of course you mean snails and weeds. Well, they are great plagues, and where the rockery is small, as mine is, and the plants of each species to be counted by units instead of by dozens and hundreds, they are especially annoying. There cannot be anything more delightful for the snail or slug than the presence of a rockery in a garden, and I have no doubt that if they bold meetings and discuss social questions they always pass a vote of thanks to those kind friends who have provided them with such a paradise. The stones are so delightful to shelter under, and some of the plants are such dainty morsels, that they must be thankful for such kind caterers. How they luxuriate in Lychnis alpina! I have one small clump of it, and I have taken more than two dozen slugs and snails, small and large, off it in one evening. Then how delightful are the large, thick leaves of Ramondia pyrenaica! What a nice soft counterpane they make! And then how delightful to be able to eat one's bed-clothes, especially when one can find another blanket the next night—far better than Virgil's heroes devouring their own tables! Now, with regard to these pests, there is but one remedy; they must be hunted out individually, tracked to their habitats, and then ruthlessly slaughtered, and especially where there are certain plants to which they are devoted; why they should be so, who can tell. Why, if there are in the herbaceous border a number of Delphiniums, they will pick out Belladonna, as they usually do, is one of the mysteries of taste to which we, too, are subject; therefore when our friends—the slugs—particularly affect a certain plant, guard it well; there is no better plan for effecting this end than that recommended by Mr. Ewbank, of placing a collar of perforated zinc round the plant; there is something which the slugs do not like in its rough surface, and they will carefully avoid it; only be sure that it is well imbedded in the ground, or they will manage to get underneath it. Then, as to weeds, why, it may be asked, should there be any difficulty with them? Can you not pull them out? Yes; but one cannot do everything oneself, and I do not find stooping to weed an agreeable pastime for an elderly gentleman. You must then commit it to others, and here is the difficulty; some of the alpines look so uncommonly like weeds, that even an experienced grower is sometimes in doubt, while the boy or woman you employ is not troubled with any doubts, but simply makes a clean sweep, and you go out to find a cherished plant gone. Where the rockery is large, as at St. Albans Court, my friend Mr. Hammond has trained a party for this work exclusively; she is shown what are to come up and what to remain; but then in a small rockery there is another difficulty. You want to get rid of a weed or some too rampant plant, and you pull it up, but (especially if your sight is not very good) you may possibly pull up a plant with it. I am frequently accused by my daughter of doing such things.

But when I began these short notes these two plagues were not chiefly in my mind, but certain plants which by their persistence in coming up everywhere and refusing to be exterminated do become regular nuisances. To this category belong some of the Sedums (S. acre and others). They throw themselves about in all directions. They are, however, comparatively easily pulled up; they make but little root, and it is only when they insinuate themselves amongst other small-growing things that they become a nuisance; still, a nuisance they are. One of the most troublesome plants that I have ever introduced into my small rockery was a Ranunculus anemonoides; in an evil hour I planted it some four years ago, and I have not got rid of it yet; it comes up in all manner of places, showing itself with the true persistency of a Crowsfoot in all directions. Rosa pyrenaica is another plant that requires to be carefully watched; it throws out, in the manner of its tribe, underground suckers, and will come up some distance off in the middle of a plant which you have to disturb to get rid of it; it is very pretty when kept within bounds. Then there is another, a Dianthus, which I believe to be deltoides (the Maiden Pink), which runs all over the part of the little rockery where it is planted; the foliage is neat and the flowers pretty, but at the same time it runs over everything, and if there are delicate-growing plants in its way it is sure to smother them. In the only damp spot in my rockery I have found Sisyrinchium convolutum equally troublesome; it grows very rapidly and chokes other things which are in the same place and require room.

There is one of the Campanulas (I do not know which) which is a perfect nuisance. I cannot—and it is no beauty—get rid of it; it comes up in all sorts of places far away from where it was planted, and although I cut it about as much as I can, the smallest piece of it seems to grow. I suppose in time I shall banish it. It is hard to speak of such a little gem as Campanula pulla as a pest, but Mr. Loder tells me that he cannot get rid of it. I have had as much difficulty in keeping it, as slugs seem particularly fond of it.

I have named a few plants which I have found thus troublesome in the hope that some other growers may give a warning note as to troublesome plants. I should have been saved a world of bother if I had known in time before I planted these which I should have had to repeat, and I may perhaps be contemplating planting others which may be equally troublesome Many writers are good enough to tell us what to plant: will some tell us what to avoid? Delta.

SOIL FOR CHRISTMAS ROSES.

"S. D." says that Christmas Roses thrive best in peat. Is this a fact? If so, it is contrary to my preconceived notions of the requirements of this hardy flower. I have always thought, and I have seen it more than once stated in The Garden, that good loam suited it best. The finest plants of it which I ever saw were in a nursery where the soil was stiff loam, the character of which may be guessed at when I mention that bricks were made close to the place in question. Perhaps "S. D." means that the flowers expand better on plants grown in peat than in loam, and at this I should not be surprised, as we know that it is warmer than any other soil, and if not so nutritive, more preservative and stimulating in the matter of root action. The fact, too, of the Hellebores being placed on the edge of Rhododendron beds would account for the flowers opening better owing to the shelter afforded them. I do not know how Christmas Roses grow naturally, but I should suppose that it must be where they get some shelter, and where there is an annual deposit of vegetable matter to keep

up their vigour Now some experienced growers have said give them shelter and a certain amount of shade if you want to see them at their best, but the plantation above alluded to was in the middle of an open field, where it was swept by the breeze and roasted by the snn, and yet I never saw such thick leathery foliage and strong crowns. But, indeed, we need not seek far to find instances of plants thriving well under conditions apparently the reverse of natural. Thus the Lily of the Valley has its home in woods or similarly sheltered situations, but under cultivation the finest crowns are obtained in full exposure, and a German grower once told me that the hotter the summer the better the crowns, provided sufficient moisture could be given. Violets and Primroses too, are examples of how high culture will counteract adverse or unnatural conditions, for, as is well known, they are grown as field crops in full exposure to the sun; whereas naturally they seem to love cosy sheltered nooks in hedgerows and woods. I think that we have much to learn in the matter of position in relation to soil and culture, and one of the gardener's arts is undoubtedly that of altering or modifying some conditions to supply the want of or counteract such as may be too much in the ascendant. One thing is certain, that deep culture and good drainage with plenty of good food will enable many plants which naturally avoid the sun not only to withstand it, but actually to enjoy it, making altogether stronger growth than in their natural surroundings, and amongst them may, I think, be placed the Christmas Rose.

J. Cornhill.

THE LEUCOJUMS.

We do not appear to have arrived yet at a correct appreciation of the several varieties of Leucojum. Messrs. Paul & Son write (p. 140) that they had then in flower at their Broxbourne Nursery L. carpathicum, and Mr. S. Shortt states (p. 144) that it is in Mr. Loder's garden at Floore. Mr. Shortt kindly sent me a bloom of the Floore Leucojum, and which had come from the collection of the late Mr. Harpur Crewe. I was, however, by no means satisfied that it was L. carpathicum, as it was but a solitary flower; whereas L. carpathicum is twin-flowered in each scape (as shown in plate 1993, Bot. Mag.). I considered the Floore Leucojum more likely to be the yellow-spotted variety of L. vernum as shown by Wooster ("Alpine Plants," vol. i, p. 95). It had the beautiful golden spot and golden hued interior as shown in Wooster's plate. This appears to be the most beautiful variety of the Spring Snowflakes, and deserves to be separated as *L. vernum lutescens.*

Will Mr. Shortt inform us if the Floore Leucojum is twin-flowered, as this will settle the point? I am not at all sure if L. carpathicum blooms so early as this. In the "English Flower Garden" we are told "L. carpathicum flowers a month or six weeks later than L. vernum, and, unlike that species, *begins to expand its blossoms when the stalk and the leaves are scarcely above the ground.*" It will therefore be seen that there is good ground for doubting the identity of these flowers—blooming in February.

Miss Owen sent me last week from Gorey a beautiful scape of L. pulchellum which I had always considered one of the Summer Snowflakes, but here we have it with L. vernum. Following the authority of the "English Flower Garden," Miss Owen called it also L. Hernandezianum. Here, again, we have a popular error. This is correctly stated in "Alpine Flowers," p. 239, as follows: "L. æstivum in its typical form is less often met with in cultivation than its sub-species, L. Hernandezi, a native of South Europe, which often does duty for L. æstivum in botanic gardens, and is sold by seedsmen under the name pulchellum. The latter flowers from three weeks to a month earlier than L. æstivum, and has the flowers smaller, little more than half an inch long, and the perianth segments more incurved, so that the perianth is somewhat ovoid and its flowering urceolate." Miss Owen's flower was exactly according to this description, and altogether more slender and graceful than the Summer Snowflake, which it otherwise resembles.

I hope your readers will still keep a look out for the varieties of Leucojum, as they are all well worth notice, and not half appreciated.

Brockhurst, Didsbury. Wm. Brockbank.

5141.—**Destroying weeds on lawns.**—"B. J." (p 93) will find sulphuric acid (oil of vitriol) the best material he can use for destroying tap-root weeds on his tennis lawn. Procure some acid from the chemist, put it in a wide-necked pickle or preserving bottle with a piece of wire around its neck, and tied in a loop about 6 inches long, by which to carry it. With a small pointed stick in the other hand, dip the stick into the acid, and then pierce the heart of the weed with it, and the latter will never be troublesome any more. When dead, the Grass will quickly cover the place it occupied. Care must be taken that the acid is not allowed to touch the hands, clothes, or shoes. I may state, however, that in the case of any accident happening with it, the part affected should be immediately immersed in or sluiced with water. This method of killing weeds will be found to be much more expeditious than that of lifting them by means of a small fork. Besides, when acid is used no holes will be made in the turf.—C. W. C.

The Himalayan Heather (Cassiope fastigiata).—Like several Heathworts from high elevations or northern latitudes, the subject of this note is a beautiful plant, but one which is somewhat less amenable to ordinary garden treatment than many other members of the highly ornamental family to which it belongs. It is a stouter, more erect grower than its nearest ally, C. tetragona—a large patch of which I had the pleasure of seeing last year in Mr. J. Stevens' garden at Byfleet. A well-drained spot in a damp peat border seems to suit its requirements; it dislikes stagnant moisture, and is impatient of removal. The pure white Lily of the Valley-like bells have a chaste beauty which cannot fail to win the admiration of all who love flowers. A kind of mental picture of this lovely plant in its far-away Himalayan home may be formed by the following extract of an account of a "Night on Mon Lepcha," given in Hooker's "Himalayan Journal": "The Himalayan Heather grew abundantly here, affording us good fuel, and thick masses of it, with Moss (which latter hung in great tufts from the bushes) laid on the snow, formed my bed; my blankets had not arrived, but there was no prospect of a snowstorm."—N.

Verbenas from seed.—Verbenas from cuttings have been well nigh banished from our flower gardens owing to a disease that has rendered their cultivation very precarious, but happily seedlings, from their more robust growth, seem to enjoy an immunity from this disease, and very beautiful beds of flowers they make, their varied colours and spreading habit making them the very best of carpeting plants for covering the soil under plants of a more stately habit of growth. The latter must, however, be planted at wide intervals apart, so as not to shade the Verbenas beneath them too much. The seeds should be sown now in pans or boxes, and in a genial temperature of about 60° they will soon germinate and make good plants. When fit to handle, prick them off into boxes filled with light sandy soil about 2 inches apart; keep the points of the shoots pinched out in order to make bushy little plants by the time they can safely be trusted out-of-doors. Cold pits or frames are the best places in which to gradually harden them, as the lights can be kept entirely off except when cold winds or frosts prevail. Few plants repay liberal culture better than the Verbena; therefore the soil should be deeply dug and well enriched, so that the roots may find food and moisture in periods of drought. Under such conditions they keep growing and flowering profusely during the whole season, but if starved their flowering period is brief. After they have started into growth, the shoots should be spread over the surface of the beds and kept in their places by means of stout pegs; after that they will need but little more attention the whole season.—James Groom, *Gosport.*

Crossing Hellebores.—From time to time you have received so many collections of Hellebores that I ought, perhaps, to forbear repetition, but I wish to submit two to your notice—first, a large white seedling, upwards of 4 inches across, probably a cross between abschasicus albus and olympicus major; the other graveolens, or what I take to be such, is equally remarkable for its beauty and rarity; it is tinted with a peculiar brown-purple which I have never found in any other; I observed it under this name many years ago before the hybridising mania amongst other then rare species took place. I have often tried to buy graveolens, and I have plants from at home and abroad, but never correct, and not two alike. I am tempted to add to my box a few more of my seedlings, wishing to make a remark about crossing Hellebores. Perhaps what I am going to say may be well known to some, as well as to me, but it may be new and interesting to others. Between two kinds whose characters and colours we wish to combine it is generally one which we specially fancy, and to give prominence to this I find that the favourite plant should supply the male pollen, and the other should bear the seed. I do not say that this is always so, but it is according to my experience, and I have fonnd the rule to extend so far as this, that in several cases the seed from a species with non-persistent foliage crossed by pollen from one with persistent leaves has produced a persistent-leaved off-spring. I enclose a green flower as an example. I have others also, and I have the reverse, where a persistent form crossed by pollen from a non-persistent has produced a non-persistent plant. As another result of crossing, while I do not question the fact that what is called guttatus, and is considered a species, has been gathered in its native localities, yet, as I may have mentioned before, I have raised very many and varied forms of guttatus by spontaneous crossing in my Hellebore borders, although I had no so-called guttatus in my possession from which they could have sprung. I euclose also Iris stylosa, the larger form.—T. H. Archer-Hind, *South Devon.*

*** H. graveolens, as Mr. Archer-Hind says, is peculiar in colour, small, and, though not showy, interesting. The white seedling above alluded to is one of the finest of Hellebores. Its flowers are very large, showy, and fine in form. It is certainly the best of the group sent, which contained some pretty spotted sorts and others remarkable for the singularity of their colours.—Ed.

ANNUAL AND PERENNIAL COREOPSIS.

Although the genus Coreopsis consists of a considerable number of species, it is nevertheless but sparingly represented in gardens. Many of the annual varieties make, however, exceedingly useful border plants. They may be cultivated with a fair amount of success in ordinary garden ground, but where the soil is naturally deep, light, and rich they become wonderfully increased in vigour, and this, with a corresponding size of flower and richness of colour, will hardly fail to secure for them a first place in the mixed border. The seed should be sown in April in patches very slightly covered with fine soil, and when the yonng plants are large enough to handle they should be thinned out in the usual way. In the "Genera Plantarum" the name Calliopsis, hitherto almost exclusively used for the annual species, has been dropped, the whole being included under Coreopsis, a change which will doubtless be appreciated by lovers of hardy flowers.

C. tinctoria and its varieties, C. Drummondi, C. Atkinsoniana, and C. filifolia may be taken as amongst the best and showiest of the annual sorts. The richness of colour in the varieties of C. tinctoria, among which are atro-purpurea, bicolor, and tricolor, eminently fits them for a place in every garden. C. filifolia, sent out under the name of Telespermnm filifolium, is a large-flowered and very handsome plant; its blossoms

are rarely less than 2 inches in diameter and bright yellow, with a prominent reddish purple disc. It is a native of Texas, and flowers from July until the end of September.

Of the perennial species at present cultivated, perhaps not more than four or five are really useful plants, and these, from their permanent character and free-flowering habit, are best suited for the flower garden or rockery. C. senifolia, found in sandy woods in Virginia, is an extremely useful rock plant, the more so as it grows and flowers freely in intensely shady places. It grows about 2 feet in height. It has deeply cut, three-parted leaves and spreading segments, which appear as if there was a whorl of six leaves at every joint, variable in breadth, and more or less

Flowers of Coreopsis lanceolata.

hairy. It produces pretty star-like yellow flowers, with dark discs, all through the autumn months. A variety called C. stellata has much broader, glabrous leaves, and bears a corymb of large bright yellow, very attractive flowers. C. lanceolata, of which the annexed woodcut is a much reduced representation, is amongst the best and showiest of all our late autumn flowering plants. It is found on mountainous situations in Virginia and Carolina, and unless in extremely favourable positions seldom attains more than 2 feet in height. It prefers a light rich soil rather dry than otherwise, and is therefore very suitable for sloping banks or the summit of rockeries; the leaves are opposite and broadly lance-shaped; the flowers, which are large, are of a beautiful rich golden colour, and produced abundantly from July until October; they are also very useful for cutting, as they last for a considerable period in water. It is easily propagated by division of the roots. C. rosea (rose-flowered Tickseed) is a pretty dwarf species with narrow opposite leaves; the flowers, produced in heads, have bright rose-coloured rays, which contrast strikingly with the dark yellow disk. This plant thrives best in natural or artificial bogs or swamps, and is very suitable for planting on the margins of lakes or other ornamental water. D. K.

Anemone Robinsoniana—In reference to a note on page 144, I think Mr. Robinson's name is often unfairly usurped in connection with this plant. I know Mr. Thomas Shortt too well to think it likely that he would ever speak of a crimson A. Robinsoniana, a plant of which the essential condition is that its colour should be a delicate blue. The late Mr. Harpur Crewe was a great admirer of A. Robinsoniana, and his criticism upon it is often printed in nursery catalogues. He used to call my attention to the frequency with which an inferior variety, A. nemorosa var. cœrulea, was sold as A. Robinsoniana. This inferior variety has been found in many English counties, being accidental rather than local in its occurrence. The true Robinsoniana differs from it in size, though not in colour, being the blue variety of A. nemorosa major. That there is a major variety of the common wood Anemone, which retains its character when planted by the side of the common type, is established beyond a doubt, though I have never been able to obtain it. As regards crimson varieties of wood Anemone, I have never yet seen one in which the colouring was persistent. It continues as long as the plant remains in the same soil, but if sent to Devonshire for change of air and soil it becomes white. On the other hand, in the variety cœrulea the colouring is diffused through the substance of the leaf, and is never lost.—C. Wolley Dod, *Edge Hall, Malpas.*

Ferns.

PROPAGATING AND RAISING FERNS.

Of the many operations pertaining to gardening, none are more absorbingly interesting than the propagating and raising of Ferns from spores or seeds, which most kinds bear abundantly. In ferneries, where the conditions are favourable, the spores find suitable resting-places on which they germinate freely. Indeed, the seedlings may be seen in vast quantities on damp bricks, on the sides of pots, on the surface of the soil, and in all sorts of positions. Although, however, Ferns come up in this promiscuous fashion, few think of sowing and raising them from spores; what young ones they get are obtained by chance, but if anyone will follow out the instructions here given they may rear as many as they please, and that without much trouble. The most important point towards the successful raising of Ferns is the preparation of the pots, which should be three parts filled with fine potsherds or soft red brick; then add the soil and press it down and make it perfectly level and smooth on the surface. Before doing this, however, it is always advisable to subject the soil, which should be a mixture of peat and fibry loam, to a good baking on a flue or other hot place, so as to destroy any eggs of slugs or weed seeds, in order that there may be nothing to interfere with the young Ferns when they come up.

In sowing the spores, take the frond they are on, after it has lain between paper a few days, and sweep off the seed lightly with a brush in such a way that it may fall regularly over the soil. When this is done the pot should be covered with a pane of glass, and at once placed in shallow pans of water, and then set in a shady position in any house in which the temperature is kept between 60° and 80°, but this degree of heat is only necessary for the stove kinds; the greenhouse and hardy varieties germinate freely in any cold frame, and may even be raised successfully in the window of a dwelling house or behind a wall in the open. The first thing to be seen in the germination of Ferns is a filmy green scale, or prothallus; numbers of these soon spread themselves out over the surface of the soil, which they quickly cover, and after a short time tiny leaves or fronds may be discovered emerging from the centre of these scales, and these fronds go on multiplying and increasing in size till perfect plants are formed. Up to this stage it will be necessary to keep the glasses close on the pots, as confined air and moisture are life to the young seedlings; but should they show signs of damping, then the glasses must be slightly tilted for an hour or two each day and let down again. As soon as the minute plants can be fairly distinguished and are large enough to handle, they should be pricked off; the readiest way of doing so is to make a pair of tweezers by bending a thin piece of tough green wood and use them for taking hold of the young Ferns, when, with a pointed stick in the other hand, they may be dibbled in quickly without bruising or injuring them in any way. For pricking the seedlings in, fine peat and loam, mixed with a little sand, is the best soil, and in this they should be made firm by watering gently through the rose of a pot. As soon as that is done it will be necessary to protect them again by covering them with panes of glass, unless the pots can be set under handlights or in propagating boxes where there is plenty of moisture to give the plants a good start. Wherever placed, it should be borne in mind that no sun must get at them, as it would dry and scorch them all up. To prevent this a thin shade should be kept over them during the greater part of the day, and morning and evening the plants should be bedewed with a syringe. This will start them quickly into growth, and assist greatly in making them strong enough for

Potting off singly. As soon as they are ready for this, coarser soil may be employed, and to ensure the porosity of this—an important matter in Fern cultivation—it is a good plan to mix in with it some charcoal in small pieces, or finely-broken crocks, soft bricks, or cinders, round any of which the roots will cling. There are some Ferns that do not bear spores, and these can only be increased by division or by removing the offsets; the best time for doing this is early in spring, just when the plants begin to move, as then they bear the disturbance, and any wounds made in their severance quickly heal. Most Ferns admit of being propagated in this way, and there are many that will bear shaking out and pulling apart or dividing to almost any extent. Among these may be mentioned the Adiantums, Gymnogrammas, Blechnums, Asplenums, Pteris, Onychiums, Davallias, and a few others, but to make sure of Gleichenias it is necessary to layer them before taking any part from the parent plants, as the creeping rhizomes are almost as hard as wire and take a long time to root.

In layering Gleichenias the way to manage is to prop up or suspend the pots at the level required after they are drained and filled with soil, which should be rough sandy peat; the rhizomes may then be drawn from the plant to be operated on and carefully coiled and pegged in the pots near, where, if covered with sharp sand, they will become established in a few months, and will then bear severing and removing without flagging or suffering in the least. The others mentioned above need very little care; all that is required in their case is securing as many roots as possible when shaking them out, and after they are repotted giving them a sufficiency of heat and moisture, with shade, to start them afresh, when their growth will be rapid. Adiantums seem to like being split up into pieces, and anyone having large specimens of them need not hesitate to cut them through at once, as every piece with a crown will break and soon form a strong, vigorous plant. The particular point is water, which for a time after the division should be used very sparingly, except sprinkling overhead through a syringe, as the soil should only be kept just moist till the plants make fresh root. Viviparous Ferns are very interesting, and some bear bulbils or small plants freely, the Asplenums being most prolific and ornamental when bearing their young brood. All that is required in order to get these youngsters to cater for themselves is to pull them from the fronds they are on and prick

them out or pot them singly and cover them for a short time with a bell-glass, or keep them close till they can lay hold of the soil, and thus find their own food. S. D.

INDOOR GARDEN.

MOIST V. DRY PLANT STAGES.

THE old plant stages, composed of boards or strips of wood, between which the air plays freely, present some advantages for certain kinds of plants during some parts of the year, but much more pertains to them that is objectionable. With plants indigenous to temperate countries, and that have a drier atmosphere at all times than ours, and much more so during the dormant period, it is necessary that all about them should be as dry through our damp winter season as it can be made without resorting to the use of more fire heat than can be avoided. In the case of Heaths and some other Cape of Good Hope plants, and also in that of such of the hard-wooded section of greenhouse plants as are at all subject to the attacks of mildew, and likewise in that of soft-wooded things, such as Primulas, Pelargoniums, Kalosanthes, &c., a dry stage is necessary during the time when there is little sun to dry our moisture-laden atmosphere. But this advantage may be summed up as all the gain derivable from dry stages. The open woodwork, of which plant stages in greenhouses are often made directly over the hot-water pipes, is about as bad an arrangement for most plants as it well could be, especially for those in small pots.

With the now usual plan of admitting air through shutters in the front or side walls below the stages, the unnatural drying current that passes up through the interstices not only dries up the roots, but is the direct means of promoting the increase of that injurious pest, red spider, on all plants on which it will live. In the case of stove plants of most kinds the difference in the progress which they make when set on some moisture-holding material as compared with others on an open, dry stage is remarkable. On the moist stage the leaves are always larger than on the dry one, and there is an absence of that troublesome little pest already named, whose presence to any extent is associated with bare stems and a sickly appearance. Placed on a moist bottom, the lower leaves of the plants if examined in the morning will be found with the moisture condensed in little globules all over their under-sides, whilst others on dry, open stages will be as devoid of moisture as the stage on which they stand. Much may be done by the use of the syringe, I admit, to keep red spider and other insects that delight in a dry atmosphere in check, but prevention is better than cure, and the conditions least agree, able to insect life are most conducive to free-healthy growth. In a stove in which the internal arrangement consists of a pit for fermenting matter in the centre and stages round the outside over the hot-water pipes, the difference in the progress made by the respective sets of plants will be nearly double in favour of the former, although not plunged, but merely placed clear above the surface, yet so as to be under the influence of the genial moisture rising from the bed beneath them.

The beneficial effects of standing on a moist bottom are just as apparent in the case of young stock of the more-difficult-to-manage hard-wooded greenhouse plants during the growing season as in that of stove plants; in addition to making nearly double the growth when so placed compared with what occurs when on dry stages, there is a similar absence of insects, with less danger through getting dry at the roots—an evil to which this class of plants when in little pots during very hot, dry weather is liable. Two inches of coarse sand and fine coal ashes in equal parts is as good a material to put upon a stage as anything that can be used, and is sufficient to keep the atmosphere immediately in contact with the foliage in suitable condition by wetting it twice a day during the hottest weather. From the middle of October to the middle of March it is better to keep the material dry, giving no water beyond such as drains off through the soil after the plants have been watered. In the case of slate or flagstone stages, now a good deal used up to the outer walls of stoves, there should always be an inch or two of similar moisture-holding material on the top, as without this the heat from the pipes usually placed underneath makes the stage too dry for the healthy existence of the plants set on it, and in houses of this kind the material needs to be kept moist all the year round. T. BAINES.

A CYCLAMEN NURSERY.

ANYONE paying a visit to Mr. H. B. Smith's nursery, at Hanwell, would now see there a very unusual sight, viz., some 26,000 young plants of Cyclamen persicum giganteum raised from seed sown in August and September last in seed pans, and in December pricked off into 5-inch pots, twelve plants in a pot, and now developing their third and fourth leaves. There are now more than two thousand such pots, and these do not exhaust the whole of the plants obtained from the sowing. But this number serves to indicate what enormous numbers of plants of this lovely autumn and spring flower are produced each year round London; for Mr. Smith is only one of many large growers, amateur and professional, and there is a great demand for plants. It is interesting to note that the first one or two leaves put forth by the seedlings are long and somewhat heart-shaped, but a little angular: the third and fourth leaves take in the round shape peculiar to the cultivated Cyclamen. The most forward plants are pricked off by themselves, and the backward ones by themselves, and one notices that certain of them race ahead of the others and become the forwardest, as if they possessed a greater degree of constitutional energy. At the end of February or early in March the strongest plants are potted singly in 3-inch pots, and the remainder successively as required, then into a size larger in April and May, and, finally, in July into 6-inch pots, or, as they are generally denominated, 32's. It is obvious that there is a great advantage derived from sowing in August and September, as soon as the seed is ripe, over sowing early in January. It is said the seed germinates more freely, and it is certain the plants are of greatly increased size by March.

It is remarkable to what a size seedlings fourteen months old will grow in that time. If anyone were to pay a visit to Mr. Smith's nursery at the end of October, they would see plants of large size, of vigorous growth, in perfect health, and throwing up enormous heads of bloom, and such blooms, too. Thirty years ago florists were beginning to estimate the value of Cyclamen persicum and its fine varieties; but the treatment given to the plants at that time was half barbarous, and no one realised with anything like adequate measure what could be done by the process of seeding, and that splendid specimens bearing 80 or 100 flowers could be had from seed in fifteen months never entered into the heads of the most sanguine florists of that day. I saw one plant at Hanwell sixteen months from seed, growing in a 6-inch pot, on which could be counted thirty flowers open, and one hundred more in the act of expanding or in unopened bud. I suppose it may be assumed that the small-flowered forms of C. persicum are a thing of the past. Certainly, in Mr. Smith's case, the giganteum type largely preponderates; and it is only in the case of the richest coloured varieties that smallness of size is seen, and these are gradually being enlarged by careful fertilisation and selection. The large-flowered forms are taking hold of popular favour, especially so now that the finest form and substance, added to striking colour, are seen in combination with enlarged petals.

Seedling plants always flower earlier than plants kept over from the previous year, and there is this advantage, that a very valuable succession is thereby secured, and it is remarkable what splendid specimens two-year-old plants make when they are carefully looked after. There must be a period of rest for such, but not rest in the sense in which it was understood twenty years or so ago—starving in the open air and roasting in the sun. We have outgrown that bad practice, and if it is still followed, it can only be by the perversely ignorant. The growers of Cyclamen for market can begin with seedlings in November, and go on with two and three-year-old plants until the end of March. It is surprising, too, how long plants will last. There are in Mr. Smith's collection many fine plants ranging from four and five to eight and nine years old, and one was fifteen years old. As a matter of course, such plants require careful management; sometimes one will go wrong for some reason, and then it has to be rested for a year or two until it comes round again, which it generally does in course of time.

One thing is necessary to be stated respecting the large-flowered Cyclamen. The blossoms really require something like a fortnight to reach their natural size and develop stoutness and colour. Let anyone compare the flowers just on the point of expanding with those which have become fully developed, and the correctness of the foregoing remarks will be at once apparent. The size of some of the blossoms is truly astonishing; some have petals 1¼ inches across and 2⅜ inches in length, and these are not extreme measurements, for the flowers of not a few of these varieties display this size. Further, lest it should be thought that increased size of flower is produced at the cost of freedom of bloom, it may be stated that the large-flowered types are fully as free flowering as the smallest types, and Mr. Smith stated that he had taken at one time eighty flowers fully expanded from a plant that was between eight and nine years old. Indeed, the Cyclamen persicum has undergone an astonishing development during the past ten years. R. D.

PRIMULA SIEBOLDI AND ITS VARIETIES.

I HAVE grown the different varieties of this fine species of Primula for at least twenty years, and find them in every way most satisfactory. I repot them in July or August, in the belief that, under that treatment, the plants can become well established before winter. Their worst enemy is red spider, which attacks them whenever the dry weather sets in. This pest destroys the leaves before the crowns are well matured, and they have a tendency to start into growth before the time for their winter rest arrives, and this, of course, causes a weak growth and bloom in the spring. The best place to winter them is in a cold frame, and they ought to be plunged in Cocoa-nut fibre refuse. If they are kept in a greenhouse during winter, it must be where they are close to the glass, and where they can receive plenty of light and air as soon as they start into growth. It is to be regretted that some one, having time and means at disposal, does not take up the subject of improving this fine class of Primulas. Those who have attempted improvement heretofore have gone at it by fits and starts, and do not seem to have been very successful. When in Manchester on May 1, at the National Auricula Society's exhibition, it was a treat to inspect a fine group of seedlings sent there from the Waterloo Nursery, Bury. There were 120, all possessing much merit as decorative plants for the greenhouse. They formed an interesting feature of the exhibition, and were greatly admired for their bright colours of rosy red, deep rose, and reddish purple, while the delicate tints of pale rose, blush, pale lilac, and bluish were to some even more pleasing. Brilliant was the deepest coloured of the group. It was rich crimson with a rosy tint. Purple King is the best of this colour. I have grown two or three purple varieties, but I do not find the flowers stand well; they are too delicate. If this one possesses more lasting properties, it will be an acquisition. Gem is reddish purple, of dwarf habit, and very distinct. Victor possesses very good qualities; it has large, well-formed flowers of a rosy red colour. Polly has rosy flowers, also of good form, and of large size. Pearl would be white except for a flush of purple on the back of

the petals. Jane is whitish with a rose tinge on the back of the flowers. The above are all well-formed flowers with a smooth margin.

The following have fringed flowers: Mars is deep reddish purple, and Nelly has large flowers, crimson tinged with rose. Novelty is of a pale lilac colour, and quite distinct. Blushing Bride is perhaps the best of these fringed varieties; it is white, with pale rose on the reverse of the petals. Emma is lilac and pale purple. At least as many more varieties possess considerable merit, and would be good additions to existing kinds. The plants had evidently been grown in cold frames, and were of very dwarf growth, and from their appearance I should judge that they might even be better grown. J. Douglas.

IMANTOPHYLLUMS AND THEIR CULTURE.

Some of the new varieties of Imantophyllum miniatum are great improvements on the type, as, for instance, splendens and Madame Reimers, but even miniatum itself is not half so much grown as it deserves to be for flowering during the winter and spring months. Its dark green foliage is of the most graceful description, and large plants of it when in flower are noble and commanding objects. Where plants of small size are required they should be grown in from 5-in. to 7-in. pots. By this means a long succession of flowers may be had, which proves more useful in the majority of gardens than having large numbers at one time on one plant. In small pots the plants can be tastefully arranged amongst their associates, and thus produce a striking effect. Another good property belonging to this plant is the ease and certainty with which a large stock of it can be cultivated successfully with a minimum of labour compared with that required to produce many subjects that flower during the same period of the year. Propagation is readily effected by means of suckers and seed, both being freely produced. The suckers spring freely from the base of strong plants, and, as seedlings vary, that is the best way of raising good varieties. The suckers should not be taken off too small; they make more progress when attached to the parent plant for a time than when severed. However, when large enough they should be taken off and placed in 4-in. or 5-in. pots according to their size. If rootless to commence with, place in the centre of the pots a little coarse sand for the base of the suckers to rest upon. If the soil is in a proper state as regards moisture, no water will be needed for a few days. They should be set in a warm structure until root growth commences; if bottom-heat can be given, roots will form more quickly than without it, but it is not absolutely necessary.

The treatment after the plants are rooted should be the same as that given to established stock; after flowering, Imantophyllums should be assisted by the application of heat and moisture to make growth. They do well in a vinery at work, making their growth and ripening it much earlier than when under greenhouse treatment. Young stock makes wonderful progress in heat compared with what it does under cool conditions. When grown in a greenhouse they require to be kept under glass the whole of the year, which is not the case when assisted by warmth while making their growth. After that has been completed they should be well hardened off and placed in a sheltered position for at least two months outside, when they may be returned to the greenhouse.

Potting should be performed as soon as the plants have done flowering. Many cultivators do not recommend shifting these plants; on the contrary, they prefer keeping them in the same pots for a number of years and feeding them with stimulants. The plants here are annually turned out of their pots, and the whole of the old soil is shaken from their roots. Our stock being sufficiently numerous, the suckers, whether large or small, are removed and thrown away, and the plants are repotted in the same sized pots as those they came out of. In time they acquire too many roots to be placed in 5-inch pots, but 7-inch pots will accommodate the strongest plants. In cases in which the roots are too numerous for the smallest pots the plants may be disrooted; a few leaves should be stripped off and then they should be treated as suckers, placing them in 5-inch pots; some treated in this manner last spring are now flowering well. The plants should be thrown away when they become too large for the purposes for which they are required, and a few of the strongest suckers should be encouraged to replace them. The pots in which they are to be grown should not be over-drained; seldom more, indeed, than one large crock need be placed in the sized pots just named. The best soil for Imantophyllums is rich loam, a little bone meal, and soot, to which may be added a liberal quantity of coarse sand.

Watering and feeding.—Large quantities of water should be given while growth is active; in fact, in no stage should they suffer from an insufficient supply. Less is required when the plants are housed after standing outside, but even from there until the time when they come into flower then should not be allowed to become dust-dry. Careful watering, too, is needed for some time after potting, but as soon as the roots have become active liberal supplies should be given. Feeding with stimulants is not needed where repotting is done annually; the plants here are never given liquid manure water, but early in October a light sprinkling of Standen's manure is applied to the surface of the soil. Shade from the strong rays of the sun is needed during bright weather, but that afforded by the foliage of Vines is ample, and when placed outside the full rays should not be allowed to strike them.

Forcing is often rendered uphill work not only in the case of Imantophyllums, but also in that of many other plants through inattention during the early part of the season. When these plants are assisted to make and mature growth early, they naturally come early into flower. Plants treated as described will, if housed about the middle of September, commence throwing up their flowers by the end of October or early in the following month in a cool house. No forcing, in fact, is needed if the plants are placed in a warm house for a few months after flowering during the early part of the season. The plants here number nearly 100, and they occupy no other position but the vineries, except when in flower. Scale and mealy bug will infest Imantophyllums, but both are readily eradicated by means of a sponge. I have, however, never seen an insect upon the plants here; nevertheless, the foliage is sponged occasionally with water in which a little soft soap has been stirred, and which imparts to them a fine glossy appearance. Manifesto.

HANGING BASKETS.

This is a good time of year to fill baskets of any kind with plants, whether they be of wire, wood, or any other material. The plants will mostly be starting into active growth, consequently the baskets will soon present a full and perfectly furnished appearance, and when well arranged they add quite a distinct and pleasing feature to conservatories or plant houses of all kinds. For indoor decoration, too, they are extremely well suited. Most plants of trailing habit look best when elevated, and the best way to show them off to advantage is to plant them in good sized baskets, so that their roots may be readily kept moist. Ferns, Lycopods, and some kinds of fine foliaged plants do well in baskets all the year round. The most serviceable baskets I have ever had were filled with Ferns, such as Nephrolepis exaltata or Goniophlebiums, growing out of a carpet of Selaginella Kraussiana. Such baskets last for years if kept well supplied with water. The Selaginella may be renovated by pegging it down close to the surface if it gets loose, and working some fresh soil in about its roots. Of flowering plants, too, there is an abundance for all seasons; for instance, a pretty spring basket may be quickly filled as follows. Take large flakes of the common Sedum or Stonecrop turned upside down, and with them cover the entire bottom of the basket; thus arranged, the green tops will grow through the wires or woodwork and form a carpet, through which bulbs of various kinds, such as Scillas, Crocuses, and others of dwarf habit, placed inside may peep through; then fill the basket half full of soil, and around the edge put Violas or Pansies mixed with Tulips, and in the centre Hyacinths, Spiræas, Narcissus, or whatever else fancy may suggest. I filled some last year in this manner, and in a cool conservatory the Sedum was the prettiest carpeting plant I very tried.

Selection of plants.—It would take too much space to enumerate all the good things that are suited for planting in this way, but the following are sure to give satisfaction, either singly or mixed with other plants, viz, Ivy-leaved and scented Geraniums: these make the best of basket plants, some of the new double and semi-double kinds being lovely. Good, strong plants of them put in round the edge of the basket, and allowed to extend at will, and some of the scented-leaved kinds in the centre make very pretty and fragrant baskets. Musks and other Mimuluses are also excellent basket plants for cool, shady positions where they can be kept moist, drought being their great enemy. If the roots are inserted in a lining of green Moss both at base and top, they will soon form a perfectly even mass of foliage and flowers, and if kept liberally supplied with moisture will last a long time in perfection. Some of the Mimuluses are prettily coloured, but the Musk is the most fragrant. Tradescantias, both plain-leaved and variegated, look well drooping from the edges of baskets, their trailing habit making them well suited for pegging down, so as to cover the soil; then they should be left to grow freely. The variegated kinds, such as T. zebrina, are very pretty, and of such easy culture, that if cuttings are inserted and kept moist in a warm house they never fail to root and grow freely. Mesembryanthemums form good companions to the Tradescantias, and are equally free in growth; they also withstand drought better than most plants, and enjoy a sunny position that would be fatal to many fine-leaved plants; in full sunshine, too, their brightly coloured flowers are very effective. Sedums, Echeverias, and other succulent plants may also all be usefully employed in basket gardening; they are distinct in form, and the flowers of Echeverias are by no means to be despised, while the Sedums make a capital groundwork for more stately plants.

Other plants, such as Tropæolums, both single and double, are suitable for baskets, the new double kinds being quite an acquisition to our lists of flowering plants; and in baskets, where the long trailing shoots can have room to hang down freely, few plants can excel them in gracefulness. The blue Lobelia makes a capital edging for baskets, especially long straggling kinds like Lady Macdonald; in mixed baskets, the centres of which are filled with Pelargoniums of the flowering and fine foliaged kinds, they are very effective, and in good-sized baskets filled with rich soil they will continue to flower the whole season through. For summer decoration few basket plants beat the Achimenes, and the best time to fill baskets with them is just as they are starting into growth in spring. A light sandy soil, consisting of peat, leaf-mould, and sand, suits them well. Cover the wire-work with good green flakes of Moss to keep the soil from running through, and place the tubers about 3 inches apart over the base, as well as surface; they will soon come through the Moss, and after distributing them evenly over the surface, let them grow in any form they like best; they will soon form a complete globe of most lovely flowers. If started in a temperature of 55° and during growth exposed to a liberal circulation of air, they will, when in bloom, be quite at home in a cool conservatory. Torenias, Thunbergias, and Begonias of various kinds, both tuberous-rooted and the older flowering and fine-foliaged kinds, succeed well under similar treatment.

Ferns and Lycopods are suitable for shaded houses and positions where flowering plants run too much to leaf growth. The Adiantums or Maiden-hair Ferns, several kinds of Pteris, such

as P. serrulata, P. cretica albo-lineata, and P. longifolia, do exceptionally well in small baskets, while those with long arching fronds, such as the Woodwardias and Goniophlebiums, make noble objects in baskets 2 feet in diameter, the surfaces of which are carpeted with various kinds of Club Mosses. The main points to ensure success in basket gardening are strict attention to watering and occasionally dipping the baskets in a large tank of tepid rain water. JAMES GROOM.

Gosport.

Freesia refracta alba as an annual.—I am glad to see you call attention to Freesias; their flowers are beautiful. I call F. refracta alba the refractory Freesia, as I dare say many of your readers have found it to be. But let me give them a hint; let it be grown as an annual, and they will have no more trouble. I sowed seed in February of last year in a shallow seed pan, and had quantities of bloom in December. Professor Foster gave me this hint, and it is worth noting.—A. RAWSON.

Iris reticulata in pots.—What a charming plant this is for cultivating in pots! In the winter I put four bulbs in a medium-sized flower-pot, using a good light leafy soil. They soon started into growth, rooted freely, and are now blooming. What a delightful plant it is for a cold house! Sheltered from biting winds and disfiguring rains, it takes on an exquisite hue of purple, especially on the broad lip; and when the sunlight falls upon it, the colour becomes so intensified as to be quite striking. How sweetly fragrant, too, it is! Really, spring flowers are delightful, and they appear to be doubly welcome as the gloom of winter gives way before lengthening days and an increasing duration of sunshine. When this Iris is grown in the open air it requires and deserves some shelter from the cutting winds of March.—R. D.

5158.—**Camellia border**—A house such as that described by "J. S.," 8 feet by 12 feet, is too small in which to plant out Camellias. The object in planting out these and other things is to give them more root space, and consequently more food, than when kept in pots, but to plant out where there is not room for the heads to extend proportionately would result in causing the shoots to be cut in to an extent that would no doubt at least partially prevent their flowering The planting out method of culture in the case of Camellias is only fit for a large house, or a lean-to, or hip-roofed structure, where there is a bare wall to be covered. "J. S." will do better with his Camellias and other plants in pots than by planting them out in any house so small as that named —T. B.

—— The least depth and breadth which a Camellia border ought to have for the plants to do any good in a house the size of that mentioned by "J. S." is 2 feet by 1 foot wide, and if more can be allowed so much the better, as the larger in reason the space for the roots, the finer will be the growth and bloom. The best way would be to run up a 4½ brick wall, bedded in cement, behind the stage; this will be found far better than having a long box or trough on it, and in which, owing to its greater exposure, the soil will dry quickly, and the plants, under such unfavourable conditions, will fail to do well. Shaded and sheltered beneath the stage and between two walls, the roots will be in just the position they like, as the bricks absorb moisture and give it out slowly, thus maintaining the earth forming the border in an equable state. I have recently had proof of this in a vinery, the back wall of which had to be covered. The owner of this house had Camellias in pots that did badly; I recommended him to plant them out, and to do this we had to make just such a place to get level with the stage as the one here referred to, and the plants are now luxuriant, and will soon reach the top of the house. The most suitable soil to plant in is a mixture of peat and loam, which should be used rough and fresh and well pressed down, so that there may be no cavities by which the water may escape without passing bodily through the soil. In turning out the plants, it is advisable to set free some of the roots by carefully reducing the balls; they then lay hold of the fresh soil at once, and the tops quickly start into growth.—S. D.

Camellia buds bursting are the result of too many blooms for the size of the plant and the pot probably. Twenty-seven blooms on a Camellia in an 8-inch pot is a heavy load. Several sorts of Camellia, notably those striped or mottled pink and white, have a predisposition to burst, and it would be interesting to know if "P. G.'s" only bud-bursting plant out of forty-four was of those colours or character. Doubtless from the fact that forty-three plants out of forty-four did well, the cause of bursting is something local to the constitution or condition of the plant rather than to any wrong treatment. Worms at the roots, a bad state of the same, any sudden excess of water after being dry for a few days, a sudden rise of temperature, or any sudden change might cause or aggravate the evil of bud-bursting, which is not nearly so common as bud-dropping.—D. T. F.

5156.—**Strelitzias.**—These are propagated by division of the crowns or suckers, which may be separated and potted singly when large enough; spring is a good time to effect their propagation. Turn the plant to be operated on out of its pot, and disentangle the roots and divide the crowns with a knife, sacrificing no more roots than can be avoided, and retaining as many of them to each crown as possible. Pot them in good fibrous loam, to which some sand has been added. The divided pieces should immediately they are potted be placed in an intermediate heat in order to induce them to make growth at once. If this is not available in spring, it will be better to defer the division until later on. If a season's growth has been made previous to the crowns being separated from the old plant all the better, as if taken off too soon the progress which they make is slow. Plants consisting of a single crown usually produce one or two suckers, which may either be allowed to remain and form a large specimen by giving them large pots, or be divided in the way just recommended.—T. B.

—— The Strelitzia may be increased by division, which may be done by shaking out the plant from the soil it is in and pulling it apart, so as to secure separate crowns or pieces having hearts and leaves with roots at the base. Such pieces, if potted singly in pots and placed in a warm house, will soon begin to grow and quickly become re-established. The proper time to divide them is immediately after blooming, as then growth will be on the move, and root action setting in, and with the feeders at work, there is no fear of losing any of the pieces divided. To guard against this care should be taken not to over-water; only enough should be given to keep the soil moist for the first month or two till the wounds made in parting the crowns heal; after that the young plants will bear and require more water as the season advances.—S. D.

Palms from seed.—Seeds of many species of Palms are not unfrequently offered in catalogues, and are as frequently passed over by amateurs in general as either being difficult to raise without great heat, or so slow to develop into available specimens as to be practically useless. In many cases this is no doubt true, but it is by no means universally the case, as the following instance will show. About four years ago I obtained from Mr. Thompson, of Ipswich, a packet of seeds of Phœnix reclinata, costing, I think, 1s. From these I have now six or seven plants, all of just nice table size, and well furnished with dark green pinnate fronds. The best has six fully developed fronds, the last made and largest measuring 27 inches from the pot; the plant has no stem as yet to speak of. The seeds were raised in an ordinary Cucumber frame, and grown since in a cool intermediate house, whose temperature is often under 50° at night in winter and not much warmer in the day. The plants showed their pinnate character when only about one year old, and have been very ornamental ever since. Phœnix dactylifera (the Date Palm) has never got beyond its single sword-shaped seed leaves under like circumstances. Brahea filamentosa, a pretty fan-shaped Palm, is equally easy to raise from seed, and is very distinct, but very subject to thrips. Plants of Phœnix reclinata are offered in the catalogue of a well-known London house at from 3s. 6d. to 5s; so that nice plants from seed in twelve months are good value for 2d. or 3d. each, especially when they can be had with so little trouble. After the second season they may be grown in entrance halls, windows, &c, with the utmost impunity; but of course their development will be much slower than in reasonable warmth. One of my plants, which has been in a draughty hall since last summer, is, though small, perfectly healthy and making new leaves.—T. P.

GARDEN FLORA.

PLATE 429.

VANDA INSIGNIS SCHROEDERIANA.*

THE island of Timor, while belonging to the Malayan Archipelago, approaches the northern coast of Australia so closely, that its flora and fauna have proved very interesting to travellers, and especially so to lovers of natural history. To orchidists and amateurs it is of especial interest, as being the home of the true Vanda insignis and its variety V. Schroederiana, both figured in our coloured illustration. This beautiful Orchid is a genuine wild species, and must not in any way be confounded with Vanda tricolor insignis, a well-known and perfectly different garden variety. The true Vanda insignis had long been known to botanists, since it is figured by Blume in his "Rumphia" (vol. iv., t. 192 and 197), but it is questionable if any other European orchidist ever saw the true plant alive until it was introduced by Messrs. Veitch & Sons about the year 1866. Lindley acknowledges that he never saw our plant alive, "unless it was a specimen flowered by Mr. Knowles, of Manchester, in which the lip was furnished with larger side lobes than in Blume's figure (t. 197), but otherwise identical, especially in the concave, not convex, shape of the lip, and the two elevated lines which run along its middle." The accompanying coloured illustration renders any verbal description as to size, shape, and colour quite unnecessary. The dark brown flower with the rosy purple, concave lip is the typical plant, and the yellow form with the white lip is a form of the species which has been named in compliment to Baron Schroeder, the plant itself being now one of the treasures of his noted collection. The flowers are distinct in colour, and a trifle larger than those of the type, from which, as Mr. Grant Allen would no doubt tell us, it is a reversion, since he holds the doctrine that all flowers were originally yellow. It is very beautiful, and, as its lucky, even if unconscious, discoverer himself tells us, is very rare. Thanks to the enterprise of Messrs. Veitch and the energy of their well known collector, Mr. Curtis, Vanda insignis is now fairly established as a garden plant in our collections. As the island of Timor is at present a little wide of the ordinary tourist's route, a short description of its climate and products may prove interesting to our readers.

Dr. Alfred Russel Wallace † tells us that "the indigenous vegetation of Timor is poor and monotonous. The lower ranges of the hills are everywhere covered with scrubby Eucalypti, which only occasionally grow into lofty forest trees. Mingled with these, in smaller quantities,

* Drawn in Baron Schroeder's garden, The Dell, Egham, September, 1883.

† "Malayan Archipelago," vol. i., p. 310.

are Acacias and the fragrant Sandal-wood, while the higher mountains, which rise to about 6000 feet or 7000 feet, are either covered with coarse Grass or are altogether barren. In the lower grounds are a variety of weedy bushes, and open waste places are covered everywhere with a Nettle-like wild Mint. Here is found the beautiful crown Lily (Gloriosa superba), winding among the bushes and displaying its magnificent blossoms in great profusion. A wild Vine also occurs, bearing great irregular bunches of hairy Grapes of a coarse, but very luscious flavour. In some of the valleys, where the vegetation is richer, thorny shrubs and climbers are so abundant as to make the thickets quite impenetrable.

"The soil seems very poor, consisting chiefly of decomposing clayey shales, and the bare earth and rock are almost everywhere visible. The drought of the hot season is so severe, that most of the streams dry up in the plains before they reach the sea; everything becomes burnt up, and the leaves of the larger trees fall as completely as in our winter. On the mountains—from 2000 feet to 4000 feet elevation—there is a much moister atmosphere, so that Potatoes and other European products can be grown all the year round."

Mr. Curtis has also been good enough to furnish the following particulars of the natural conditions under which the plant exists in its native habitat. These are his words:—

"Vanda insignis occurs along the coast and on low hills up to 1000 feet in the islands of Timor and Semao. It prefers low-growing trees in rather open positions, where it gets but slight shade; I never saw it on rocks or in dense shade. The first plant I saw in its native country was growing on a tree—a Tamarind, I think—in Mr. Drysdale's garden where it had been placed by the ill-fated Veitchian traveller, Hutton, in 1866, who after dispatching his collection, including the beautiful Aerides that now bears his name, returned to Java, where he died quite suddenly.

"The variety Schroederiana is, so far as I am aware, a unique specimen. I was not aware of its existence until it flowered in Messrs. Veitch's nursery. I happened to be in Timor during the flowering season (March and April) and saw thousands of flowers, but not one approaching this variety. I may mention that I saw no dense forest in Timor such as may be commonly seen in Borneo, but trees are more or less scattered over all the country I visited. The tops of the hills are principally clothed with Eucalyptus and Casuarina, but the Vandas have disappeared." It may interest some to know that the generic name Vanda is applied in Sanscrit to parasites of the Mistletoe or rather Loranthus type. In Malaysi all Orchids of the Vanda and Aerides habit of growth, *i e*, having two-ranked or distichous leaves, are called "Angrek," whence De Petit Thours derived the generic name for the present genus Angræcum. F. W. B.

Ipomæa pandurata.—In The Garden of January 26 Mr. Thompson, of Ipswich, alludes to this Ipomæa as being a new plant found in the New England States; his description of it is accurate. It bears beautiful flowers with corollas sometimes purple, sometimes pink, but woe betide the farmer or landowner who gets the plant fixed upon his soil. I should regard myself as deficient in true kindness if I did not warn your readers that once fixed on the ground nothing will eradicate it. Its tenacity of life is wonderful; every little rootlet if cut with hoe or spade makes a new plant to twist itself through the grass or grain and more or less choke it. I have seen fields of Oats so bound together with this pernicious weed that to pull one corner of the Oats would be as though you were pulling the corner of a blanket. Only with much labour can we save the young Indian Corn from being killed in its close embrace. The plant will grow on any soil, although a sandy soil suits it best, and if left long enough it will go deep down in the subsoil, and there form its gigantic root; but this is not necessary to its existence. Thousands of plants are formed every year by the plough and hoe making root cuttings, and once in the field it cannot be got rid of.—John Way, Jr., *Sewickley, Pa., U.S.A.*

SEASONABLE WORK.

FLOWER GARDEN.

Roses and climbers.—The mild winter puzzles one to know what to do with Roses, for the wood is as succulent as it was in September last, and new shoots are, in some cases, several inches long. Such untimely growth must, to say the least, injuriously affect the future well-being of the plants. If pruned now, the buds, as soon started might be crippled by sharp frost, and if left to grow as they now are doing, they must of necessity be constitutionally weakened. In such a dilemma it is best of two evils to choose the lesser, and this, we think, would be to prune forthwith, and also closer than usual, *i e*, to the lowest prominent buds which, as a matter of course, will be the latest to start, and may consequently escape injury from frost. The mulching should still be left on the beds. Newly planted standard Roses should be tied to supports, and also mulched. The weather and state of the wood are this season both in favour of late planting, so that any Roses yet to be planted may be expected to do as well as those put in in November. Prune and nail, or tie in climbing Roses, Clematises, Wistarias, Virginian Creepers, and all other deciduous climbers If the principal shoots are well secured to the walls, wires, or trellises at this season, they will give but little trouble all the summer, and may with greater certainty of safety be left to grow somewhat loosely from the wall or trellis, an infinitely better plan than that of keeping the young growths closely tied in. Ivy on buildings should be trimmed up before the plants start into new growth. Such annual trimming is necessary to ensure a bright green surface of foliage in summer, and equally so to prevent vermin effecting a lodgment in the Ivy. Similar remarks are applicable to banks and edgings of Ivy; the latter soon get out of form, and become objectionable unless they are trimmed up twice a year at least.

Fernery and rock garden.—If other work is pretty well advanced, attention may now be directed to a general overhaul of the hardy fernery and rock garden—both departments that, because they can be neglected without seriously injurious consequences, are, as it were, too frequently left to take care of themselves. If the Ferns are at all overcrowded, a general re-arrangement and extension of the fernery may take place, the present being a very good time for moving the plants; others will be benefited by being given a top-dressing of fresh peat or light loam. Dead fronds, Couch Grass, and other weeds should be forked out, and bare spaces furnished with mossy Stonecrops, the tufty-growing wood Mosses, and clumps of wild Hyacinths, Scillas, Daffodils, Snowdrops, Wood Anemones, and Primroses. The addition of these hardy wild flowers produces a natural effect which is desirable, and the flowering kinds for the most part bloom at a time when deciduous or herbaceous Ferns are destitute of fronds, an additional reason for using them in such a connection. Much the same attention is required in the rock garden; there should first be a thorough clearing out of weeds, and next every plant should be well firmed in its place, and, if needs be, fresh soil given. Strong growing kinds should be prevented from encroaching on weaker ones by cutting away any portions that are likely to do so, and any spare plants so obtained can be utilised for filling up vacancies, or for furnishing any new addition that may be made to the rockwork.

INDOOR PLANTS.

Utricularia montana.—In every garden where there is the convenience of a warm stove and a disposition to cultivate something beyond the commonest plants this Utricularia should have a place. Its handsome and singular flowers and its Orchid-like habit of growth render it doubly attractive. It is one of the best of small growing basket plants, requiring treatment as to soil, heat, and moisture similar to other West Indian subjects. It thrives well in a rustic wood basket in a mixture of peat, Sphagnum, and potsherds, keeping the collar well up above the surface of the soil. Its white, yellow blotched flowers are produced freely, and are very pretty.

Chrysanthemums.—Where the propagation of these is not done before the close of the year it will be well to at once put in a sufficient stock of cuttings, which will root if kept moderately close under a propagating glass in a little warmth, or even in a greenhouse, only the rooting process will be longer in the latter. Cuttings that were put in before Christmas should, as soon as struck, have enough air to prevent their being at all drawn. With a selection that includes the earliest and latest bloomers, as well as those that come in at the usual season, Chrysanthemum flowers may be had from September to the middle of January. In addition to the Japanese varieties, which are greatly liked by those who object to the formality of the show kinds, there are a number of free flowering sorts, of which the dark crimson Julie Lagravère and the blush coloured Hermione may be named as examples that are much more useful than the largest flowers.

Forced Roses.—Where Roses have to be forced along with a miscellaneous collection of other plants they cannot be expected to succeed nearly so well as when accommodated by themselves, and where such shifts have to be made there will always be a difficulty in keeping up a continuous supply of flowers through the winter not experienced when they have a house to themselves. The Rose under natural conditions requires plenty of air to keep it in health, but when forced the foliage cannot bear the admission of external air to an extent that most other things require without its leaves continually becoming a prey to mould. Where mixed forcing is carried on, and Roses form a part, the air given should be confined to admission at the roof ventilators, and only in small quantities, at the same time giving the plants plenty of light. In forcing Roses, especially the Tea varieties, the quantity of flowers produced will always be dependent on the strength the plants have in them; consequently from the time of their introduction to heat they should be regularly supplied with manure in some form, giving it either in the shape of liquid or in a solid state applied to the surface to be washed down to the roots in the ordinary process of watering. The Tea varieties are much the most under the influence of such feeding as here described, for so long as there is enough strength in them they at once start into fresh growth after one or two crops of flowers have been produced, which growth will bloom if not too weak. Plants of the Tea kinds that were put in heat in the autumn and have been at work ever since will now require a rest. Assuming that they are grown in pots, they should be accommodated in a house or pit where they can be kept moderately close and not subjected to cold draughts or frost, for upon their being well treated now in this way depends their yearly gaining strength and ability to give an increased amount of bloom the ensuing winter. They should be kept as free from mildew and insects all through the spring and summer as they have been during the time of forcing. Another lot of plants ought to be put in to take their place, and if strong and in good condition, with fair treatment they will yield a succession of flowers that will keep on until the spring

is far advanced. In Rose forcing during March and April a good deal of forethought is required in firing. The sun by that time gets powerful, and if the fire is not stopped early in the morning whenever there is a likelihood of bright weather, the temperature runs up so as to necessitate the admission of much more air than the tender foliage will bear; it is better when such occurs to let the heat rise even to 85° or 90° than to let in cold draughts on the plants. The use of thin shading in an emergency of this kind is preferable. Hybrid Perpetuals that have been prepared by a season or more's growth in pots may now be put in heat, and if not hurried will give a much better return than if started earlier. Even plants that were potted up in autumn from the open ground will yield a moderate quantity of flowers; but where no further preparation has been given than this, unless allowed to come on with little, if any, above a greenhouse temperature, the plants will be of little use for pot work, as the bloom they give under their unprepared condition is produced at the expense of the strength that was in them when taken from outdoors. Where Roses are wanted all the year round the right course is to get a sufficient quantity of plants strong and well established in pots, when, with proper attention, they will keep on gaining strength to produce many more and much finer flowers than partially established or non-prepared examples. If any of the plants are affected with worms, a little soot laid on the surface of the pots, where it will be washed down into the soil, will drive them away; their presence in the soil of pot Roses has a worse effect than with most things.

Pelargoniums.—Where considerable quantities of cut flowers are regularly required, a sufficient stock of early large-flowering Pelargoniums should be grown, selecting such varieties as are cultivated by the market growers which are naturally early and free bloomers, and will bear a good amount of fire heat without running to growth. The flowers of these are mostly of the frilled, or crimpled petalled type, and on that account from their less formality are greater favourites for cut purposes than the even-formed florists' varieties. Where well-prepared plants are at hand with their pots filled with roots, they will bear a temperature of 50° in the night without becoming drawn, provided they are kept close to the glass in a light house or pit. They may be had now in colour from almost pure white up to dark crimson.

Forced bulbs now in flower will need careful attention after the flowers fade, *i e*, if they are to stand any chance of flowering another season. If thrust into any dark corner, or transferred suddenly from the genial temperature of a glasshouse to the tender mercies of our generally trying spring weather, it is impossible for even the hardiest of plants to succeed. But give them as good treatment as the usual run of greenhouse plants get, and many of them will flower in succession for years, quite equal to that in which they were imported. This is our experience with Lily of the Valley. Tuberoses are usually thrown away after one year's service, yet if their wants were carefully attended to—their foliage kept clean and free from insects until it had ripened off naturally—they might be induced to flower well for years. Plants far more difficult to cultivate than bulbs are flowered year after year and attain a good old age, but we have been so long accustomed to consign certain kinds of bulbs to the rubbish heap after a very transitory term of years, that we continue to do so without questioning the soundness or otherwise of the practice.

KITCHEN GARDEN.

We have just sown our first spring seeds, including Snowball Cauliflower, Carter's Crimson Incomparable Celery, Paris Cos and Hick's Selected Lettuces and a few Onions to be pulled green for salads. The best Rhubarb which we get through the year is that grown in early spring by merely laying a little long litter on the crowns. The same may also be said of Seakale, but this should be covered with burnt refuse to exclude light, finishing off with a few half-rotten leaves. This is ready to cut in the end of March, and is truly delicious. Early Radishes we grow in boxes, 6 in. deep. They are placed in gentle heat until well up, when they are thinned out and transferred to cold houses close to the glass. Tarragon, Mint, and small salading we grow in the same manner. Early Potatoes in boxes should now be earthed up to the level of the box, giving no more water than is absolutely necessary. We know nothing so impatient of water as early forced Potatoes. As a matter of fact, our early frame Potatoes only receive one watering during the time they are growing, and that is before they are earthed up. By watering at that time and earthing up immediately afterwards the soil about the roots keeps sufficient moisture for their wants. We planted our first house of Tomatoes February 12. The young plants grow much stronger when planted out than in pots; keep the house humid and warm, say from 55° to 60° at night, with a proportionate rise in the daytime, admitting air on all favourable occasions. The general work just now is to keep well ahead with digging. Every vacant inch should be turned up, so that the soil may get well pulverised by frost should we have any. All kinds of spring Broccoli will this year be a great success in more ways than one; it will give us an opportunity of selecting for succession the best varieties; here Snow's Broccoli heads the list for early work.

FRUIT.

Pines.—The secret of success in modern Pine culture is rapid growth from the sucker to the fruit; the means to this end is the selection of one strong sucker from each plant after the fruit is cut, or perhaps two where stock is scarce. The best medium for the expeditious rooting of the young plants is the old-fashioned bed of fermenting leaves or tan, which should be well worked and placed in a close, compact pit, and when the heat has settled down to 90°, the suckers may be taken off, trimmed, and potted at once into pots ranging from 5 inches to 8 inches in diameter. From the middle of February to the middle of March is a good time to start with the first batch, and if the compost is rough, warm, and dry, there will be little danger of potting them too firm. Plunge at once into the bed with their leaves well up to the glass, give them plenty of room, and defer watering until they begin to make roots into the new soil. Let the temperature of the pit range from 55° to 60° at night, with a rise of 10° by day, and damp the walls with a fine syringe after closing on bright afternoons. The stock of winter fruiters having by this time been greatly reduced, those left may be plunged into a sweet, fresh bottom-heat in a smaller compartment or well-heated pit to finish off. The house they have hitherto occupied will then require a thorough cleansing and scalding preparatory to getting in fresh plunging material for the second batch of summer fruiters; meantime keep the plants steady and on the dry side in a bottom heat of about 70°. Keep the air about fruiting plants generally moist and range the temperature from 70° at night to 85° or 90° after closing with solar heat. Plants now throwing up fruit must be closely watched, and if, as is sometimes the case, the bed shows signs of a rapid decline from exhaustion of moisture, water between the pots with tepid water, and turn on more fire-heat to prevent it from descending much below 90°. This, with the aid of generous liquid in the pans and an abundance of solar heat, will help the fruit well out of the hearts of the plants without having recourse to continuous hard firing at a critical period when our uncertain climate does not always favour steady ventilation, and a liberal use of the syringe to counteract its drying influence.

Vines.—Remove all surplus bunches from the early Vines before they come into flower, leaving the most compact and best placed for the crop, and fertilise with Hamburgh pollen when they are dry and the temperature of the house has reached the maximum. All the Muscat-flavoured varieties, with the exception of Madresfield Court, require a little more heat than Hamburghs to set them properly, and on this account they should be grown at the warmest end of the house. But the mixed system is a bad one, and the sooner the large houses in private places give way to compartments for the different kinds of Grapes, the better will our culture be. The thinning of Grapes is a very important operation, and requires great care both in the manipulation and selection of the berries intended to make up the perfect bunch. If insufficiently thinned the berries become wedged and distorted, and seldom keep well even in summer, while, on the other hand, too much thinning results in a large-berried, straggling bunch, which never travels well, and spreads all over the dish as soon as it is cut from the Vine. To avoid these two extremes, so well illustrated in one of the classes at Manchester, a thorough acquaintance with the capabilities of the Vine is the first essential; the rest is a matter of mechanical skill; but in all cases the early and complete thinning of free-setting kinds as soon as they are out of flower should never be neglected. With increasing length of days and a continuance of mild weather, good progress may be made by shutting in plenty of sun heat, but 60° to 65° for Hamburghs, and 65° to 70° for Muscats through the night will be quite sufficient.

Succession houses containing such kinds as Black Morocco, Mrs. Pince, Gros Colmar, and some of the best white varieties, exclusive of Muscats, should be helped forward with fire heat and fermenting material to ensure an early break and a long-growing season. If Hamburghs are not grown with them for fertilising purposes, see that a stock of pollen is collected from the early house when in flower. The much-neglected Black Morocco, one of our best January Grapes, when left to itself is an invariable failure, but careful fertilisation with Hamburgh pollen for several days in succession secures to us a set equal to the most prolific Hamburgh. Provision should also be made for fertilising the Muscats when in flower, not with their own, but with foreign pollen, which may be kept for several weeks in a dry, warm place after it is collected. An important adjunct in the setting of all shy kinds of Grapes is the maintenance of fresh, active roots in a warm, well-drained internal border, and where these conditions do not exist the vigorous application of steel forks, new drainage, and fresh compost will be found the best remedy.

Late houses.—The worst managed Vines in many gardens are the late ones. They are expected to accommodate themselves to a house full of bedding plants through the early spring, to break into growth, and set with a minimum of fire heat, to ripen their fruit and wood by September, and support a full crop until Christmas, the usual time for bottling. Another drawback is the inconvenient season for renovating the borders, but this should not stand in the way, as first-rate old Grapes which will keep up to the advent of new ones cannot be expected where the roots are not in the highest condition. Internal borders may be renovated at any time after the Grapes are ripe; the month of February is perhaps the best for lifting and relaying the roots outside, and quality being of more importance than quantity, the borders should be elevated on good drainage, with a run of 6 feet to 9 feet inside and out. Good sods of turf built up as the border is made make the best retaining walls, as they are dry, warm, and elastic. Rich turfy loam, burnt earth, and about 12 per cent. of crushed bones make an excellent root-producing compost, and frequent mulching with rotten manure will keep them in full activity near the surface.

Melons.—Former directions having been followed, the first batch of plants will now be taking to the compost, in which they have to grow until they have matured a crop of fruit. If in 16-inch pots, keep the fermenting leaves in which they are plunged frequently turned and renovated with a little short horse manure to prevent the bottom

heat from falling below 85°. Place a stout stick to each plant, and train up to the trellis as growth proceeds. When this stage has been reached remove all side shoots at the first bud from the main stem, and carefully preserve the leaves for the twofold purpose of increasing the vigour of the plants and the prevention of canker when the time arrives for shutting up with strong heat and an abundance of moisture. To secure an early set of fruit free kinds may be stopped when they have extended from 3 feet to 4 feet over the trellis; they will then throw out a great number of side shoots, bearing female blossoms, which must be fertilised, thinned out, and pinched when a pair of equal size have been decided upon. Although Melons are gross breeders when swelling off a crop of fruit, they require careful watering through the early stages of growth, particularly where the pots are plunged up to the rims in moist leaves, and unless the compost is very poor they never require feeding until after the fruit begins to swell. To keep up a steady supply of fruit a few seeds should be sown singly in small 3-inch pots every fortnight, and all surplus plants should be destroyed before they become pot-bound and infested with red spider.

Cherries.—As a precautionary measure in the management of these and Plums the fumigation of the trees just before the blossoms begin to expand should never be neglected. Some growers syringe with a strong decoction of Quassia, but Tobacco smoke permeates every cranny and makes short work where the liquid might fail. If inside borders were well watered and mulched at the time of starting the roots should be in good growing condition, but with success in all matters of artificial culture depending upon attention to minor details, this important point must not be overlooked. Pay particular attention to ventilation, as Cherries, like all other kinds of stone fruit, cannot be expected to set in a close, humid atmosphere. Syringe regularly until the flowers begin to unfold; give a little air at 50°; gradually increase it through the fore part of the day until a free circulation is secured; close again at the same figure, and allow the temperature to recede to 40° when fire-heat is needed, and 45° with a chink of air when the weather is mild. When the flowers are fully expanded and a sharp shake sets the pollen free, fertilise with a camel's-hair brush about noon on fine days. Discontinue syringing, but damp the floors frequently when there is a circulation of air strong enough to prevent condensation of moisture on the glass and petals of the flowers.

Strawberries.—It is a practice with many to dig amongst Strawberries at this season, but it is a great mistake, as by so doing surface roots are injured and destroyed, and these are the most important and principal feeders. Another thing that is almost equally hurtful to Strawberries is denuding the plants of their old foliage, which is their natural protection, and should not be removed, as it breaks the wind in March and shelters the young leaves. Instead of the trimming to which they are usually subjected, it will be much better to allow the foliage to remain, and to add another coat by covering the ground among the plants with short stable manure. Before this is done, however, the ground should be cleaned by hoeing, but only just sufficiently deep to cut up the weeds, which may then be raked off. In some gardens where the soil is stiff, wet, and cold, slugs are troublesome, and as their headquarters are generally among the Strawberry beds, it is a good plan before putting on the manure to mix some soot and fresh slaked lime with it, which will not only be fatal to the slugs harbouring about the plants, but will destroy their eggs at the same time, and thus prevent further breeding It often happens that old plants of Strawberries grow themselves out of the ground as it were, and in cases of this kind it will do them much good to top-dress with an inch or two of rich mould, and to work it well up round the collars, when the plants will soon root out from the stems and gain much in strength. Where beds are exhausted and it is desired to make fresh ones this is a good season to do it, but the land where it is intended to plant should be deeply trenched and heavily manured, as success in the growing of Strawberries depends on their roots getting well down. In trenching, however, the sub-soil should not be brought to the top, but kept below and have the manure mixed in with it there, to which the roots will be attracted, and there find nourishment.

Raspberries.—These, like Strawberries, are often much weakened and injured by the spade or fork, as, being surface rooters, they cannot be dug amongst without the principal feeders being destroyed, and therefore the ground should never be disturbed beyond what is absolutely necessary for keeping weeds down. The way we manage is to give a good dressing of half-rotten manure, which we put on immediately after the canes are thinned out and restaked and tied, and as it lies the greater part of the winter, the juices get washed out and enrich the soil for the plants. During spring and summer the manure is of equal or even greater service by the shade it affords, thus preventing evaporation, a point of great importance in the case of Raspberries, as they require much moisture when swelling and ripening their fruit. A mulching, in a great measure, secures this for them, especially when put on early, as then the rains are kept in the earth instead of being drawn out by the sun and wind in spring. Many who grow Raspberries find it difficult to get stakes to support them, and various are the plans adopted to do without them, one of the best being to bring half the canes of one plant over to the other, so that they meet and form an arch by bending and interlacing or tying the tops. Another good way is to strain a strong piece of galvanised wire down the sides of the rows, to which the canes may be made fast. What we prefer, however, are iron rods, which, though a little dear at first, are the cheapest and best in the end, as they last for an indefinite time. Bars about five-eighths of an inch are quite large and strong enough, and as they are made in 15-foot lengths, they are long enough for three stakes; a ton of metal, costing about £7, will make a great number. All the labour required in reference to them is just to cut them and hammer one end to a point when red-hot, and then dip it in tar, which will preserve it from rusting. The other part may either be brushed with tar or painted lead colour, either of which will last on for years.

FRUIT GARDEN.

NOTES ON THE PINE-APPLE.

When foreign Pine-apples became so plentiful, cheap, and good a few years ago, it was predicted that they would exterminate Pine-apple cultivation in this country; and although this may have been the case in a few instances, it is satisfactory to know that Pine-apples are still grown extensively and to perfection in many gardens. Many proprietors I know are proud of their home-grown Pine-apples, which they prefer as much to foreign ones as they would home farm produce to tinned eatables from the antipodes. I am one of those who think that Pine-apples can still be grown profitably. It is rare that good Pines of home or foreign growth can be bought in the market at less than 2s. per lb. Ordinary fruit will average 5 lbs. each, and 10s. for 5-lb. Pine-apples is as cheap as anyone could wish to buy them. One hundred of these cut annually would realise £50, and I feel sure that that number could be grown for less than if their cultivation was rightly understood and gone about in a proper way. In doing this I would not have special houses for Pines only; they should be grown in connection with other things. Pine houses may conveniently have a bed in the centre in which to grow the Pines, and the shelves around might always be profitably used for such things as Strawberries, Kidney Beans, Tomatoes, and similar material in spring, and for plants and flowers throughout the summer and winter. In one of our lean-to Pine houses we have at present Kidney Beans, Peach trees in pots, now well set with fruit, and Pine plants in a bed in the centre, small decorative plants being placed at each end of the bed and along the front. Then there is a narrow pathway all round, and in front, close to the glass, another shelf full of Black Prince Strawberry plants. At one end there is trained against the glass a plant of Bougainvillea glabra, and at the other Clerodendron Balfouri, both of which supply large quantities of flowers. Altogether I consider this house a very profitable one, and I would direct the attention of those who think that they cannot grow Pines profitably to some arrangement of this kind. Apart from this, however, I have no objection to

Houses wholly devoted to Pine culture when they can be set apart for that purpose, but we cannot afford to do that here, as we have constantly to make the most of our glass houses by what may be called combination crops. Let Pines be housed as they may, however, the only object to aim at is to grow the plants to maturity and fruit them as quickly as possible. Many years ago it was frequently three years from the time the sucker was put in until a fruit was cut; under that system I would not say that Pines could be grown profitably, but when grown and fruited off in half that time results are very different. Then propagation and fruiting go on in rapid succession and the supply is quick and constant. There is as much difference between ancient and modern Pine growing as between ancient and modern Orchid culture. Both are better understood now than they ever were, and the high temperatures, which elongated Pine plants so much, long rests, and uncertain results are, as a rule, now unknown. Large pots, too, have been done away with, and finer fruits are now had from 10-inch pots than could be formerly secured in 14-inch ones. Altogether, modern Pine growing is easy and remunerative compared with what it used to be, and this makes it all the more to be regretted that Pine culture is not more extensively practised than it is. In dealing with

A few prominent points of culture, I may say that the smooth-leaved Cayenne, black Jamaica, and Charlotte Rothschild are excellent varieties for general culture; The Queen, too, is good; but, owing to its only being at its best in flavour in late spring and throughout the summer, it has no merits as a winter or short-day fruit. As a breeder it has no equal, suckers being produced in endless numbers from the time when the plants are quite small until their end. On the other hand, the smooth-leaved Cayenne and Charlotte Rothschild are often shy as regards forming suckers; indeed, they hardly ever produce them in any quantity or size until the fruit is visible. Surplus stock of this Pine is rare. There is one way of inducing those that are shy as regards bearing suckers to be freer in that respect, viz., watering not on the surface of the soil, but well up in the axils of the leaves. Smooth-leaved plants thus treated have often thrown up more than half-a-dozen suckers at a time, and early—a great advantage, as the suckers acquire a good size by the time when the fruit is ripe. The suckers on Queens are often a nuisance, clusters of them growing up from the base of the stem, and others further up, until the fruit is often almost hidden, when all are left on; but the best way is only to allow each plant to bear two suckers; all the others should be broken off as soon as they appear. As to taking off suckers for stock, I would never be tied to a particular time. As the fruit ripens, the suckers ought to be making proportionate progress, and may be taken and potted from February until October. Potting often generally means cutting fruit often, as small batches following each other in quick succession are more useful than scores coming in together at long intervals. The best suckers are those with robust dark green leaves and nut-brown coloured at the base. In the latter case they are always hardy, root quickly, and not liable to decay like those that are green, tender, and juicy. At first, they are best potted singly in 6-inch pots. Rough loam and nothing else is the best material

in which to pot rootless suckers; good drainage is very essential. A bottom heat of 80° and with the pots firmly plunged up to the rims will cause them to form many roots in three or four weeks at any time From 6-inch pots they may be transferred into 10-inch ones. Suckers potted now may be in their fruiting pots by April or May, and by October they will be well developed plants, many of which will show fruit by the time they are twelve months old. Satisfactory growth is best insured when a bottom heat of about 80° can be given them when they are gaining size or swelling their fruit. At times, when resting before being forced into fruit, the bottom-heat may be 20° or 30° less than 80°. When developing, the top-heat may range from 65° to 80°, according to the weather. On fine days we often have the temperatures up to the latter figure or higher, and in frosty weather we have had them for many days together as low as 40°, and the Pines were not injured; but low temperatures must always form guides for giving moisture, especially at the root. Stagnant moisture at the root is the one thing to be avoided above all others in Pine culture. It is astonishing how healthy and extra robust-looking Pine plants keep in a very low temperature if kept during that time on the side of dryness at the root. The other day I potted a number of suckers which had been in 6-inch pots since November; no water was given them during the time when they occupied these pots—a period of about three months—and the soil in which they were growing was one mass of healthy roots, all apparently looking out for food, and very different from the half-dead-looking roots which may be seen on plants which have had too much water at the root. In transferring Pine plants from sucker pots to fruiting ones only rough pieces of turf should be used, giving little or no manure, except, perhaps, a little horse droppings, or, better still, ground half-inch bones; the new soil should never be watered until many fresh roots have found their way into it.

CAMBRIAN.

Mrs. Pince's Black Muscat.—As I once took a journey to Exeter to see and report on this Grape, and as I have grown it rather extensively, and often met with it in great perfection, I have much pleasure in confirming all that is said in its favour in The Garden (p. 158). It is without doubt one of the finest flavoured Grapes in cultivation, and when slightly shrivelled I have kept it in good condition until the end of May. In some places it always colours well, though in more it is foxy in regard to colour. Even when coloured, jet black like Sloes, this Mrs. Pince Muscat loses a good deal of its colour by long keeping. The late Mr. Turner, of Chadacre Hall, my friend and neighbour, for many years grew this Grape better than ever I have seen it elsewhere in an open airy vinery with his Hamburghs, and generally kept some of his noble jet black, densely bloomed bunches till February. Were it as sure a setter as the Muscat or Lady Downes, few who have tasted Mrs. Pince's Muscat would care to grow or cut either of them again.—D. T. F.

Gros Maroc Grape.—Last autumn I saw at Nowton Court Vines of this Grape growing on the back wall of a vinery, planted between Alicante and other sorts, and it beat them all for finish; the berries were as black and well coloured as Sloes, and equally well covered with a blue-black bloom. Not only was this so, but every bunch was perfect as to shape and set, and several were so low on the Vines as to quite touch the ground, thus showing how little light and sun the berries had so far from the roof. If Gros Maroc will succeed under such unfavourable conditions and produce such fine fruit as that at Nowton, there can be no question as to its value for planting in late houses, where it will, I think, be found most serviceable for succeeding the Black Hamburgh, as it appears to keep longer sound than that well-known variety, but whether it will be a late Grape, like Alicante, remains to be seen. In flavour and appearance it is certainly superior to it, and I have no doubt, when better known, that it will be largely grown, and take a leading position among the most popular sorts. As to its being difficult to propagate, I cannot understand, as all ripe wood of Vines put in and kept in heat roots freely, and that of Gros Maroc should form no exception. In growth, as shown at Nowton, it is quite equal to any other. The habit and general character of the foliage looked to me to be a good deal like that of the Hamburgh, as did also the bunches and berries, except that the latter were more oval and fine in the skin.—J. Sheppard, *Woolverstone Park*

—— This Grape has been in the country nearly thirty years, and it is very remarkable that it has not been more extensively grown, especially after it has been considered worthy of a Royal Horticultural first-class certificate, and also acknowledged at the great International Exhibition at Manchester as being a first class Grape both for private use and exhibition, a character endorsed by Mr. Coleman, who, I observe, has got it growing both on its own roots and grafted. It would be interesting to know if the result, under both modes of treatment, is equally satisfactory, and also on what stock Mr. Coleman has it grafted. I purchased a fruiting cane of Gros Maroc as soon as it was procurable, and it produced two or three puny bunches. The terminal shoot I inarched on a strong Black Hamburgh, and it produced the same year a very fine cane. It is unmistakably a strong constituted variety, a good bearer, free setter; in fact deficient in no point to the eye, even the most fastidious, but its flavour, even at the best, in my experience never exceeds that of Alicante, and if the bunches are kept till January they are positively uneatable.—R. Westcott, *Raby Castle, Durham.*

Books.

THE HIGH ALPS OF NEW ZEALAND.*

This is a most interesting little book, written by a well-known member of the Alpine Club, and it describes a six months' holiday spent on a voyage to Australia and New Zealand for the purpose of ascending Mount Cook (alt., 12,348 feet). A brief account of the trip had already appeared in the "Transactions" of the Royal Irish Academy and also in the "Alpine Journal," but our author, wisely yielding to the opinions of acquaintances in New Zealand and of friends at home, has now recorded his experiences in book form. The result to the reader fond of travel is full of interest—a simple, scholarly record, which will bear reading over and over again.

Mr. Green was accompanied on his expedition by two Swiss guides—Emil Boss and Ulrich Kaufmann—and he sailed from Plymouth in the s.s. *Garonne* on November 12, 1882; he was home again on May 20, 1883, and, as he tells us at p. 336, "a week later I had resumed all my old home life and occupations, and the past six months seemed like a pleasing dream." A case of small-pox having broken out on board the s.s. *Garonne*, Mr. Green was debarred from landing at the Cape, as he had intended to have done, and even on arriving in Australia the inconveniences of a week or two in a quarantine station had to be submitted to, but altogether the voyage and its results were satisfactory. It is interesting to hear that New Zealand is to Australia what Switzerland is to England. When the well-to-do Australian citizen feels baked and parched by the hot summer wind, when the invalids or convalescents seek change of air, they may choose between two courses—either to go to Europe or to New Zealand; the latter, being nearer, is daily becoming more popular. The work is mainly devoted to the experiences of mountain climbing, but there is a fund of quiet humour and a good deal of information which the general reader will be glad to devour. Leaving Melbourne on his way to New Zealand, a stoppage is made at Hobart Town, Tasmania, where the climate is said to be delightful; and on returning to the steamer, after a pleasant time ashore, our author notes that the bulk of the cargo from Tasmania to New Zealand consisted "of split staves of Gum tree wood for fencing, a thousand cases of ripe Green Gages, Apricots, Pears, and other fruits, and fifty casks of Raspberries for the manufacture of jam and syrup in New Zealand." Evidently the Tasmanians had anticipated Mr. Gladstone. Again, "the floras of Australia and of New Zealand are marked by special features, which, while giving to each a well-marked character, differentiate them in a most decided manner. Nothing is more striking in an Australian landscape, even to a most casual observer, than the dark blue-black appearance of the Gum tree forests, a softer green being in some places caused by the presence of Acacias and other trees. In New Zealand no Gum trees or Acacias were found indigenous, but it has its grand forests of Kauri Pines (Agathis (Dammara) australis) peculiar to itself, and the flax-producing Lily (Phormium tenax) is peculiar to New Zealand and Norfolk Island." Ferns are cosmopolitan, of course, but here they form a characteristic feature of the forest scenery, varying in size from the great arborescent Dicksonia antarctica to the most exquisite little Hymenophylla, scarcely larger than the smallest of Mosses. The sub-arborescent Filmy Ferns also here reach their highest development, being represented by Todea superba and one or two other species. Christchurch is described as a very pleasant place—"a city of the plains," surrounded by pretty gardens, snug little homesteads and fields green with European Grass—a delicious change after the sunburnt suburbs of Melbourne. Leaving Albury, a place called Fairlie Creek is reached, and cultivated farms were now on either side of the road, and here and there patches of vivid green on the hillsides showed where the soil was gradually being reclaimed from its native state by the sowing of European Clover and Grasses. A strange fact concerning the red Clover is that it will not seed in New Zealand, owing to the absence of the humble-bee, which is the insect adapted by Nature to fertilise its flowers. White Clover, on the other hand, thrives amazingly, and as the introduction of humble-bees has now been effected, Mr. Green hopes that they may "improve each shining hour" among the Clover fields of their new home. *Apropos* of the red Clover refusing to bear seeds owing to the absence of the proper kind of bee in New Zealand, we may allude to the common Scarlet Runner Bean (Phaseolus multiflorus), which is said never to produce seeds in its native habitat in South America, but which is abundantly fertilised by bees in English gardens.

In addition to the useful plants introduced by the settlers, a vast number of weeds have also thriven in their new home. Thistles especially are a great nuisance; flocks of English sparrows are plentiful, twittering among the shrubs near the farms, and, with other imported birds, give an appearance of homely life to the scene. European rabbits have, like the weeds, proved a nuisance in some districts. One advantage which the farmers have in New Zealand over those at home is, that the winters are so mild, that the cattle need neither housing nor hand-feeding, so there is little necessity for the culture of green crops for a winter's supply, and, again, hay need not be saved for them. Our travellers are now, however, fairly on their way to the mountain, and, having passed the mouth of the Hooker valley with its devastating torrents, they quickly reached the flats under the great southern spur of Mount Cook, which, having lain undisturbed by glacier torrents for centuries, were covered with rank herbage. Many pretty marsh flowers peeped through the Tussock Grass, and clumps of Wild Irishman (Discaria Tomatou) and New Zealand Flax (Phormium tenax) adorned the mountain side. Great masses of scrubby vegetation extended upwards to a height of 2000 feet, and this consisted of Fagus cliffortioides, really a small-leaved Beech, although always called White Birch by the settlers. Podocarpus nivalis was common; in aspect this bush re-

* "The High Alps of New Zealand; or, a Trip to the Glaciers of the Antipodes, with an Ascent of Mount Cook." By the Rev W. Spotswood Green, M.A. Pp 350, with frontispiece and maps. London: Macmillan & Co. 1883.

sembles a Juniper, its bright red, berry-like fruits being very pleasantly flavoured. Thorny Wild Irishman and thong-like Supple Jack barred the way, but conspicuous above all were the different kinds of Veronica, more than 60 species of which are indigenous.

"Of smaller plants, the great Ranunculus Lyalli, or Mount Cook Lily (Lily of the Shepherds) of the colonists, was especially interesting, and its large succulent leaves, each about the size of a saucer, afforded us a cool lining for our hats and served as a protection against the midday sun. Large white Asters (Celmisias), with flowers 4 inches in diameter, peeped forth from the boulders where any dampness oozed from the hill side, and the more shady nooks were overgrown with Ferns, Aspidium aculeatum being of most frequent occurrence. Amongst the bushes we now and then came upon one of those utterly wrong-headed-looking trees (Panax longissimum), which appeared more like a lot of leather straps hanging up on a stick to dry than anything else I can think of. The general tone of the scrub and forest was dark green, but it was lit up here and there by clumps of the delicate pale green leaves of a tree bearing immense clusters of large white flowers (Plagianthus Lyalli), and as a number of other trees, including Veronicas, were covered with blossom, there was much in the charming surface of the vegetation to compensate for the scratches on the face, hands, and shins which forcing our way through the scrub involved. On the hillsides the trees grew about 20 feet high, but on the moraine we were seldom compelled to enter scrub much higher than our heads, and the really dense portion was rarely more than 4 feet deep. However, as it covered the boulders, so as to hide all hollows, we often dropped into a pit, and as these pits were certain to contain a well-developed specimen of a Wild Spaniard (Aciphylla squarrosa), with swords quite 4 feet long and a flower-stalk armed with spines, sometimes 10 feet high, such a fall involved the most excruciating prodding about the legs, and the execrations which sometimes rose above the Veronicas had better be left unrecorded!" Climbing Mount Cook was no easy task—scrambling among boulders, up and down slippery ice steps, and over the treacherous snow bridges which spanned the gaping crevasses; but at length the summit is reached as the evening of the 1st of March is rapidly on the wane Then comes the real difficulty of mountain climbing—the descent, for, as some one wittily said, "A man on a mountain goes up like a monkey and comes down like a bear." The fifth and last camp could not be regained, and so one whole dreary night had to be spent awake, wet, tired, and hungry, on a ledge of rock fully exposed to cold wind and the pelting rain. The camp was reached safely, however, on the following day, and the long climb and return—altogether a stretch of sixty-two hours—was over, and bruises and hardships were soon forgotten in well-earned repose. The lower part of the spur above the glacier was remarkable, alpine flowers being here seen in profusion. "Every cleft was adorned with the Edelweiss in full bloom," and every spot on the vertical rocks to which herbage could cling bore its tufts of Snow Grass and quantities of a little Eyebright (Euphrasia sp.), almost identical to a casual observer with the Eyebright of our northern land. At a lower altitude (5000 feet) patches of Ranunculus sericophyllus, Ligusticum aromaticum, Raoulia grandiflora, Hectorella cæspitosa, and Celmisia sessiliflora were met with. Here also the new Haastia Greeni was discovered, at an elevation of 6500 feet. Above this all life ceased except so far as it was represented by an ubiquitous little Lichen. At 7000 feet above sea level Nature here assumed an aspect which is characteristic of the 10,000 feet line in our Northern Alps!

One or two of the plants mentioned deserve notice, and, better still, introduction to our gardens. Ranunculus Lyalli has bloomed in London, having been introduced by Mr. Peter Veitch eight or ten years ago, but it has, I am afraid, nearly died out in Europe. Celmisias, with "Daisy-like flowers 4 inches across," make a gardener's mouth water, and the same individual may be excused if he expresses a wish for Veronica macrantha (p. 206), with "white blossoms resembling those of an Azalea!" And now that the culture of the Swiss Edelweiss is an accomplished fact, of course one longs to grow its representative (Helichrysum grandiceps), which our mountain climbers found so plentifully on the New Zealand Alps.

The narrative throughout is a lively and pleasant one. Mr. Green and his two sturdy Swiss guides seem to have thoroughly enjoyed roughing it on Mount Cook, and from our rather copious quotations it will be seen that our author had an eye for beautiful vegetation—indeed, for natural history generally—as well as for the summit of the mountain he had come 12,000 miles to explore. The little miseries of quarantine, of rough travel, of hunger, thirst, and of bruised extremities, and aching bones did not materially damp the spirits of the little party. Some little sport was afforded by the wild ducks, and the parrots and the inquisitive weka birds afforded considerable amusement. We lay down this spirited book with regret, and most cordially recommend it to all interested in mountain climbing, or in the fauna and flora of the New Zealand Alps. F. W. B.

THE COTTON THISTLE.

(ONOPORDON ACANTHIUM.)

THERE are a great many hardy plants which, on account of their grossness, are unsuitable for the ordinary flower border, yet we cannot afford to dispense with them altogether, as most of them possess bold leafage and stately growth. The Cotton Thistle belongs to this class, and a really ornamental plant it is when seen in luxuriant growth such as it attains in a light, rich soil in sheltered nooks. Its large, bold foliage is covered entirely with a cottony white downy substance, which gives the plant quite a silvery appearance; it often grows as much as 7 feet and 8 feet high, and its stout, forking branches spread out widely at the base, so that the plant acquires a pyramidal growth. In almost every garden there are places in which this plant can show itself off to advantage, particularly if placed in proximity to green foliage as a background. Though it is grateful for shelter, it likes plenty of light, and never grows to perfection if shaded. It is not a true perennial; after flowering it generally dies away, but as it seeds freely, plants of it can easily be raised; in fact, as a rule, it sows itself. Onopordon illyricum and O. arabicum are two fine plants also, but not so desirable as O. Acanthium. The latter, though also called the Scotch Thistle, is regarded as a doubtful native of Scotland by Sowerby. It is not uncommon in England, growing by the roadsides and in waste places. This plant is the national emblem of Scotland, and is also the badge of the Stuarts.

The Cotton or Scotch Thistle.

THE GUM DISEASE IN TREES.*

AN essay, by Dr. Beijerinck, on the contagion of the gum disease in plants, lately published by the Royal Academy of Sciences at Amsterdam, contains some useful facts. The gum disease (gummosis, gum-flux) is only too well known to all who grow Peaches, Apricots, Plums, Cherries, or other stone fruits. A similar disease produces gum arabic, gum tragacanth, and probably many resins and gum resins. It shows itself openly in the exudation of thick and sticky or hard and dry lumps of gum, which cling on branches of any of these trees where they have been cracked or wounded through the bark. Dr. Beijerinck was induced to make experimental inoculations of the gum disease by suspicions that, like some others observed in plants, it was due to backteria. He ascertained that it is in a high degree contagious, and can easily be produced by inserting the gum under the edge of a wound through the bark of any of the trees above named. The observation that heated or long-boiled pieces of gum lose their contagious property made it most probable that a living organism was concerned in the contagions; and he then found that only those pieces of the gum conveyed contagion in which, whether with or without backteria, there were spores of a relatively highly organised fungus, belonging to the class of Ascomycetes; and that these spores, inserted by themselves under the bark, produced the same pathological changes as did the pieces of gum. The fungus, thus detected, was examined by Prof. Oudemans, who ascertained it to be a new species of Coryneum, and has named it Coryneum Beijerincki. The inoculation experiments are best made by means of incisions through the bark of young branches of healthy Peach trees or Cherry trees, and by slightly raising the cut edge of the bark and putting under it little bits of gum from a diseased tree of the same kind. In nearly every instance these wounds become the seats of acute gum disease, while similar wounds in the same or other branches of the same tree, into which no gum is inserted, remain healthy, unless, by chance, gum be washed into them during rain. The inoculation fails only when the inserted pieces of gum contain no Coryneum. By similar inoculations similar diseases can be produced in Plum, Almond, and Apricot trees, and with the gum of any one of these trees any other can be infected; but of many other substances which Beijerinck tried, not one produced any similar disease. The inoculation with the gum is commonly followed by the death of more or less of the adjacent structures; first of the bark, then of the wood. Small branches or leaf-stalks thus infected in winter, or in many places at the same time, may be completely killed; but, in the more instructive experiments the first symptom of the gum disease is the appearance of a beautiful red colour around the wound. It comes out in spots like those which often appear spontaneously on the green young branches of Peach trees that have gum disease; and in these spots it is usual to find Coryneum stromata, or mycelium filaments. The colour is due to the formation of a red pigment in one or more of the layers of the cells of the bark. But in its further progress the disease extends beyond the parts at which the Coryneum, or any structures derived from it, can be found; and this extension, Beijerinck believes, is due to the production of a fluid, of the nature of a ferment, produced by the Coryneum, and penetrating the adjacent structures. This, acting on the cell walls, the starch granules, and other constituents of the cells, transforms them into gum, and even changes into gum the Coryneum itself, reminding the observer of the self-digestion of a stomach.

* Communicated to the *Medical Times* by Sir James Paget.

In the cells of the cambium, the same fluid penetrating unites with the protoplasm, and so alters it that the cells produced from it form, not good normal wood, but a morbid parenchymatous structure. The cells of this parenchyma, well known among the features of gum disease, are cubical or polyhedral, thin-walled and rich in protoplasm. This, in its turn, is transformed into gum, such as fills the gum channels and other cavities found in wood, and sometimes regarded as gum glands. And from this also the new ferment fluid constantly produced, and tracking along the tissues of the branches, conveys the Coryneum infection beyond the places in which its mycelium can be found.

GARDEN IN THE HOUSE.

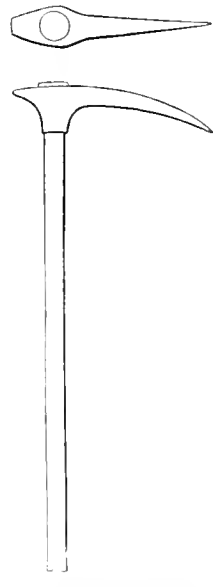
Window plants in glazed pots.—With regard to the question of "Glazed *v.* Unglazed Flower-pots," recently opened in The Garden, I may say that a few years ago I was in Norway, and was particularly struck with the healthy appearance of the Fuchsias, Pelargoniums, and Myrtles in the windows of the town houses. These plants were all in glazed pots of the ordinary shape, but coloured outside brown, yellow, and green, with glaze. Some had a lattice pattern of yellow on a rich brown ground, which looked extremely well, and a rustic pattern was made by putting fine gravel on the glaze while soft and baking it all together. Saucers were made in the same pattern to correspond. I was so pleased with them, that I brought home a dozen with me, and for the past two years have had Palms, Hyacinths, Narcissi, Lilies, and other plants growing in them in my sitting room. These plants have all done remarkably well, and the pretty Norwegian pots look much better in the window than our unglazed ones.—R. J. G. R.

Arum Lilies.—These have become very popular for church decoration, their large white spathes, backed up by their handsome foliage, being simply perfection for single vases and altar decorations. Various methods of growing these Arum Lilies are pursued by different cultivators, but I find the following plan a good one for producing a good supply of large blooms during winter and spring. As soon as they are divested of their flowers and the weather warm enough to allow of their being set out of doors without injury, they are placed in some sheltered spot, such as close to a wall, and after a week's exposure in the open air, they are planted out between rows of bush fruits, the shelter from wind and partial shade suiting them admirably. If planted about the beginning of June they soon commence to send up new foliage, massive stems and short sturdy stalks. While out of doors they should be well supplied with liquid manure, as they are gross feeders and abundant rooters. In September let them be carefully lifted and potted, giving them rich soil, and if watered and set in a shady position they will hardly experience any check from removal. Some of the most forward of them will be showing flower, and if set in a light airy house will bloom profusely. The flowering period may be hastened or retarded, according to the date at which the blooms are required, by applying more or less heat, but they do best in a temperature of about 55°.—J. Groom, *Gosport*.

5152.— **Window boxes.** — Begonias would certainly not be suitable for a north situation, but many kinds of summer bedding plants do well, and indeed last longer in bloom than when in a sunny position. Much of course depends upon the nature of the summer, as if damp and sunless, flowering plants of any description in a north position do not bloom well, but in ordinary seasons they do well. Calceolarias especially thrive in a cool situation, as a rule, better than in full exposure to the sun, and Lobelias and Verbenas bloom well. Geraniums and Petunias will flower freely in fine summers, but otherwise they run too much to leaf. An excellent plant for a north window is the Moneywort, which loves a cool, moist position, and, well grown, droops down, forming a curtain of rich green foliage thickly studded with bright yellow flowers. I have seen specimens of the Moneywort, drooping masses of lustrous foliage and golden bloom, 2 feet and more in length, and I doubt if there is anything more beautiful than this in window gardening. A fine companion plant is the golden variegated variety, the coloration of which is distinct and bright, and which, although it grows slowly in the sun, has much vigour under the more favourable conditions which a shady position affords. Fuchsias are excellent for north windows, and one of the prettiest displays I ever saw in the way of window gardening was in a town where all the windows of a house on the north side of the street were filled with them. The vases may be of any width, but they should not be wider than the window-sill, and a bar of iron should run round the edge of it to keep them from being blown down or from mishaps of any kind. The depth should be from 6 inches to 8 inches.—J. C. B.

A HANDY TOOL FOR PLANT-COLLECTING.

This faithful little companion of many days' pleasant plant-hunting in a rocky region of



Pick for plant-collecting.

Southern Italy has served me so well, that it deserves a strong recommendation. I have suffered many things of many trowels. When used in hard earth or stony places they have always ended in damage to themselves or to me: either they "go" at the handle or at the shoulder where the blade is joined on, or if the tool retains its integrity the hand suffers. A few hours' work with a trowel of any kind in hard ground means blisters even to a well-seasoned hand. The little pick here represented has none of these defects, and works much more quickly and powerfully than anything of the trowel tribe. A Crocus Imperati or a Cyclamen neapolitanum comes up with a single, light, one-handed stroke, and a whole day's work does not strain or blister a woman's hand. The handle is of just such a length that it can be used with both hands or one only, and it is a great advantage, when climbing about in "nasty places," where one must hold on with one hand to rock or bush, to be able to get at some desirable plant in a rocky fissure 1½ feet beyond hand-reach. The tool is also a great help in climbing upwards; the point digs firmly, with an anchor-like grip, into earth or rock-chink, and as the head cannot possibly pull off, the whole weight of the body may be safely trusted to it. The iron head is 8 inches long, and is tipped at the sharp end with a wedge of steel; the socket through which the handle passes is a little widest at the top; the handle also is a little thickest at the top. When put on, the free end is passed through the socket and a few blows with a mallet on the thick end fix it firmly. The whole length of the tool is 22 inches. One is tempted to fix on the head by a rivet right through, but this would be a mistake, weakening the handle, and giving an undesirable rigidity; should the head come loose, which rarely happens, it can be made tight again by jarring the thickened end of the handle down on a rock. The blunt end of the tool is convenient for knocking off projecting points or edges of rock, the better to get at roots in fissures. The tool was made for me, at a cost of 5s. 8d., by Mr. James Jackson, engineer, Bramley, Guildford. G Jekyll.

KITCHEN GARDEN.

CARROTS AND THEIR CULTURE.

There are few kitchen garden crops more difficult to grow to the highest state of perfection than Carrots. Early crops may be grown in frames, those to succeed them in borders, and the main supply for autumn and winter use in open quarters; but in how very few instances can all of these be grown year after year without failure. The cleanest Carrots are generally those grown in frames, and the worst those sown in April or thereabouts for the main crop. These may go on well for a time, and sometimes wholly so; but how few can when sowing guarantee that their Carrots will invariably grow straight, be free from forks, and, above all, have no worm holes in them when fully grown in the autumn. There are no roots more liable to be injured by grubs than Carrots, and it is their liability to be cut down by these that makes their culture so uncertain. I cannot at the moment name one garden in which Carrots always do well. I know of some in which very fine roots have been produced year after year for a long time; yet failures sometimes occurred. In some gardens I have seen them do well until after they were thinned; then patches here and there would wither and die. In other cases where good-sized roots had been formed an attack made by grubs did not make them go off so rapidly, but many of the leaves, by becoming yellow, indicated that all was not right, and when taken up the majority would be found to be full of little holes and live grubs. In new soil they not unfrequently fail on the first trial, and old ground full of maggots is certainly not to be depended on. A very sandy soil is the only kind from which good clean crops may be expected, and even in that they fail sometimes. From what has been stated it will be readily inferred that, in order to grow Carrots well, the greatest care and attention must be bestowed on the preparation of the soil for their reception, and it is of the utmost importance that this be seen to before the seed is sown, as prevention is better than cure. Indeed, when once Carrots are attacked by worms at the root, hardly anything will save them. It is beforehand, and not while the crop is growing, that good can be done; and as Carrot sowing will soon be general, let me impress upon cultivators the importance of seeing to their soil now. To know that Carrots did well last season or in former years is nothing to go by, as every one may perish this time before they are half grown. We have ground here now from which fine Carrots have been taken more than either once or twice, and it might yield the like again without any trouble, but to this we will not trust, as our cleanest and most trusted Carrot land will be dressed before any seed is sown.

In dressing ground for Carrots various antidotes may be used. Amongst these we would make special mention of lime, soot, salt, and gas-lime. Salt and soot may be applied together, but when lime is used nothing else should be put with it. New lime may be put on thicker than gas lime, but the real quantity of this or any of them should be determined by the condition of the soil. Old, worn-out soil will bear a good deal

of refreshing, and wormy quarters require strong doses. Ordinary lime may be applied from two to four tons per acre; gas lime from one to two tons per acre; salt the same; and soot from 40 bushels to 50 bushels per acre. In each case they should be spread on the surface and be dug into and well mixed with the soil a few days or weeks before sowing the seed; and land known to be infested with insects detrimental to Carrots should have the dressing trenched all the way down to 2 feet or so from the surface. If this is done properly the most adverse soil may be made to produce Carrots free from damage by worms for one year at least. As to manure, little or none of this should be used at the time of sowing, as it has a tendency to generate insects and cause the roots to fork in all directions. The only manure which may be used with advantage is that from spent Mushroom beds, but the best way of all is to put the Carrots into some piece of soil which has been manured some considerable time previous. The soil must be as friable and open as possible Clay soil will never produce fine Carrots. We have had some grand Carrots in land close to the sea and where the soil was half sand; at times, too, we have carted sand into the garden, and put it in with the Carrots. This may be done with much benefit in almost all gardens. Wood ashes suit Carrots, but coal ashes are bad. Of all dressings for Carrot ground, I prefer sand, a good deal of soot, and a little salt, all mixed together and spread on the ground to the depth of 4 inches or 6 inches before digging. In this Carrots will grow to perfection, and they are well worth all the trouble taken to secure them large and clean, as they are in daily demand in every kitchen. There is no substitute for them, and when abundantly supplied in prime condition, they never fail to give satisfaction. So far my remarks have been chiefly confined to getting the soil ready for general culture, but the different modes of producing Carrots may be more particularly gone into.

Frame Carrots are much valued. If sown in February they may be ready for use by the end of April or early in May, and the tender little roots are then most delicious. A good firm hotbed should be made up in every garden for them. A one-light frame will produce many gatherings and a few framefuls will furnish a long and ample supply. After a hotbed has been made up, the frame should be placed on it, and then the soil should be put into it. This should, as far as possible, be free from grubs and from 6 in. to 1 ft. in depth. The French Horn is the best of all Carrots for forcing, and as it is only about 3 in. in length, it succeeds admirably in a depth of 6 in. of soil. The seed should be sown very thinly broadcast and merely covered. In ten days after sowing the young plants will be visible, when air should be admitted on all fine days. When the plants are large enough to handle, they should be thinned out to 2 inches apart, and no more of this kind of work will require doing until they are sufficiently large for use, when some of them may be drawn daily, and by taking them from all over the bed, those allowed to remain until the last will often become large in size.

In open quarters the seed should be sown on a fine day when the soil is in good working order, and the wind should not be blowing hard, as the seed, being light, is apt to be blown all over the ground. The English Horn, Nantes, and Intermediate are the choicest and best of Carrots for culinary use, and only those sorts should be grown where quality is a consideration. All being moderate growers both in leaf and root, they do not require a very great amount of space for development. Drills are much more convenient than having them broadcast. In fact, I would never think of recommending anyone to grow them broadcast. For the Horn varieties, the drills may be 10 inches apart, and for the Intermediate from 12 inches to 15 inches. The drills may be 2 inches deep and not very wide, as thick or extravagant sowing is a mistake. The thinner the seed can be put in the better. When the seed is carded it should be well rubbed up amongst sand before sowing, then put sand and all in, as this will keep the seeds apart, and prevent them falling in the drills in quantities matted together. After sowing, each drill should be carefully covered in, and then the whole of the piece should be trodden or rolled over, as nothing tends more to create fine-shaped roots than firm soil. Timely thinning and never allowing the weeds to gain a footing are the main points in their after culture. As soon as the roots begin to be of any size, the thinnings will be very acceptable in the kitchen, and ultimately the crops may be allowed to mature with 4 inches between each Carrot in the Horn rows, and 6 inches in the Intermediate. In cases where the spring and early summer attacks of the grub have defied all remedies, I would stop sowing in spring altogether and put the seed in about the first week in July, when ground vermin have often decreased, and when successful sowings can be made; then by October the roots will be of fair size and very acceptable as a winter supply in the kitchen. Late autumn-sown Carrots seldom do well, and, as a rule, it is always best to have them grown by November at the latest, and to store them for winter and spring use or until new ones can be had again from the hotbeds and frames. J. Muir.

Veitch's Spring White Broccoli.—This forms an admirable succession to Snow's Winter White. It is scarcely so hardy as Snow's and other Broccoli I could mention, but for the last three weeks it has furnished us with many dozens of beautiful heads of the best quality. A pinch of seed was sown under glass early in March, and more a fortnight later in the open. The plants were eventually pricked out in a sheltered border, and finally transplanted with a trowel. In this manner we secured successional supplies.—I.

Potato Lifeguard—Exhibitors of Potatoes should procure this variety. I am unacquainted with its origin, but believe it was raised in Scotland. I think it the handsomest Potato yet in commerce, and, what is more, its table properties are of the very best, the flesh being white, moderately mealy, and of a rich nutty flavour. It is a true kidney shape; skin clear, a whitish pink, with deep splashes of red, more especially over the crown. It is a heavy cropper, and the tubers are of more than average evenness throughout.—W. W. H.

Scotch Champion and Magnum Bonum Potatoes.—Mr. Groom (p. 72) disposes of the whole question of quality in Potatoes in one sentence when he says, "Soil and seasons determine that point to a great extent." I grow both the varieties just named, and, as regards quality, on our land the Champion is by far the best, the Magnum Bonum being only second rate, either boiled, baked, or steamed. On land of a different character and within a mile or so of us the Magnum Bonum is excellent in quality and largely grown; therefore in this neighbourhood both kinds are good, and it rests with the grower to adhere to the kind from which he derives most satisfaction.—J. M.

Veitch's Autumn and Snow's Winter White Broccoli.—At one time we considered it advisable to sow seed of both of these popular sorts in frames on mild hotbeds either late in February or early in March. As far as the former was concerned, this was right enough; and if sown in the autumn and treated similarly to Cauliflower, it was correspondingly early and fine. Not so Snow's; if this is given too long a time in which to grow, the result is a great percentage of monstrosities and no apparent gain in the earliness of the supply. The middle of March in the open border is quite early enough to sow Snow's Broccoli.—W. I.

Read's Hearting Kale.—This comparatively new sort has given us great satisfaction. The bulk of the Savoys being used earlier than usual, the large strong hearts of this Kale were just what we wanted. It may be briefly described as a good hearting form of the ordinary dwarf kind.

5150.—**Vegetable cropping.**—In fairly good soil you could depend upon getting half a ton of Potatoes from twenty rods of ground. Plant about two rods with the early Ashleaf kidney, and six rods more with a good early round. The rest of the ground should be planted with later varieties. Avoid such rampant growing sorts as Magnum Bonum and Champion. You would require about two hundredweight of Potatoes to plant the ground.—J. D. E.

NOTES FROM BURGHLEY.

Harbinger Primrose.—Among the most useful things in the way of flowers must be mentioned my seedling Primrose, Harbinger, which may be grown by anyone who has a cold frame. Just now, in one of our cool houses, we have 300 plants of it in 3-inch pots—a perfect sheet of yellow-eyed white blossoms; each blossom is from 1½ inches to 2 inches across, and just now (Feb. 9) we are picking them in large quantities. If ever there was a plant which might be termed the plant for the million, Harbinger Primrose is certainly the one; its cultivation is simplicity itself. About the middle of May we separate the plants, cutting each division off with a small root attached to it; these we plant on a north border, and by September they are fine large specimens. The only trouble connected with their growth is keeping the ground clean, and should the summer be very dry, they occasionally want water.

Double white Chinese Primrose.—This is the next most important plant, of which we hold a very large stock. This Primula is so well known to horticulturists, that it is useless to describe it. Our plants of it have been in flower since November; at Christmas they received a small quantity of Clay's Fertiliser, which has done them good. We grow them in 5-inch pots; at the latter part of April we divest them of all flower-spikes, and set them close to the glass in a coldframe; there they make good stiff cuttings, which we insert singly in 2½-inch pots in sandy soil, and plunge them in heat under our propagating frames. When struck, we pot them in their flowering pots, and grow them in cold frames on a north border.

Eucharis amazonica.—The two Primulas mentioned above are everybody's plants; but in order to grow this stately Eucharis, we must have both bottom and top-heat, and plenty of it, at command. My stock of flowering bulbs of this most useful plant consists of about 32 plants, occupying from 9-inch to 12-inch pots, and from this stock I have generally a good supply of blossoms. My plants are in sets of eight each, so that we have one set flowering, one resting, one throwing up their blooms, and the other growing. We rest the plants seven weeks, but do not kill the foliage; they are rested in an intermediate house, the temperature of which ranges about 50° at night. They are quite out of the way of any cold draughts, and are never watered after they are put to rest. I have this day taken out eight that have been subjected to this treatment with all their leaves fresh and green. After treating them to a good watering, and afterwards plunging them in a bottom-heat of 75° to 80°, they will, in the course of a fortnight or three weeks, throw up their flowering stems. I think nothing of seeing or having all these lovely flowers in at one time, so have devised a plan by which they can be had every month in the year. My plants are growing in turfy loam, well-rotted cow manure, with a good sprinkling of sand.

Outside fruit growing.—When I took over the charge of the gardens at Burghley, 16 years ago, I found the outside Peaches in a miserable plight, and one of my first operations was grubbing up the whole of the Peach trees and substituting pot Vines to make the wall look somewhat clothed until planting time. After well trenching the border and mixing new maiden soil with the old material, I planted Peach trees 15 feet apart trained on the old fan system, and the varieties employed were Royal George, Early Am-

hurst, Violette Hâtive, and Princess of Wales. Every other tree has since been taken out to fill up walls, houses, &c. The trees, therefore, now stand 30 feet apart, and the wall is completely covered. For twelve years in succession we have been rewarded with magnificent crops, the surplus of which was sent to Covent Garden Market. Much of it realised 12s. per doz.

The secret in growing Peaches is to keep them thin of wood and clear of insects. Our plan of killing green fly is as follows: Immediately we see the fly in spring we completely cover the young leaves with tobacco powder, blowing it from an iodia-rubber bottle well in amongst the young shoots. This we allow to stop on twenty-four hours, and then with soft water we syringe the tobacco powder entirely off, taking care that this is done before we disbud the trees. Disbudding too early starves the young fruit, while a covering of healthy green leaves greatly improves it. On one-half the wall we fix glass lights 3 feet wide, thus forming a glass coping. To these lights we affix old fish net. The other half is simply covered with netting with no glass coping, and, truth to tell, I have never discerned one bit of difference between the two. We have seldom any blistered leaves through cold winds, and never any twisted shoots occasioned by green fly. We syringe the trees three times a week with soft water—a great preventive of insect pests. In fact, our Peaches are the most satisfactory wall crop which we grow. R. Gilbert.

Hard weather in America.—A week ago I wrote to you regarding fruit prospects in the Mississippi Valley, U.S.A., for 1884, and now find I can add a few words of information which may be acceptable. An Illinois horticulturist reports the Peach crop to be entirely killed; Cherries badly injured; Blackberries and black Raspberries killed to snow line; Pears touched to some extent, but red Raspberries, Strawberries, Apples, and other fruits in good condition. Kentucky: Peach crop severely blighted. Mississippi: First buds all right, but fears are felt of wet frosts in the spring. The prospects in Louisiana are better than they have been for six years. In a letter from Shreveport, Louisiana, dated Jan. 27, 1884, the writer says: "Fruit orchards were well cultivated the past season, and now trees are vigorous and healthy. The lowest mercury here was 11° above zero. In my immediate neighbourhood there will be about 10,000 Peaches, 4000 Pears, 2000 June Apples, 2000 early Plums (Caddo Chief), and 2000 Grapes, nearly all the early sorts for shipping. Cabbages and Turnips generally ruined." This writer had out 20,000 Cabbage, early and late Flat Dutch, about one-half of those beginning to head still alive, all smaller killed. In the northern part of Florida Bananas and Guavas are killed, and the ripening Oranges are much injured. The winter in Alabama is so severe as to nearly ruin the fruit. In Texas Peach and other fruit-buds are in splendid condition, but fears are felt of frosts. In Arkansas only a part of the Peach crop is injured. Strawberries promise splendidly, and other fruits are in good condition, with the exception of Grapes. Perhaps your readers can form a better idea of the extreme cold in America during last January from the following extracts taken from the country press. But first I would say the thermometer here (latitude 40° north) has reached 32° below zero (Fahr.), while in many places in Minnesota it has marked 45° below that point. Reports from Winnipeg, Manitoba, say the thermometer has reached 75° below zero for three nights, and for eleven nights it registered 60° below zero. The following is from the *Maine Farmer*: Reports from various other localities in the State tell the same story. The mercury registered 46° below zero at Skowhegan, 23° below it at Waterville, 28° below it at Fairfield, 22° below it at Oakland, 30° below it at Farmington, 26° below it at West Farmington, 32° below it at Farmington Falls, 30° below at New Sharon, 26° below it at West Farmington, 36° below it at Chesterville, 32° below it at Canton, 15° below it at Danville, 13° below it at Gardiner, 17° below at Mechanic Falls, and 29° below it at Turner. At Lewiston and Auburn, 10° to 15° below zero are reported. Worse and more of it. On Tuesday morning, at Fort Fairfield, the mercury was 55° below zero.—L. B. Case, *Richmond, Indiana, U.S.A.*

Garden Destroyers.

DESTRUCTIVE BIRDS.

Birds have lately increased so fast that they now assume rather serious proportions, and yet we are appealed to from time to time to give them protection. Of this both moral and legal they have had so much, that it is difficult to successfully guard against their depredations. Every gardener knows how destructive the blackbird, for instance, is; watch him amongst the Gooseberry bushes, in the Strawberry quarter, and in the Raspberry plantation, and he will be seen to devour or damage all the best fruit. Then we have that hard-beaked fellow, the chaffinch; he will walk

Tomtits at work (from Baltet's book on fruit culture).

along a row of Turnips just peeping through the soil, and only leave the white stalks of the newly germinated seed behind him, a circumstance which compels one to sow again, making, besides other drawbacks, the crop so many days later. I find black thread stretched over sowings of all the Brassica tribe the best preventive amongst the many I have tried. I run it from stick to stick, crossed and recrossed, about 2 inches from the ground. The birds on alighting come in contact with the thread and are thus alarmed at what they did not see. I come now to the redbreast, the most pugnacious bird with which I am acquainted. In severe weather he represents himself to be in a forlorn condition—in fact, so dejected as to suggest imposture; while in summer he will repay the sympathy shown him in winter by consuming one-half of your Currants, and if a colony gets into the netted bushes it is difficult to dislodge them. The whitethroat and the lesser willow wren (both birds of passage) are often thought to be wholly insectivorous, but it is surprising how easily they can forsake their insect food and betake themselves to small fruit. The tomtit and the bluetit are also both very destructive birds, especially to fruit buds. Last spring the flower buds of wall-trained Pears were completely destroyed by tomtits just before the buds bursted their scaly covering. Plums on walls were treated in exactly the same manner. The tomtits and bluetits also attack and destroy the buds of Gooseberries and Currants wholesale, and soon ruin all prospects of a crop. Moreover, what is more annoying than to have one's best-keeping Pears pecked and rendered useless by these birds? Indeed, both Apples and Pears are treated alike by them, and they invariably choose the finest fruit. Amateurs know what mischief is done, and how it is done; but those who employ gardeners seldom inspect matters so closely; they see the fruit hanging on the trees, as they suppose, sound, and expect to have it for dessert when wanted, not knowing that the best has rotted through bird damage. Now, let us take the Sparrow. Who can speak a good word for him? The way in which the Sparrow has behaved of late years, particularly in the flower garden, is indeed annoying; as soon as the Primroses open their buds, he pounces on them and tears them to shreds to get at the young ovary. Gold-laced Polyanthuses are also treated in the same way. Here we grow several hundreds of the double sorts of Primroses for spring bedding, and last year it was found to be almost impossible at any time to pluck a small bunch of uninjured blooms. We all know how fond Sparrows are of Green Peas, and how often they destroy the prospect of one's first dish. Nevertheless, we are told and are expected to believe that both Sparrows and bluetits do us incalculable good, inasmuch as they destroy every day some thousands of caterpillars. We do not, however, find them clearing our Gooseberry bushes of caterpillars or ferreting out and destroying the Rose grub or those that eat our Cauliflowers and Cabbages. I can imagine suburban gardeners speaking in favour of protecting birds which are not nearly so plentiful as in the country. There matters are on a different footing, and I maintain that many kinds of birds are far too numerous. How is fruit growing to pay if birds get 50 per cent. of it? To lovers of Nature, I admit, birds are a source of interest; but though no one can be fonder of them than myself, I think we should not allow mere sentiment to supplant our best interests. Hy. Dobbie.

Thickthorn, Norwich.

Rose Garden.

PRUNING ROSES.

Yes, it must be set about soon. There are shoots before me a yard long as I write, and the buds are broken along the whole line and within an inch or two of their base. The young shootlet gradually graduates in length from the point of the shoot downwards. At the point some of the young wood is from 4 inches to 6 inches long, and it graduates from that to nothing or dormant buds at the base of the shoots. The term dormant is really, however, inapplicable; though not broken, they are all in motion, agitated with the throbbing of life within, or the great current of sap that is sweeping their bases as it rushes forward to the support of the growing shoots beyond them. To cut back to these would but break these buds the sooner. To leave the entire shoots much longer would so dissipate and disperse the vital energy of the plants that their base buds would but break to starve.

And so the Rose must be pruned. Supposing a compromise is tried thus: Shorten the shoots back in the first instance about half way. Should the mild weather last, the shoots left in advance of what will ultimately be the final cut will, by drawing away a portion of the sap, prevent the base buds from breaking. Being only half the number of shootlets as before, they will drain the Rose buds less. So soon as climatal dangers are past these young shoots can be rubbed off, and in another month or so the shoots may be boldly pruned back to the flowering buds. This mode of pruning is more tedious than the more common methods, but it is also far more safe, and is therefore worth much more than all

the extra trouble and labour. The autumn-planted Roses have had a rare growing winter in which to thoroughly re-establish themselves, which they have done to such good purpose that they will be likely to yield some of the finest blooms next June. The buds on these are also somewhat later than those not disturbed, and had one been sure of such a winter, it might have proved safe and wise practice to have lifted and replanted the greater number of our Roses. The Briers look well, and are also beginning to break so strong and early as to promise a good budding season With a few sharp frosts soon to arrest the swiftly flowing sap and keep the few reserve buds a little longer dormant, it is to be hoped that all may yet be well for the Rose season of 1884.

D. T. FISH.

DISBUDDING ROSES.

As a Means of Conserving and Concentrating Vital Force, Retarding Growth, and Preventing Pruning.

THE destruction of vital force among Roses in such seasons as these is quite appalling. Turn where we will to wall, pyramidal, pillar, dwarf, or standard Roses, the same forests of growing shootlets are everywhere visible. Had half or three-quarters of these been disbudded before growth began, less growing power would have been drawn out of the plants, and the loss might have taken place where it would have been less missed For example, were two shoots or so left at the summit of early Rose branches, and all the others disbudded, but from two to six or so near the base of the shoots, those base buds would be fuller fed or filled up with the chances of bursting rather diminished than otherwise, for the upper shootlets would grow faster, and hence form better safety valves for the overflowing sap than the competing shoots between. And this brings me to my second point—that such disbudding as here recommended would really retard the growth of the base buds. It is less the number than the strength of the shoots that endow them with the power of withdrawing the sap from other buds. The more they are developed and expanded the greater their power to decoy away any excess of fluid from the buds behind them or lower down on the stems. Hence, the further the few shoots on the head of the branch grew, the less danger of the base buds bursting; and it need hardly be added that it is on these only in such seasons as the present that all our hopes depend. Finally, disbudding would prevent much pruning, and pruning is emphatically one of those operations to which the old saw applies, "Prevention is better than cure." It seems a difficult thing to disbud Roses on paper, but it is really not so in practice. A sharp eye, knife, and hand will deprive not a few Rose trees of all their superfluous buds in a day, an hour even, and thus double the time spent in disbudding may be saved in pruning, so that the question of labour may be briefly settled at once in favour of disbudding.

All small, misplaced, crowded buds should be removed before breaking, and if, on looking over Roses to bud, cut, or thin the flowers, one was also to have an eye to disbudding, vital force would be greatly husbanded, and the labour of pruning Roses much lightened. The Roses would also be much benefited, the wood strengthened, the flowers enlarged, and the entire plants and their produce greatly improved. D. T. FISH.

Tea Rose Homere.—As this Rose in the open and indeed Roses in general have seemed rushing headlong to destruction, with the tender leaves and peeping buds exposing themselves to the capricious changes of February weather and the biting winds of March, one has hardly had heart to write about them. Somehow a feeling has come over us that were we to write or speak much about them they might wake up the more and grow all the faster, just as the old philosopher who did not like death to be named in his presence lest it should remind it of him. But "W. J. M.'s" Homères are under glass, and so safe from the weather yet to come. Now that is just where I do not care for this pretty Rose. It is far best on the open wall, or even as a dwarf or standard in the open in sheltered places. What your correspondent describes as a merit is a fault of Homère. The nearly white petals be admired proves the Rose already spoilt. The deep pink or flesh colour so curiously mottled or spotted is, however, in perfection. And in such form from the open it has several times run in first for the best twelve Teas. Homère has also one provoking fault in the open; its first bloom comes mostly malformed and misshapen, the seed vessels of the flowers being not infrequently more prominent than its petals. But all that disappears in the second or late bloom. Having made one mistake—in presenting misshapen flowers—it does not repeat it the same year. Neither does it mould itself into good form by experience; for however perfect its autumnal blossoms may be, next summer its first attempts at blooming are as ugly and abortive as ever. Nevertheless, take Homère altogether, it is one of our prettiest Tea Roses; it is also a most vigorous grower, with fine foliage, and flowers most profusely, and is one of the hardiest of all Tea Roses. Its odour is slight, but when perfect its size and peculiarly unique colour make it rather effective for a button-hole. For the latter purpose, however, it is not to be compared with Niphetos, Devoniensis, or Marie Van Houtte. —D. T. FISH.

QUESTIONS.

5160.—**Plants for a cool greenhouse.**—I want the names of a few new and rare plants suitable for cultivation in pots and creepers for a cool greenhouse, and a half dozen that would be suitable for exhibition about July and August. Can any of your readers kindly furnish me with this information?—SOUTH COAST AMATEUR.

5161.—**Books.**—Will any of your readers kindly tell me the name of a French flora similar to Bentham's "British Flora," or one that would serve for the French sub-alpine district?—J. H. K.

5162.—**Azaleas not flowering.**—I shall be glad to know from some of your correspondents why my Azaleas do not flower, though they look healthy and are making fresh wood; also what treatment they should receive after flowering.—A SUBSCRIBER.

5163.—**Hardy annuals.**—Will some of your correspondents who use hardy annuals freely kindly give the names of the best red, white, pink, blue, and yellow free flowerers that continue a long time in bloom, and that are about a foot high? I want them to form a broad edging to oblong beds of low shrubs, close to walks; one colour to each bed. When would be the best time to sow them for a late summer and autumn display on rather cold heavy soil?—B. J.

5164.—**Lilium giganteum.**—I have read the article on this Lily in THE GARDEN (p. 133). Will "J. C. C." kindly reply to this question—will Lilium giganteum flower every year after being well established? Mine flowered last year, but has been put away by the gardener, as he thinks we must wait another seven years before it again flowers.—F. D. D.

5165.—**Mushrooms in cellars.**—I have an underground cellar, cold and damp, and am anxious to grow Mushrooms for market if possible. I have consulted several books, but cannot find any directions given for their culture in such a place as that just named. I should therefore feel greatly obliged if some of your readers would let me know—1. If I can grow them to advantage in such a place. 2. How? 3. If it would be necessary to heat the place with gas or a stove.—J. S. S.

5166.—**Herbaceous plants.**—I have a border varying from 3 feet to 8 feet in width and 40 yards long backed up with Evergreens; aspect north-east. I am desirous of planting it with herbaceous plants suitable for cutting for large and small vases, and should be much obliged if some of your correspondents would kindly furnish me with the names of a few plants suitable for the purpose, and also tell me the best time to plant. The names of a few of the best double Pæonies would also be acceptable.—A. B.

5167.—**Rhododendron argenteum and R. longifolium.**—Although I have been unable, from ill health, to write much lately on our rarer Rhododendrons, I am now receiving specimens from, I may fairly say, many parts of Europe. The Sikkim R. argenteum and its Bhotan ally (yet very distinct), R. longifolium, are now in bloom in various collections. Will you kindly allow me to use your columns to direct attention to the following point? R. argenteum is described by Sir J. D Hooker as having ten stamens. The latest authority doubles R. argenteum up with R. grande, which, with all humility, I am prepared to show is quite distinct; but here again ten stamens are mentioned. I have never yet seen any flowers of this section of Rhododendrons with this number of stamens, which indeed generally characterises a wholly different section. Fourteen, fifteen, sixteen, seventeen, eighteen stamens I have found in this section of growing plants (the normal number being sixteen), and I shall be very grateful if any of your readers can send me a floret exhibiting the ten stamens.—J. H. MANGLES, *Valewood, Haslemere.*

ORCHIDS.

ORCHIDS IN FLOWER.

THE chief London nurseries are now beginning to put on their brightest dress in readiness for the influx of visitors to town, and in all large establishments in which Orchids are made a speciality, their flowertide is almost at its height. To call the Orchid houses in Messrs. Veitch's nursery at Chelsea less than a floral paradise would be but scant praise, for rarely have they been so full of bloom of all kinds as at present. The Dendrobe houses vie with those occupied by Cattleyas in their abundance of flowers, while equally gay are those devoted to Phalænopsids, Lycastes, and Cœlogynes. None of the houses seem to captivate the visitor so much as the Odontoglossum house, which is indescribably attractive, there being now hundreds of flower-spikes in it of every kind. As it would be only reiteration to name the host of species and varieties which contribute to the display, we will confine our remarks to the following few that we think the Orchid visitor should look for:—

DENDROBIUM MACROPHYLLUM BURKEI is a new and chastely beautiful variety, quite different from either of the other named forms of this Dendrobe. The flowers are as large as those of giganteum, but instead of being violet-purple are flushed with a delicate rosy tint, scarcely perceptible. It is, therefore, distinct from the variety Dearei, which is white and, if we remember rightly, hardly so large flowered. It has the characteristic perfume of Rhubarb root, though not so strong as to be disagreeable. Other choice Dendrobes noted were Ainsworthi and splendidissimum, two of the finest hybrid Dendrobes yet raised. Flowering side by side, one may see a difference between these two plants, which are usually regarded as the same. That queen of Dendrobes, D. primulinum giganteum, seems to captivate every visitor, even those who have no particular leaning to Orchids. Who could not admire the exquisite form of the shell-like creamy lips set, as it were, in a collar of amethysts? The tawny-flowered heterocarpum scents the house like Violets, while the commoner kinds, such as nobile and Wardianum, may be seen in the highest perfection, long stout shoots measuring a yard or more being completely wreathed in bloom.

CATTLEYA TRIANÆ, as may be supposed, constitutes the bulk of the Cattleya flowers, and very fine they are too. The *tout ensemble* of the houses is very fine; there cannot be less than 500 flowers expanded, and such varieties! But as it is the rule here not to name varieties of variable Orchids like C. Trianæ and Odontoglossum crispum, we cannot particularise any. A specialist may gratify his heart's desire among such a feast of bloom, particularly in the house set apart for the "select." The persecuted C. Percivaliana takes a high place in the show, and one of the plants we saw represented, without exception, the finest form we have seen, the lip being unusually broad and richly coloured.

LYCASTE SKINNERI may be seen by the houseful, every plant thickly set with bloom, representing every conceivable variation of tint from the pure white to the deep crimson. A charming effect is produced in the Lycaste house by intermixing Cœlogyne cristata and its variety Lemoniana amongst the Lycastes; the two harmonise beautifully, and the gay colours are toned down by the ample and beautiful leafage of the Lycastes. The next house, filled with Phalænopsids, contains some specialities, one being a lovely form of P. casta, having the labellum copiously freckled with pink on a white ground. P. Stuartiana asserts itself strongly, particularly a plant carrying a long branching spike of no fewer than twenty-three blooms.

CALANTHE REGNIERI, a new species, is unquestionably a real acquisition, and the more we see of it the better we like it. It combines delicacy of colouring and gracefulness of growth in a charming degree. The flowers are about the size of those of C. vestita, but of somewhat different

shape. The colour, moreover, is distinct from that of any other Calanthe, inasmuch as the sepals are parti-coloured, three being much deeper than the other two. Its habit of flowering later than any of the others adds to its value.

Odontoglossum Edwardi is a species we singled out from the crowds of others as one of the few which there has been least said about, but which thoroughly deserves all the praise one can bestow upon it. It is quite unlike any other Odontoglossum in growth, which is one point in its favour; another point is its peculiar violet-purple colour, and a third good point is that it possesses a most delicious perfume, akin to that of Violet blossoms. In this nursery we saw a plant carrying a branching spike between 2 feet and 3 feet high, studded thickly with blossoms, which, being singularly wavy and twisted, have a beautiful effect on the plant. Some varieties of O. crispum of exceptional merit are in bloom, but, as we before remarked, it is not the practice to name them here, so that we cannot describe any particular kinds. Those who seek for hybrids may find a deal to interest among this collection, as it includes numbers of them. We cannot omit to make special mention of the lovely Mesospinidium vulcanicum flowering freely among the Odontoglossums. Its deep rose blossoms, together with those of the Sophronitis, light up the quiet tints of the Odontoglossums.

Sophronitis grandiflora rosea.—When at Mr. Peacock's garden, Sudbury House, Hammersmith, the other day we saw in the Odontoglossum house a Sophronitis that at once attracted us on account of its lovely colour. Instead of being scarlet, as usual, the flowers were of a clear rose-pink, a most charming tint. We had never hitherto met with this particular variety; therefore conclude that it must be rare. The colour is somewhat similar to that of S. violacea, but the flowers of the variety in question are as large as those of S. grandiflora. The bulbs are short and the ovate leaves are of very thick texture. The habit of the plant is exactly that of S. grandiflora. S. purpurea, alluded to some time since in the *Gardeners' Chronicle*, seems to be a similar plant, but no doubt S. grandiflora rosea is the most appropriate name for it. We hope to give a plate of it in The Garden shortly.

Phaius tuberculosus.—During the past two or three years it has been the aim of a good many Orchid growers about London to thoroughly master the cultivation of this new Madagascar Orchid, which is unquestionably one of the most beautiful Orchids ever yet discovered. The collector's highly-coloured descriptions and brightly painted sketches at the time the plant was introduced and sold had a wonderfully fascinating effect upon Orchid growers, and when the first living flowers were produced at Burford Lodge, the interest in the plant was still more increased, and everybody interested in Orchids were trying their utmost to flower plants of it. But, alas! almost everyone seemed to fail in even enticing it into vigorous growth, and it has long since been relegated to the list of "miffy" plants that are scarcely worth troubling about. There is, however, some hope yet that the plant may prove amenable to garden treatment, inasmuch as in Mr. Sillim's garden at Lawrie Park, Sydenham, three plants have just produced fine spikes of flowers, which tend to confirm more fully the extreme loveliness of this Orchid. Mr. Billiard, the gardener, has been particularly fortunate in thus flowering three plants all at one time. He has them in a Phalænopsis house, and it would be interesting to know what treatment the plants have received. Two of the spikes had, we believe, five flowers; the other three. There were two distinct forms represented, one much superior to the other as regards depth and richness of colour. The flowers, between 2 inches and 3 inches across, have pure white sepals; the lip is heart-shaped and about an inch in diameter; the upper part is copiously spotted with a fulvous yellow on a light ground, while the lower half of the lip is white spotted with pink; in the best variety these colours are much deeper than in the other. We hope to give a coloured plate shortly in The Garden of this superb Orchid.

Cattleya Trianæ. — From Sir Nathaniel Rothschild's garden at Tring Park Mr. Hill has sent us a two-flowered spike of a variety of Cattleya Trianæ which we look upon as one of the finest that has yet come under our notice, particularly as regards the form and substance of the flower. The lateral sepals, being quite ovate, 2½ inches across, and of unusually thick texture, do not fall over in the ordinary way, but are stiff enough to hold themselves out in a firm, yet graceful, manner. The colour of the sepals is a delicate mauve; the lip is perfectly circular in outline, and as much as 2 inches across; the colour is a vivid carmine-magenta, which extends for an inch or so into the throat; there it meets a blotch of citron-yellow, and beyond that is mauve. This charming combination of rich colours is set off by a distinct frilling of white all round the margin of the lip. The majority of other forms of this Cattleya are poor compared with this one. It was, we understand, obtained from Messrs. Veitch, in whose nursery we saw it last year, and described it in The Garden of March 17, under the name of C. Bonnyana.—W. G.

Pruning Dendrobium Wardianum.—We have here at the present time in flower an imported plant of Dendrobium Wardianum bearing 28 flowers. Of late there has been a good deal said with respect to the pruning of this particular Dendrobe, but, according to my experience, I strongly object to the plan. I have had plants of Wardianum, which were dry imported bulbs, about 18 months. I saw an account of pruning this Dendrobe in The Garden, and at the request of my employer I tried the pruning plan; the consequence was that both plants died. The plant now in bloom has flowered twice since I have had it, and Dr. Ward, of Southampton, considers it the best he ever saw. The flowers last year measured 3 inches across, and they are nearly as large this year.—G. B., *Weston Grove, Hants.*

NOTES OF THE WEEK.

Amaryllises.—There is every promise of the Amaryllis show in the Royal Exotic Nursery, King's Road, Chelsea, being finer this year than it ever has been. Already there are upwards of 900 flower-spikes developed. The entire collection is in the finest possible health, and a large per-centage has produced twin spikes. The show of bloom will be at its height in about three weeks hence. Some unusually fine varieties are expected to bloom this season.

A new Ivy.—Under the name of Hedera Helix aurantiaca M. André describes in the last number of the *Revue Horticole* a remarkable form of the common Ivy. The coloured figure which appears with the description shows a variety with handsome orange-red fruits, and long slightly lobed leaves with the nerves on the upper surface of the foliage rendered conspicuous by the rather broad shaded whitish zones which run parallel to them. The origin and history of this desirable climber seem uncertain; all that is definitely known concerning it is that there is a fine plant of it in a garden at Cannes, but whence it came no one knows. Next spring, however, the plant will be distributed, so before long no doubt we shall see the red-fruited Ivy in British gardens. As far as foliage characteristics are concerned, these are retained by seedlings raised from fruits collected from the plant which furnished the material from which the coloured plate above-mentioned was prepared. Of course it is as yet impossible to say whether the striking peculiarity in the colour of the berries will also be faithfully reproduced by seedling plants.

Mummy flowers.—Dr. G. Schweinfurth gives an account in *Nature* of some botanical discoveries made by him in connection with the mummies of the twenty-first Egyptian dynasty, found at Deri-el-Bahan. In the floral wreath on the mummy of the Princess Ugi-Khonni were found folded leaves of a Willow, Salix safsaf, perfect flowers of the Corn Poppy (Papaver Rhæas var. genuinum), flower-heads of Centaurea depressa, and of Picris coronopifolia. The flowers of P. Rhæas appear to have been gathered unopened to prevent the petals from falling, and are in such good condition that Dr. Schweinfurth remarks that such perfect and well preserved specimens of this fragile flower are rarely to be met with in herbaria. It is worthy of note, too, that the character of this variety of the Poppy, var. genuinum, although gathered more than 3000 years ago, is identical with those of the same variety known at the present day. With respect to Picris coronopifolia, the author remarks that not a single peculiarity is apparent by which it might be distinguished from the recent small form with low spreading branches now so common on the outskirts of the desert. It has also been determined by capsules of the Linseed plant found in a Theban tomb of the twelfth dynasty, 2200-2400 B.C., that the flax used by the ancient Egyptians was derived from Linum humile, and that the mustard oil used by them was derived from one of the two varieties of Sinapis arvensis, viz., S. Allioni or S. turgida, both of which are still common in Egypt.

Dielytra spectabilis. — Good clumps of this, lifted from open ground just as they are starting into growth, and potted in good rich soil, make charming ornaments for the conservatory. Its long arched spikes of waxy-looking flowers and graceful foliage have a fine effect when seen in masses of some size. This plant starts into growth very early, and, when out of doors, is liable to suffer from late spring frosts. It should be planted under the shelter of large evergreen shrubs or close to a wall, as wind is more destructive to its tender growth than even frost. I have frequently seen its shoots lying prostrate and apparently killed by frost, and, with the return of a more genial temperature, again becoming erect; but if exposed to wind when in a frozen state, the leaves turn black and die. It is not at all fastidious as to soil; its large fleshy roots push down a considerable depth, and even the smallest crowns, if left undisturbed, soon develop into large clumps. It is readily increased by division of the roots, and for planting in the wild garden scarcely any plant can be better adapted; under large overhanging trees to ward off spring frosts, and near shrubs and bushes to break cold currents of harsh winds, it is quite at home; and, when springing from mossy turf, carpeted or studded with Primroses, Polyanthuses, and hardy bulbs, there is no fear of its delicate blossoms being soiled or splashed by heavy rains, as happens when they are produced by plants in freshly dug beds. Those who have not given the Dielytras a trial in such positions should do so.—J. G., *Hants.*

Auriculas (*H. L.*).—You will find the information you seek respecting woolly aphis on the roots of Auriculas in The Garden of last week (p. 144).

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*W. Edwards.*—1, Helleborus fœtidus; 2, Kerria japonica; 3, Sisymbrium millefolium; 4, species of Galium (seed in flower).—*J. Speed.*—Cœlogyne lentiginosa.—*W. Sheppard.*—1, Phaius grandifolius (Orchid); 2, Costus or Dichorisandra; 3, Eupatorium ageratoides; 4, Mesembryanthemum species (send when in flower).—*J. W. T.*—1, Cupressus Lawsoniana; 2, ditto; 3, Retinospora plumosa; 4, R. p. aurea; 5, Taxus baccata fastigiata; 6, Cupressus Lawsoniana.—*R. B.*—1, send fronds with spores on the back; 2, Ficus repens; 3, Libonia floribunda; 4, Begonia fuchsioides.—*E. E. (Emsworth).*—1, Dendrobium nobile; 2, Masdevallia ignea; 3, Impatiens alba.—*G. O. M.*—Name of Cattleya next week.—*K. A. S.*—Adiantum formosum; Moss is species of Hypnum; Erica carnea (Heath); Leucojum vernum (bulb).—*W. J.*—We cannot name the Camellia.—*A. B.*—We cannot undertake to name varieties of flowers; they require to be named in a large collection where they can be compared. Send to some nurseryman who makes a speciality of Azaleas.

No. 642. SATURDAY, March 8, 1884 Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NARCISSI FROM THE SCILLY ISLES.

WE often see the produce of the Channel Islands, in the way of flowers and early vegetables, in Covent Garden Market, but we had no adequate idea of the floral wealth of the Scilly Isles so early in the season until we saw the other day a collection of Narcissi flowers at Messrs. Barr's which Mr. Dorrien-Smith had brought from his garden at Tresco Abbey. To see a collection of Narcissi in the first week of March representing almost every section of the genus was indeed a treat, more especially as every specimen was far finer than we ever see them in our London gardens, even in April and May. From what we saw of this beautiful display, Mr. Dorrien-Smith's garden must, at the present time, be a veritable paradise of Narcissi bloom, and redolent with their perfume. Although favoured by a bland climate, it is only by dint of considerable trouble that the Scilly Island gardener can bring his produce to such perfection, and as regards bulbous plants, it is not merely by sticking in a bulb and leaving the rest to Nature that he can produce such a display of Narcissi as that just alluded to at the end of February. Mr. Dorrien-Smith tells us that the chief enemy the gardener and farmer have to contend with in the Scilly Islands is wind, and it requires a deal of labour to avert its destructive influences. In his garden he tells us that in order to produce Narcissi in such perfection he is obliged to have recourse to hedges and screens made of Rushes. These Rush screens are made about 6 feet in height, and are placed in a direction running north and south, and though these are made as secure as possible, they are sometimes blown down, the force of the wind being so strong. He is endeavouring to raise hedges of Escallonia macrantha, a beautiful shrub, and one which is very suitable for seaside planting, to serve as shelter for his Narcissi. But no one seeing the superb display of them at Messrs. Barr's would imagine that the flowers had been grown in the open air, so perfect are the flowers and so entirely free are they from weather stains. As we before remarked, there is almost every section of the genus represented, from the earliest form of Pseudo-narcissus to the late flowering Poet's Narcissus. Those which we considered the most remarkable of all were the Polyanthus varieties, N. Tazetta. These were finer than we had ever before seen them—finer even than those shown for competition at the London spring shows, the flower-stalks being unusually stout and carrying large and numerous umbels of blossoms. There were upwards of a dozen sorts of N. Tazetta in the collection, the finest being Bazelman major, Grand Monarque, La Favourite, Soleil d'Or, Gloriosa, Etoile d'Or, Jaune Supreme, and a new one named Charles Dickens, in the way of Jaune Supreme, but with larger and more circular flowers. The pale straw colour of the sepals was in strong contrast with the deep orange cup. There was also among the Tazettas some fine examples of what is regarded as the typical N. polyanthos by Mr. Baker. The flowers are of medium size, the sepals are white, and the cup sulphur-yellow.

The Pseudo-narcissus group was represented by fine blooms of bicolor Empress, princeps, one of the finest of the section; maximus, some grand blooms, the early-flowering Tenby Daffodil (obvallaris), lobularis, spurius, cernuus plenus, and the creamy white albicans.

The incomparabilis race included Leedsi and Leedsi concolor, both very beautiful, orange and sulphur Phœnix. N. odorus and the variety rugilobus was represented by large handfuls of fine blossoms, while equally fine were flowers of the new little Corbularia citrina, with citron-yellow hoop-shaped trumpets. There were numerous other sorts, but those mentioned were the most noteworthy.

After seeing such a grand collection as this, we cannot doubt that the efforts of Mr. Dorrien-Smith in endeavouring to establish Narcissus farming among his tenantry will be successful, and we see no reason why it should not develop into an industry quite as important in the Scilly Islands as in Holland. The flowers are sent to the London markets in early spring, and meet with a ready, if not a very remunerative, sale. Why cannot the bulbs be grown on a large scale for sale, and so compete with the Dutch bulb trade?

NOTES FROM THE RIVIERA.

THERE can be but few places in the world where the art of gardening is more aptly illustrated than in the gardens of Mons. Camille Doguin, at Cannes. In England we boast of our beautiful lawns, it is true; but Palms and many such tropical forms of vegetation are remarkable for their absence. Here, strange though it may seem, everything is combined, and lawns of the finest Grass, perfectly free from weeds, and yet firm and elastic to the tread, are found in company with the slender shaft and feathery plumes of the Cocoa-nut Palm, or the sturdier growths of the northern hemisphere. Palms, Tree Ferns, succulent Aloes, and whispering Bamboos grow side by side with the Roses, Violets, and Carnations of an English garden. Visiting this garden after an interval of four years, one is in a position to understand the extreme rapidity in growth of many Palms and trees from warm and distant lands that here find a congenial home; it is none the less astonishing, nevertheless, to stand under the shade of some tall Palm, such as Cocos plumosa, that four years ago was but a tiny seedling! To give a more definite idea of growth, let me say that one plant of this exceedingly graceful Cocoa-nut, now ten years' old from the seed, is 30 feet high, with a clean stem of 20 feet; an Araucaria excelsa of twelve years growth is 50 feet high; Pritchardia grandis of five years' growth is 7 feet high and 18 feet round. Araucaria Cunninghami has made a leading shoot of 9 feet in the past twelve months, and the next tier of branches is only just appearing.

Something more interesting than such statistics is to note how greatly various Palms that are exceedingly alike in the seedling or pot state differ when growing freely and showing their true characters. A grand old dwarf fan Palm (Chamærops humilis) that has taken eighty or ninety years to reach 10 feet in height has Chamærops excelsa for its neighbour, whose eight years of life have already sufficed for it to reach to an equal height. Jubæa spectabilis, a Chilian Palm of slow growth and short, but massive trunk, is entirely beaten out of the field by the gigantic growth and deep green leaves of Phœnix canariensis of half its years—one of the most desirable of all Date Palms on this coast on account of its hardiness, rich green foliage, and general vigour. A miniature likeness of this is found in Phœnix reclinata, which, unlike the Date Palm, ripens its tiny Dates perfectly here in the month of August, and in its seedling state is so much used in England when grown in pots. Strange to say, two really tropical Palms, Sabal Adansoni and S. umbraculifera, grow well here without special shelter, while Livistona altissima, or Latania borbonica, as we call it, thrives really well only in the most sheltered places. Seaforthia elegans and Corypha australis are thoroughly at home, and fine healthy plants of Cocos elegans and C. Raouli, with glaucous blue leaves, recall the beauty of Elais macrocarpa, a tropical Palm that as yet has not been tried. An unique specimen, provisionally named Pritchardia lucida, is a handsome addition to the fan Palms. Areca sapida bids fair to rival Cocos plumosa in vigour of growth, while its leaves are sufficiently stiff to make a decided contrast. To make an exhaustive catalogue of the Palms thriving in this garden in the open air would be both long and difficult, so I will only add that some of the rarest of these are growing by the dozen, and even hundred in some instances, and that the seed of one Cocos was sold this year for 1200 francs, that is, £48 in English money! "Plantes Grasses," or, as we call them, succulents, grow extremely well here as a matter of course, and to hear the history of the difficulties overcome in obtaining such and such plants is in itself quite a curiosity.

Foremost in size comes the octopus-like growth of the giant Agave Salmiana, whose roots will strangle all that is near, and whose heavy leaves press the life out of the surrounding vegetation. A new golden-leaved variety of this plant promises to be very handsome, contrasting as it does so strongly with the stiff growth and glaucous blue leaves of Agave applanata, another handsome giant, which in one instance is still flowering on stems thrown up last year, and whose golden, Lily-like blossoms are surprisingly beautiful to one accustomed to the inflorescence of the ordinary Agave americana. One knoll, crowned with the true Cochineal plant, Opuntia Nopal, whose every fan is surrounded by eight or ten red-brown fruits, and whose growth is remarkable for its vigour, makes a fine background for large patches of various white-spined Cacti, that shine like silver in the sun, in company with the strange Old Man Cactus with its hoary, straggling hairs. Close by, the splendour of several true Aloes would convert the most ardent opponent of succulents from the error of his ways. Aloe vulgaris, the Barbadoes Aloe, beautiful as it is, blooms but sparsely when compared with the branched flower-spikes, more than 2 feet long, of Agave ferox, a plant really savagely beautiful with its blue-green leaves dotted with brown, and its tall candelabra of scarlet flowers tipped with metallic blue. Freest and most beautiful of all is Aloe Dickieana, with slightly branching spikes of deep red flowers on every shoot. Next comes a trailing or climbing Aloe, A. ciliaris—another proof of Nature's versatility—for who would ever dream of a stiff succulent genus breaking out into a slender climber with bright scarlet gold-tipped flower-heads, that remind one strongly of a Blandfordia or a giant Lachenalia, among the tangled mass of shoots? Tall Dasylirion longifolium with drooping leaves and divers Fourcroyas, including the rare F. Lindeni, are dotted round with quaint tortoise-looking roots of Testudinaria elephantipes, whose twining shoots wreathe the bare stems; beds of Gardenias, rank in growth and still rich in flower, contrast with a fine bush of a large Lilac-flowered Rhododendron from the Caucasus, whose blossoms are each as large as an Azalea. Such are some of the many beautiful things around that thrive in this terrestrial Eden.

In a deep depression, sheltered from all winds and open to the sun, a group of tall Bananas is hung with clusters of ripe fruit and freshly expanding flower-scapes—an extraordinary example of successful culture in this climate, where, as a rule, they look like scarecrows, so battered are they by winds and frosts. Near a sheet of water a tall Cocos plumosa shoots up from a perfect thicket of single rose-coloured Camellias, and by the water's edge a group of Strelitzia Reginæ, gorgeous with many glowing flower-heads of blue and orange, slender and feathery Papyrus, white-spathed Callas, and sweet-scented Aponogeton distachyon, add each a separate charm. Agave ferox, bristling with its hooked teeth, luxuriates on the dry cliff behind, and tall bushes of Cloth of Gold, Maréchal Niel, and Lamarque Roses are already sprinkled with blossoms. Plantations of Bambusa mitis, B. Mazeli, quadrangularis, Metake, nigra, and others are planted where shelter or shade is needed for Tree Ferns, which succeed, generally speaking, but badly on these shores. It may be useful to many to know that Alsophila australis is by far the most satisfactory here, and clearly enjoys a drier atmosphere than any other of the genus. Cyathea Smithi also succeeds pretty well, while Dicksonia antarctica and C. dealbata evidently long for a damper air. Another very useful and handsome shade lover is Panax Humboldti, which will, I hope, ere long become popu-

lar in England for house decoration. Grevillea Hilli a shrub with one-sided panicles of scarlet flowers, and deeply-cut leaves, whose undersides are beautifully silvery, and a fine young specimen of Streptocarpus Cunninghami, which some day will surprise those who have not seen its flower, are two things that should not be omitted, if only to remark the contrast between them and the compact masses of Ionopsidium acaule that here are used to carpet many a space that in other gardens would be bare.

Ere leaving this fair garden, one lingering glance at the creamy flower-heads of Photinia serrulata, on a bank of crimson Mesembryanthemum just opening, and the scent of the Acacias, Eucalypti, Buddleias, Pittosporums, and a host of other flowering shrubs will long be remembered by those who, for two hours and a half, had been lost in wondering enjoyment.

E. H. Woodall.

PLANTS IN FLOWER.

Azalea Balwelli.—This is a species in the way of the well-known A. amœna. The flowers, which resemble in form and colour those of that species, are from 1½ inches to 2 inches across. It is now in great beauty in Messrs. Backhouse's nursery at York. It is presumably hardy, and if really so must prove to be an acquisition.

Erica codonodes.—We have sent you a flowering branch of this Heath, some plants of which in our nursery have been in bloom since about Christmas, and are at their best at the present time. The plants are from 2½ feet to 3 feet high, and are covered with flowers from top to bottom, the centre branches being longer and stronger than the one sent.—Robert Veitch, *Exeter.*

*** A fine branch about 15 inches long, 12 inches of which carry myriads of tiny white bells, the unexpanded buds towards the top being tinged with red. This is indeed a beautiful plant, and where hardy most valuable for outdoor decoration.—Ed.

Rogiera cordata.—Forced plants of this handsome stove shrub are now giving us abundance of cut bloom. It is a most profuse bloomer in this climate, owing probably to the wood being more thoroughly ripened. Our plants, which are large, receive scarcely any attention. Every spring the balls are reduced some 3 inches; they are then planted in the open border, and in the fall they are potted in the same sized pot as in the preceding year. This treatment insures a good truss of bloom from every shoot, which needs no pruning, as all the plants are generally cut from freely whilst in bloom. One specimen, about 4 feet through, has over 300 trusses in perfection at the present time.—F. Goldring, *Kenwood, Albany, U.S.A.*

Æchmea Marie Reginæ.—At Menand's nursery, near Albany, I noticed the other day a very fine specimen of this showy Bromeliad in flower. The plant was fully 5 feet across, with a magnificent, well-developed spike of bloom, over 2 feet high, clothed with its large magenta bracts. I was assured it had been in flower over three months. A grand specimen of Billbergia Quesneliana, 3 feet high, was also finely in flower. This nursery contains an extensive collection of Bromeliads, comprising all the new and rare kinds, and among them are some uncommonly fine specimens. In the collection of succulent plants for which this nursery is also famous was a splendid plant of Aloe mexicana, bearing fifteen well-developed spikes of bloom.—F. Goldring.

Arbutus photiniæfolia.—This is a most distinct variety of the common Arbutus Unedo, and at the same time a very ornamental evergreen shrub. The leaves are thick and leathery, quite without toothing at the margins, and of a deep shining green. The flowers are white, borne on dense terminal clusters. Mr. Stevens has brought us a branch from his Byfleet garden, where it is perfectly hardy, and forms a fine object in the shrubbery.

Early Daffodils.—The earliest arrivals in the Daffodil season now at hand are three small-growing kinds from Mr. Ware. These are N. minor, or rather the dwarf form (nanus) of N. minor, the perianth cup not being deeply lobed, as in true minor. N. lobularis is a distinct small-growing form of Pseudo-narcissus, with the trumpet of a deeper yellow than the sepals. This is often confused with N. minor. Besides these, come the sulphur rosetted flowers of Queen Anne's Daffodil, N. capax, also very pretty.

Crocus alatavicus.—This little new Crocus from the Alatau Mountains is a real acquisition, inasmuch as it is very pretty and distinct from most other spring flowering Croci. The flowers are about the size of the ordinary Scotch Crocus (C. biflorus argenteus). The three inner sepals are wholly white; the three outer are white interiorly, but heavily grained with purple on the outsides. Its flowers, which rise from a tuft of grassy foliage, are gay for some weeks at this season. Some flowers of it come to us from Messrs. Paul's nursery at Broxbourne, accompanied by other spring flowers, among them being Fritillaria tulipifolia, a species with long flowers of a deep vinous purple colour. It is one of the most desirable of the group of species to which it belongs.

Muscari moschatum flavum.—I send you two blooms of this Grape Hyacinth. I do not know whether it has been increased again, but I think I remember a year or two ago that it was thought to be nearly lost. The ordinary Muscari moschatum is scarcely out yet, and a poor specimen, but I enclose one for contrast.—T. H. Archer-Hind, *Newton Abbot.*

*** The variety flavum is much superior to the ordinary kind, both spikes and flowers being larger, while the Musk-like perfume is more powerful. The colour of the flowers in the flavum variety is a bronzy yellow.—Ed.

Semi-double Camellia.—I send you two blooms of single Camellias which I have cut from a tree here. The variety, I think, must be uncommon, for I have never met with it elsewhere, especially the pink, a sport of the white. As I have been unable to fix it, any advice as to how to propagate it will be acceptable.—J. H. B.

*** The flowers are, indeed, very pretty; they are semi-double, the tuft of stamens being partially transformed into petals. One has pale pink petals; those of the other are pure white. Graft it on the common single red sort.—Ed.

Lachenalias.—Some fine flower-spikes of various kinds of Lachenalia have been sent to us by Mr. Ware from his Hale Farm Nursery, Tottenham, showing what beauty there is in this class of bulbous plants when well grown. The principal kinds sent are the large coral-red-flowered L. pendula, with stout spikes thickly beset with blossoms an inch or so in length; L. aurea, perhaps the most beautiful of all on account of the clear golden yellow of its flowers, which are devoid of any other colour; L. Nelsoni, pretty, but not so attractive as aurea; L. luteola and L. tricolor, two well-known species, are also sent. Mr. Ware grows these Lachenalias in perfection, planted out in free soil in frames, a system of Lachenalia culture we strongly recommend where the object is to produce plenty of fine flower-spikes.

Anemone fulgens.—A new semi-double variety of Anemone fulgens has been sent to us by MM. E. Forgeot et Cie, of Paris. Instead of the flowers being dense rosettes of petals in this new variety, the velvety black centre is shown surrounded by several rows of narrow pointed petals of the most glowing vermilion. So far as we are able to judge without comparison, it is distinct from all other forms of this Anemone, and one of the most beautiful. Some fine blooms of the typical single-flowered kind accompanied it, and it is difficult to say which of the two is most worthy of admiration. Messrs. Barr and Son have sent us flowers of the true double Anemone fulgens of the Pyrenees. It is quite different from the double Anemone fulgens of Cannes; this latter is larger, rougher, and has always in its single and double form a yellowish white ring near the base, and is known as the Peacock Anemone.

Iris fimbriata.—A handsome greenhouse species, easily cultivated, and producing an abundance of flowers in mid-winter, but notwithstanding this an almost totally neglected plant. At Kew it flowers every year in the succulent house, where the dry atmosphere appears to suit it. For the past month several large plants have been in full flower, and will continue to expand their pale blue Morœa-like flowers for some weeks to come. Like the Maricas and Morœas, the flowers of this Iris do not last longer than a day, but owing to their being borne in large numbers on numerous panicles, they continue to expand in daily succession for several weeks. As is the case with most of the hardy Irises, this species is very impatient of disturbance at the roots, so that unless the pot is so filled with roots as to necessitate a shift into a larger pot, it will be found a wise plan to leave the plants undisturbed, supplying them with nourishment by frequent watering with a solution of cow manure. Half a dozen large plants of this Iris might be grown out-of-doors in summer, plunging the pots in ashes or tan, and allowing the sun to shine upon the leaves all day. In this way strong and well-ripened growth would be insured, so that on the plants being placed in the conservatory or greenhouse for the winter they would yield a plentiful supply of their gay flowers during a time when such flowers are especially welcome.

Double and triple spathed Callas.—One of the most notable examples of duplication in the spathes of Calla æthiopica has been sent to us by Mr. Spinks from Haas Niemann's nursery near Birmingham. The normal spathe is accompanied by another, half green and half white, and as large as the ordinary green leaves and of the same shape. This supplementary spathe was produced from a point much below that from which the other spathe was borne, the latter being impoverished and comparatively small in consequence. Another example of a malformed Calla has also been sent to us by Mr. W. B. Hankey, from Oaklands, Cranleigh; in this the normal spathe is accompanied by two others, both wholly white, one buried as it were in the centre of the other two. We should like to know if these curious freaks will be perpetuated in the same plants next year.

Primrose Harbinger.—When this new seedling Primrose was shown last year at South Kensington, it was admired by everyone who saw it. Then the plants were comparatively small. Now, Mr. Gilbert, of Burghley, who raised this charming Primrose, has sent us one of the finest grown specimens of it we have ever seen. The plant in question is growing in a 4½-inch pot, measures fully 15 inches through, and carries no fewer than twenty fine fully developed flower-spikes, besides a host of others half grown. Each spike is terminated by a large umbel of flowers, perfectly circular in outline, and larger than half-crown pieces. The colour is a pale sulphur yellow or almost white, with a star-like centre of orange-yellow. The luxuriant leafage of the plant sets off well the delicate colour of the flowers. Mr. Gilbert says that at the present time he has 300 plants quite as large as the one he has sent.

Arisæmas at Kew.—There is at Kew a good collection of both species and varieties of these exotic representatives of our native Lords and Ladies, and most of them are now developing their singular flower-spathes and unfolding their handsome foliage. In the shape and colours of the flowers of Arisæmas there is an element of distinct beauty as well as great variety of form, although not the popular idea of beauty; nevertheless, to him who looks below the surface, and sees a charm in special fitness, these plants cannot fail to prove a source of pleasurable study. From now until autumn the Kew collection will continue to flower and look fresh and handsome in their dress of deep green foliage. Those now in flower are A. speciosum, whose large purple and white spathe and long-tailed spadix are the subjects of some curious speculations on the part of botanists; A. præcox, a curiously hooded flowered species and the most common in gardens generally; A. galeatum, a species strong in growth and bearing a flower not unlike that of A. speciosum; A. nepenthoides, whose flowers are shaped like a Nepenthes pitcher; A. helleborifolium, distinguished by its tall cobra-marked stem and long yellowish green spathe. These are all bearing flowers at Kew, whilst others whose healthy appearance gives promise of good flowers are A. Murrayanum, A. Hookerianum, A. ringens, A. papillosum, and several others. The cultural requirements of these plants are so simple that we wonder at their rareness in gardens. A collection of such singular and beautiful objects would be sure to please where the flowers of every day are apt to lose their charm through their commonness.

Flower Garden.

CHRYSANTHEMUM FRUTESCENS.

Our gardens, both outdoor and indoor, have gained greatly as regards beauty by the introduction of the shrubby species of Chrysanthemums or Marguerites, as they are now more generally called. The popularity acquired by these plants a few years ago has remained unabated; until now there is scarcely a garden of any pretensions which does not contain them. All the shrubby kinds are certainly valuable garden plants. They are of easy culture, continuous and abundant flowerers, and, moreover, particularly well adapted for furnishing quantities of cut bloom. Of the several kinds now cultivated none seems to be so popnlar as the original C. frutescens. Its finely-cut foliage, of a bluish grey tint, harmonises charmingly with the white Daisy-like flowers, which are pretty and not too large. It is not such a vigorous grower as some of the others, but it flowers more profusely, particularly when planted out in the open border during summer. The accompanying illustration gives a good idea of the beauty of a finely developed specimen planted out of doors; its myriads of starry flowers when so numerous have in sunsbine quite a dazzling effect. The plant is tolerably hardy, though only in very favoured localities can it be allowed to remain out-of-doors nnprotected. In many gardens this and other Marguerites are used with admirable effect in association with the finer kinds of sub-tropical plants. One of the prettiest bedding effects we have seen was an intermixture of C. frutescens and the dark purple-leaved variety of the Castor-oil plant (Ricinus) in Battersea Park during the past year. In Lord Eversley's garden at Heckfield, too, it makes a charming display in the stone-edged borders on the terrace. Autumn-struck plants keep on growing during the winter, and at bedding time are of excellent size for planting out. Large old plants, too, kept in the greenhouse serve the double purpose of affording a supply of cut bloom and for bedding out in summer. C. frutescens, as well as the other kinds, are grown very extensively by the Paris market gardeners, and hence have acquired the name of Paris Daisies. Some of the London market gardeners also now grow them largely, particularly for cut bloom during winter and spring. Of the larger-flowered kinds those known as C. Halleri, with large white flowers, and Etoile d'Or, with large pale yellow flowers, seem to be the most popular.

Chrysanthemum rutescens in the open border.

TUBEROUS BEGONIAS FOR BEDDING.

Few, I imagine, who are practically acquainted with these Begonias will dispute the assertion that, all points considered, no more nseful or effective bedding plants have been introduced within the past quarter of a century. They can be readily raised from seeds; they are neat in habit, and after being planted in good soil they will, to a great extent, take care of themselves; at any rate, they want no pegging down or restricting; they divest themselves of all fading leaves and flowers, and reqnire less water than the majority of bedding plants; they are almost as striking, too, in colour as the Zonal Pelargoniums. Moreover, unlike Pelargoniums, after the plants are once raised, they require no artificial heat in winter; in fact, they are better without it; given the required number of one-year-old tubers, and no other structure, except a cold frame, is needed to prepare the plants for bedding out. As to wintering them, they may be stored like Potatoes, or they may be kept in any cool place not exposed to frost; and, when I have said that if good plants are put out they will, in all the warmer parts of the country, commence to flower by the middle of June and continue in blossom until the autumn, for no rain or wind injures them, I think I have said enough to substantiate all that I have said in their favour. I do not say that they have everywhere been a success. I myself failed with them the first year when I used them as bedders, because I was under the impression that all the varieties were adapted for that purpose. The fact is, that ordinary mixed seed will produce a number of plants suitable for a variety of purposes, but in order to obtain varieties suitable for bedding, the seed must be specially saved for that purpose. There are also other sources of failure, such as putting out weakly plants. I erred, too, in my first attempt at growing them by planting too closely. This not only spoiled the natural drooping habit of the plants, but, through want of room, they reached a greater height than it is customary for them to attain when all the side branches have room to extend without seriously interfering with each other. In selecting

The best colours for bedding, those with crimson shades are undoubtedly the most effective. The whites and yellows flower fairly well, but they are less striking than the reds and crimsons. There is also a considerable difference in the habit of the different varieties; some have drooping flowers, while on others they are nearly erect; it is the erect flowering plants that should be selected for bedding. Where plants for this purpose are required a regular system of selection must be carried out. The first step will be to secure seed from those that possess a dwarf sturdy habit and erect flowers, and when the plants have attained sufficient size to determine their true characters, such as are required for bedding must be marked and grown on for that purpose. In my own practice I struck out a course for myself. I saved my own seed from plants with a suitable habit for bedding, and then made my selection. I sow as soon as the seed is ripe—generally about the middle of August; by doing this I gain at least four months' growth, for new seed quickly vegetates, and in a warm temperature the young seedlings keep growing until Christmas. By that time many of them will have formed tubers as large as a Marrow Pea. It will, therefore, be seen that there is a decided gain in sowing as soon as the seed is ripe, because tubers so raised want no coddling in spring. As soon as they stop growing at the end of the year the seed pans are taken and placed beneath the stage in a cool house. There they remain until they start into growth of their own accord, which is towards the end of April. A cold frame is then prepared for them, in which there is a bed of good soil about 9 inches in depth. In this they are planted 6 inches apart each way. As soon as they begin to appear through the soil air is admitted during the daytime; about the end of June the lights are removed altogether, and the only further attention they get is water when the soil gets dry.

Spring sowing.—Many, no doubt, will prefer to sow the seed in spring; in that case the early part of March is the best time to do so; a fairly deep seed pan well crocked and filled to within an inch of the rim is necessary. The soil should be rather fine and sandy, and before the seed is sown it should be well watered. As the seed is very small, it must only be lightly covered with a little fine silver sand. The pan should be placed in a stove or vinery where it is well shaded, and very careful watering is necessary, or the young seedlings will be washed out of the soil. As soon as the plants are large enough to handle they should be pricked off into other pans or boxes, and every encouragement should be given them to make vigorous growth. A moist shady vinery or stove is the best place for them until the middle of June, when they ought to be large enough to bear some amount of sun and air preparatory to their being planted out. After a fortnight's hardening, a cold pit or frame should be prepared for them; bottom-heat is unnecessary, but a thickness of 10 inches or 12 inches of good soil is required. In this the young plants may be put 6 inches apart each way and they will require the frame to be kept rather close and shaded from bright sun for the first month. After that they must have more air and sufficient water to keep the soil regularly moist. Shading, too, may be dispensed with, except in very bright weather, when it may be put on for a few hours in the middle of the day with advantage. It will help to maintain the soil in a more regular state as to moisture. If anything like strong growth has been made by the middle of September, the lights may be taken off during the day when the weather is fine; but if from any cause the plants are weakly, they had better have the assistance of the glass over them until they die down in autumn. Thus treated, they will make fair-sized tubers for bedding out the following summer, but they will be better the second season than the first

The manner of storing during winter need not differ, whether the tubers are old or young. If,

as I have already stated, they are not exposed to frost they will take no harm, except that they will suffer more from being kept in a dry, arid atmosphere than in a damp one. They may be kept in a room, but the cool floor of a greenhouse, that is only heated to keep out frost, is about the best place in which to winter them. In preparing the plants for the beds there are two ways of dealing with them, and, strange to say, I have proved that the simpler of the two is that which gives the best results. I allude to the plan of taking the tubers from the store and planting them where they are to flower. We have practised this plan for two years, and find that plants so treated flower quite as early as those brought on under frames; and, what is more, they do not grow so tall and are altogether of a better habit of growth. The reason for this is easy to understand. When the dormant tubers are planted where they are to flower the roots receive no check or disturbance of any kind. The plants, therefore, start into growth at their own time and in their own way. I have planted dormant tubers in the middle of March, with the crowns about 2 inches under the surface, and they have sustained no harm. It is not, however, always practicable to plant at that time, as the positions they are to occupy being often occupied with spring-flowering plants. When such is the case the plants must be prepared some other way. Where there are only a few dozen tubers boxes may be used; these, for large tubers, should not be less than 6 inches deep. Three inches of soil should be placed in the bottom of the box and the tubers laid on it, and then a layer of fine soil laid over all. Where large numbers are required a cold frame is the proper place. With the aid of frames and lights, and a depth of 9 inches of good soil, any number may be prepared. The tubers will require to be planted in the frames before they begin to grow, but the middle of March will be early enough to remove them from their winter quarters. The frame will not require much ventilating during the first fortnight, but as growth advances, more air must be admitted until the lights are removed altogether during the daytime. In respect to hardiness, they will endure about the same amount of cold as the Zonal Pelargoniums; therefore they may be planted out at the same time. In the matter of soil, these Begonias are not very particular. They, however, like it rather light and made fairly rich with well rotted farmyard manure; fresh manure is very hurtful to them. It is necessary that the soil should be broken up fine, so that the small fibres may be able to ramify in it freely. C.

LAVATERA ARBOREA VARIEGATA.

This is a variegated form of the Tree Mallow, but, like all other variegated plants, it cannot always be depended upon to come true from seed. If it comes green the first year, however, the variegation is almost sure to appear the second. I know that some were disappointed with this Mallow last year because their plants were green, while others had plants remarkable for their irregular mixture of green and white blotches; therefore, no one should despair. The green form attains almost stately dimensions in cottage gardens in the west country, frequently reaching a height of 6 feet with branches of proportionate length. A severe winter, however, makes short work of such specimens, while smaller plants remain uninjured. No doubt the variegated form will prove rather more tender than the green one, but if lifted in autumn and potted a very little protection will keep it safe from frost. Another source of disappointment last year was the fact that the seed was either sown too late, or if sown sufficiently early, was not given warmth enough to get plants to a size to show their variegation, for in a young state some of the plants are quite green, while in others there are only slight traces of variegation. In order to obtain plants large enough to make conspicuous objects and show their true character, the seed should be sown early in March. An intermediate temperature between that of a stove and an ordinary greenhouse will bring them on fast enough, as if they are grown in too much heat they will get long-legged and be furnished with only a few leaves on the top. They should occupy 6-inch pots by the end of April, and be kept under glass until the end of the third week in May, when they may be hardened off and planted out at the same time as other summer bedders. As to the general usefulness of this Mallow, no one, I imagine, will deny that where plants of stately growth and remarkable character are required it is a very desirable acquisition. It is just the plant for filling the centres of large beds, or for prominent positions near entrance drives, or for associating with sub-tropical plants generally. It is so peculiarly marked with an irregular mixture of green and white, that the word variegation does not adequately describe its character. Mottled-leaved Mallow would convey a better idea of its quaint colouring. An old country dame to whom I gave a plant last year calls it the Piebald Mallow. J. C. C.

A FEW ALPINE CAMPANULAS.

Campanula planiflora, perhaps better known in gardens as C. nitida, is a rare and very useful species for rockwork. It is one of the few North American Campanulas, and one which was cultivated in this country as long ago as 1743. The leaves are oblong and regularly crenated at the edges, very dark green, and glossy; they are collected into a dense tuft, much in the way of a Houseleek, and when planted on old walls or in crevices of rocks are quite charming, especially if the stones are of a light colour. The plant grows about a foot in height, and bears light blue, campanulate, and somewhat spreading flowers There is also a very handsome pure white-flowered variety. It is, however, rare and seldom seen in gardens, although it is easily multiplied both by cuttings and division of the roots. Both flower in July and August, and prefer a peaty soil.

C. cenisia, although rarely found in cultivation, is an extremely pretty diminutive plant, with creeping roots sometimes a foot long. It forms a dense light green carpet, above which rise in great profusion the pretty lilac Bluebell-shaped flowers, with spreading segments. The leaves are small, ovate, and covered with soft, downy white hairs. It is found very high on Mont Cenis, and also on the higher Alps in sandy places wherever a level surface presents itself, and generally near the edge of glacial torrents in company with Juncus alpinus, the pretty annual Gentiana tenella, and many of the rarer alpines. This plant may be said to be peculiarly well adapted for the decoration of rockeries, and on or near ledges, where it can be thoroughly exposed, it grows and flowers with great freedom. The soil in which it grows should be rich, but rather light, with a good dressing of pure sand on the surface. It flowers in July and August, and may be increased by division without injury if done late in the autumn.

C. Allioni.—Notwithstanding the fact of this plant having been repeatedly introduced in quantity, it is still scarce in gardens. It is the most beautiful of the dwarf Campanulas. It is found on the Alps of Switzerland, and is sometimes extremely dwarf in habit, both flowers and leaves varying according to the localities in which it is found. It has a single one-flowered stem; the flowers are very large and slightly bearded, cup-shaped, and of a lovely blue. The leaves are generally bluntish and wavy at the edges. It may be called fastidious, inasmuch as if not allowed plenty of room in which to develop its creeping roots, it will assuredly be lost. It does very well in a light soil partially shaded; the centre of the clump will have to be renewed occasionally from the edges. There is also a form with broad, spathulate leaves seldom seen in cultivation.

C. Waldsteiniana is another very suitable plant for rockwork, especially in damp, shady positions. It is dwarf and bushy in habit, and bears numerous pale blue flowers and leaves of a light greenish hue. Another closely allied one is C. Waldsteniana var. Frezeri, probably better known as C. Tommasini, which as a garden plant is much superior to the above, and although still not very common in gardens, only requires to be known to be fully appreciated; in addition to the rockery it is a very useful mixed border plant. It has a dense tufty habit; its stems are about a foot long, very slender, and well clothed with lance-shaped, evenly serrated leaves. The flowers, which are borne in the axils of the leaves, vary in number from six to twelve, weighing down the branches, and in that way giving the plant a gracefully drooping habit; they are pale blue, about 1 inch long, and have very narrow tubes. The plant is increased by division, and is very suitable for shady positions, where it flowers in June, July, and August. It is found on Monte Maggiore, in Istria.

C. thyrsoidea, although only a biennial species, is well worth a place in every good collection of hardy plants. It seldom grows more than 1 foot in height, and bears a dense spike of clustered creamy white flowers, rendering it very interesting, and even when not in flower the rosettes of narrow, lanceolate, hairy leaves are very pretty. Two nearly allied species with which it is sometimes confounded are C. spicata and C. cervicaria. The former, however, is a much taller plant, varying in height from 2 feet to 4 feet; the latter has sessile flowers and wavy leaves. When the seed is sown late in the summer or autumn, or whenever ripe, the seedlings stand the winter well and flower the following spring, and in my opinion they are more vigorous than when sown early in spring. They prefer a stiff soil, and may be fully exposed to the sun. They flower about July and August, and are natives of Southern Europe. C. Raineri, which has a habit much like that of Allioni, is found in abundance upon the ledges and in the crevices of the wet rocks of Legnone. It hardly grows an inch in height and has small oval leaves. The flowers, which are nearly sessile, are large, dark blue, and cup-shaped. This Campannla is easily cultivated; it grows well among stones in the open border. D. K.

NEW AND GOOD AURICULAS.

Lovers of the Auricula will feel grateful to Mr. Horner for his very interesting article in The Garden (p. 143) on the new varieties of this flower. The new white edges with blue grounds will certainly be a very charming class, while the pink selfs "with rich yellow tubes and dense white paste" seem rather things for the Auricula lover to dream of than actual acquisitions. In addition to the above, I think I have heard that Mr. Simonite has a seedling green edge with crimson ground, which would be a great gain in this beautiful class. It is now some years since the election of Auriculas was called by Mr. Horner; the returns of the twenty-six growers who voted may be found in Mr. Douglas's book on "Florists' Flowers." The best six in each class were ranked in order of merit as follows: Green edges: Col. Taylor, Freedom, Imperator, Prince of Wales, Prince of Greens, Champion (Page): grey edges: George Lightbody, Lancashire Hero, Complete, Alex. Meiklejohn, George Levick, C. E. Brown; white edges: Smiling Beauty, True Briton, Regular, Glory, Catherina, Bright Venus; selfs: Othello, Pizarro, Blackbird, Garibaldi, C. Perry, Meteor Flag. These estimations, however, can hardly now be accepted as quite conclusive, especially when we find that the old Bright Venus has fourteen votes, while John Simonite receives bare notice with three. After such abundant favour shown to an old variety, it is a little surprising to see a really fine old sort like Lovely Ann, which "still keeps possession of the stage," commanding but three votes in these lists. Other fine varieties, like New Green (Headly), Talisman, Frank Simonite, and Acme, find no notice at all, probably because not up to that time introduced. I do not know whether Mr. Horner entertains any idea of calling another Auricula election at any future time, but if in the meanwhile he would himself kindly name in order

of merit the best dozen in each class of the varieties in the hands of the public up to the present time, the information would be greatly appreciated. M. R.

SOME USEFUL ANNUALS.

The few sorts of annuals which I shall name are selected with a view to meet the wants of those who, being fond of flowers, find some difficulty in securing a sufficient number of tender bedding plants with which to fill their beds and borders. In too many cases the number and extent of the flower beds and borders are out of all proportion to the available space under glass to provide plants for them. In other gardens there are isolated beds and bare borders quite neglected, and therefore unsightly all the summer, while a judicious selection of annual flowers and a little expenditure of time and money would make them attractive the greater part of the summer. Those who may have large beds or borders and poor soil cannot choose more attractive flowers than single Chrysanthemums; they are quite hardy, vigorous growers, and continuous bloomers. This is just the kind of plant to sow where few other things will thrive; provided the position is not shaded, the character of the soil is not of much consequence. I do not mean to say that they will not thrive better in a good soil than in a poor one, but our object just now is the filling of bare spaces and making them attractive—desiderata not to be effected with more choice subjects. For such a purpose one may select a long while before more suitable plants are found than the single Chrysanthemums. All that is wanted is to stir up the soil and make the surface moderately fine for the reception of the seed. The best varieties to select for this purpose are atro-coccineum, scarlet; Burridgeanum, crimson and yellow; carinatum, white and yellow; Lord Beaconsfield, crimson and yellow; luteum, yellow; The Sultan, dark velvet and crimson; venustum, crimson and white; and W. E. Gladstone, dark red. These may be either sown separately and arranged according to their different colours, or the seed may be mixed before sowing, as they all grow about the same height. It will be found that if the colours are indiscriminately mixed the effect will be much more pleasing than that produced by the most successful attempt to range them in distinct colours. In rich ground they grow about 3 feet high, and in other cases the height will be in proportion to the character of the soil. The seed may either be sown broadcast or in drills; in either case it must be only lightly covered with fine soil. If the plants should come up too thickly it will be an easy matter to thin them out, and by carefully lifting the young plants when they have grown large enough to handle, they may be used to fill up gaps where there are thin places. If in a poor soil it will help them wonderfully if they get a good root-watering once a week. In a good soil they are well able to take care of themselves without the aid of the watering-pot. For sowing in clumps in mixed borders these annuals are eminently suitable. In that case they will require the aid of a few stakes and ties to support them.

Nasturtiums are probably the easiest of all annuals to cultivate, and they are not at all particular as to soil. In the case of new gardens, there are often ugly banks and unsightly corners where a bit of green and some bright flowers would be most acceptable. In all such cases Nasturtiums are the plants to employ. All one has to do is to loosen the soil and drop in a few seeds about the middle of April, and the work is done. They will not even involve the trouble of clearing them away after the flowering season is over, for the first frost does that, with the exception of a few fragments. There are two distinct types of Nasturtium—tall and dwarf. Where there is much space to cover tall ones should be selected. These will either run along on the ground, or by the aid of a little training may be made to hide low walls or other unsightly objects. Many of the dwarf Nasturtiums are well suited for bedding in summer even in prominent positions, the Tom Thumb varieties being compact growers and continuous bloomers; where there are large numbers of beds to fill, each bed may be sown with a separate colour. One may be crimson, another yellow, the third spotted, also scarlet and gold. A pretty combination for a large bed are the crimson, yellow, and spotted varieties, leaving sufficient space for an edging of King of Tom Thumbs, which has very dark foliage, and contrasts well with the others. The quality of the soil for Nasturtiums is not of much importance, but it had better be rather poor than rich. In rich soil they make more leaves than flowers. In every case it should be stirred up 9 inches deep and be broken rather fine. The seed should be sown about the middle of April in drills or pressed singly half an inch into the soil, and 6 inches apart every way. As the plants grow rapidly, they soon cover the surface, and only the very strongest weeds are able to come through the dense growth of leaves and flowers.

Tall branching Larkspurs are valuable where large spaces have to be filled. They are better, perhaps, for large masses than for small clumps, but in large borders where the clumps can be 2 feet over they are very useful, and the flowers being blue offer an agreeable change from most others. There is a degree of elegance about the growth of these Larkspurs that is very pleasing. There is an absence of all coarseness, as well as peculiarity in the form of the flower, which is interesting. As regards cultivation, I may remark that they love the sun and a deep and moderately rich soil. The middle of April is soon enough to sow them. Sow in drills half an inch deep, or for massing in large beds it may be sown broadcast; in any case if the plants come up too thickly they must be thinned out to about 6 inches apart. They commence to flower in the middle of July, and continue in bloom until the end of September.

The Canary Creeper is an easily managed annual, not often grown in any other way than as a climber; it is, however, equally well suited for bedding purposes. Given a fairly good soil, and a position that is not much shaded, and when used alone in a small bed, it makes a very pleasing object. The soft yellow of the flowers and its wiry growth form an agreeable contrast with the general run of stiff-habited bedding plants; but it never looks better, perhaps, than when a border next to a wall or building is devoted to it. I once used it in this way in a border about 3 feet wide. The soil was liberally prepared, and the seed sown in pots, seven or eight seeds being put into each pot about the third week in April. To get the plants strong the seed pots were placed in a greenhouse where they soon came up. After being hardened off they were planted out in the end of May 6 inches apart all over the border, and as this was of considerable length, I saw that there would be too much flat surface to look well. I therefore cut off the tops of some feathery Pea sticks, and stuck them three or four in a clump at intervals of every 5 feet. As soon as the plants began to grow they soon covered the surface of the border, and then took to the sticks, which they covered in a very short time, and formed mounds that served to break up the surface in a way that when looked at from a short distance off they appeared like coloured waves, which, if not striking, were at least showy. J. C. C.

Identification of Narcissi.—The illustrations and references particularly in The Garden have made me more anxious than ever to become better acquainted with and to grow in larger quantities the different varieties of these early winter and spring flowers. A lady in Dublin writes to me much to the same effect, and expresses a wish to compare her own, so as to make sure they are properly named, with some that can be depended on to be accurate. She has a convenient means of doing this, as one of the largest correctly named collections anywhere to be found is that in the College Gardens, Dublin. I and others who live in the country would be glad when referring to those sent you to so note them that we can compare our own with those referred to, and senders might say if their blooms were forced, as they bloom for six months, from N. monophyllus in January to N. poeticus fl.-pl. in July.—W. J. M., *Clonmel.*

HELLEBORES—WHICH DO WE MEAN?

The taste for these plants is far from abating, nor can we wonder at it when we find that by their aid our grounds literally glow with colour even in the depth of winter. There is scarcely a week without some notice of them in The Garden, interesting it is to be hoped even beyond the circle which has taken them specially in hand, but a puzzle, I fear, and a confusion even to those who know them best. The confusion arises from this, that we have no standard of names; the same plant has as many aliases as an impostor; then, again, the same name is by different correspondents made to indicate kinds the most diverse one from the other; and last, but not least, in the very best catalogues there is such a mingling of species, varieties, and hybrids, that confusion becomes worse confounded. This must be wrong. No doubt what we want are good coloured plates; the earlier plates are very misleading, and most even of more recent date are not readily accessible. Still, we have some which ought to be sufficient to prevent glaring errors, and we have a valuable paper given by Mr. Baker a few years ago which is of great assistance both in descriptions and for references; nevertheless, the confusion does not diminish. I suppose that Mr. Barr's collection is by far the most extensive in existence. I have two species, odorus and graveolens, which I hope soon to add to it; but as I have all mine drawn and coloured from Nature, and he has seen them, even where we may not be right, nor quite agreed about every name, we nevertheless both know which is the plant we talk of. If others would identify their plants with Mr. Barr's, and give the benefit of their knowledge, an agreement might be arrived at and an answer given to the question, "Which do we mean?"

What I have found a great help, and I think others would find it a great help towards identification, is to follow Mr. Baker's classification generally, but, in addition, to use further popular rather than scientific divisions and sub-divisions, bringing each section within a convenient compass. Taking Mr. Baker's two groups of caulescentes and acaules, we find that each group comprises species with persistent foliage and species with non-persistent foliage, and in the non-persistents of the acaules group we find (1) purple and purple-tinted species, and (2) greens. "Persistent" appears a better term than "orientalis," inasmuch as the division has to include all those with persistent foliage, many of which differ widely from orientalis proper, and non-persistent appears better suited than viridis, since the division has to embrace purples and purple-tinted, as well as greens, and the more so, as the greens and the purples and purple-tinted are quite distinct, and never run into each other in a natural state. My tentative arrangement would be as follows, subject to correction:—

Caulescentes { Persistent / Non-persistent

Acaules { Persistent / Non-persistent with sub-dvsns { Purple & purple-tinted / Greens

In Caulescentes (Persistents) we have:—

1. *Lividus.*—Not now in cultivation, but I think not argatifolius. I cannot believe that such an accurate draughtsman and botanist as Curtis intended in plate 72, vol. i., of Bot. Mag., to represent argutifolius, being, as it is, utterly unlike in form and growth; neither would he have named his plant the livid or purple Hellebore had he intended argutifolius, which is neither livid nor purple, but invariably green; and we must remember Curtis's opportunities as well as his accuracy. His garden in Lambeth Marshes was within a short distance of Kew, where, it is scarcely too much to assume, he would make a drawing of the identical lividus which furnished the elder Aiton, then still living, with the name published in his "Hortus Kewensis."

2. *Argutifolius.*—Large, spiny, coriaceous foliage, with from ten to thirty large, light green flowers on a stem. The whole plant dies down annually, but not until the stem and leaves for next year's plant have taken its place. Corsica.
3. *Fœtidus.*—A large, almost shrubby plant, cut leaves, and green flowers, edged purple. England, &c.
4. *Vesicarius.*—Non-persistent. Not introduced. Syria.

Group Acaules. Persistents.

5. *Niger.*—Branching, by seed, in one direction in pink-tinted varieties, in another into the green-stalked and green-leaved section of which angustifolius is an example. Europe.
6. *Niger altifolius*, or *maximus.*—Probably a species; large coriaceous leaves and white flowers, 5 inches across, with styles tipped pink. Carniola.
7. *Orientalis.*—A very robust plant of large growth, cupped drooping flowers 3 inches across, sepals rounded; colouring, mixed white green and pink, with raised veins on the sepals. Macedonia, &c.
8. *Antiquorum* (orientalis of Bot. Reg., vol. xxiv., pl. 34).—A much more delicate flower than the preceding, white tinged with pink, not cupped, sepals pointed; not like Mr. Barr's cream-coloured round-sepalled cupped flower. Bithynian Olympus.
9. *Olympicus* (well represented in Bot. Reg., vol. xxiv., pl. 58)—Easily distinguished from the white form of abschasicus (though generally confounded with it) by its perfectly regular flower, not cupped, pointed sepals, white shaded green; not waved and twisted as in abschasicus, whether red or white; never has any tinge of pink. Bithynian Olympus.
10. *Olympicus major.*—Large white, green-tinted flowers, after the manner of olympicus. I found this in an old garden more than forty years ago, and called it o. major.
11. *Pallidus.*—Small form of olympicus. Caucasus.
12. *Colchicus.*—Unmistakable with its large purple-crimson, cupped, drooping flowers; young foliage also dark. Asia Minor.
13. *Abschasicus* (atro-rubens)—Very beautiful, with a profusion of purple and crimson flowers of different shades, and to be recognised by its waved and twisted sepals. Caucasus.
14. *Abschasicus albus.*—A white, tinted green, counterpart of the last, with an improved variety called kamtschatkensis.
15. *Caucasicus.*—I do not know this unless it be a small form of colchicus. Caucasus.
16. *Guttatus.*—White spotted with crimson; found wild, but probably a hybrid, as I have raised it in my garden without the presence of any guttatus. Caucasus.
17. *Liridescens.*—Purple and green flowers, scarcely distinguishable from purpurascens except for its persistent foliage, which I suspect it owes to pollen from a persistent species.
18. *Odorus* (semi-persistent).—With green flowers, smelling like Frontignan Grapes. I do not find it persistent as the foregoing, but only when under protection of its neighbour's foliage. Hungary.

Non-persistent. Purple and Purple-tinted.

19. *Cupreus.*—Large, dark, dove-coloured flowers, cupped, green and purple inside, rounded sepals, very handsome.
20. *Torquatus.*—Except graveolens, the smallest of the purples; purple inside and out; remarkable for the manner in which the flower stands at right angles from its short stem, and for the white collar round its neck, from which feature I gave the name on finding the plant many years ago in an old garden. It comes up much like the Winter Aconite, more frequently one flower than two, never branched.
21. *Purpurascens* (Bot. Mag., vol. lix., 3170).—Much paler than cupreus, and of more robust growth. Hungary.
22. *Graveolens.*—An elegant plant with small drooping flowers, green, edged with brown-purple. Hungary.
23. *Intermedius.*—Intermediate or connecting link between the purples and greens; lax, irregular flowers, dull purple outside, green within, not cupped like cupreus, but approaching dumetorum of the viridis section both in flower and foliage, unlike any other purple. Bosnia.

Non-persistent. Greens.

24. *Viridis.*—I have found two rather differing forms in Devon wild. Probably laxus and cyclophyllus are little more than varieties, and I have these other varieties which I call odoratus, odoratus nanus, and sambuc-odorus, all with full rich tassels of white stamina. The peculiarities of these are obvious from the names I gave them. Europe; and viridis (type) England.
25. *Dumetorum* differs much in flower and general appearance from ordinary viridis, and the smooth untoothed foliage marks it at once from other forms of viridis. Hungary.
26. *Bocconi angustifolius* needs no description; its curiously sub-divided and serrated foliage is totally unlike any other Hellebore. Dalmatia, Sicily, &c.
27. *Pedatus*—Received by me some years ago under this name, and I believe it to be a species; handsome, large, yellow-green flowers, cupped, quite unlike any other Hellebore that I know, and one of the earliest in bloom.

South Devon. T. H. Archer-Hind

ANNUAL SUNFLOWERS.

Seedsmen state that of late years there has been an unwonted demand for seeds of Sunflowers. It is a fact that a blaze of Sunflowers give conspicuous dashes of colour to gardens. Someone has styled the Sunflower "the king of the flower garden," and there is a kind of regal aspect about it. It is common to see flowers more than a foot across, and the dark centre stands out conspicuously when margined with its broad zone of golden yellow petals. There are dwarf and tall forms of the single and also of the double varieties. The last-named, when of a fine double character, are very imposing subjects; but the current taste certainly runs in the direction of the single in preference to the double varieties. Wherever planted they should have good soil, and while there is much in the quality of the variety, it is also certain that a good soil has a great deal to do with the production of fine flowers. People are very apt to plant Sunflowers in out-of-the-way places, where the soil is poor and uncongenial; and then the flowers are small and spare, disappointing the grower. The Sunflower deserves to be well cultivated, and then its blossoms, whether single or double, are of giant size and grandly developed. In Mexico, whence the common annual Sunflower was introduced, it is said to attain a great height, with flowers large in proportion. The Sunflower is, indeed, a plant of some importance in several ways. In the United States whole acres of land are sown with Sunflowers, for the purpose of preparing oil from the seeds. This oil is very pure, and little inferior to that of the Olive for domestic purposes; it also burns well. In Portugal the seeds are made into bread, and also into a kind of meal, in which form they are found to be an excellent substitute for coffee, while they are utilised for other purposes. There are many varieties of perennial Sunflowers that are of great value as border plants, and many grow them for cutting from at the end of the summer and in autumn. They are best increased by parting the roots about the middle of October, or later, according to the season, soon after the flowering period is over and planting out in good soil. The perennial varieties are generally of free growth, throwing up many stems and producing large quantities of flowers. Some are double and some single. Some of the best are Helianthus atro-rubens, angustifolius, decapetalus, doronicoides, giganteus, multiflorus flore-pleno, orgyalis, and rigidus, the last perhaps better known as Harpalium rigidum.

Isopyrum biternatum.—This pretty North American plant belongs to the Crowfoot family, and is remarkable for being apetalous. In general appearance it very much resembles Thalictrum anemonoides; its flowers are, however, smaller, but more numerous, white or pale yellow, and terminating the much-branched stem; the divided glaucous green leaves are very handsome, approaching in beauty of form those of some of the Adiantums. It increases rapidly, is quite hardy, and extremely useful for covering shady recesses in the rockery, or for placing on old brick walls.—D. K.

Strong *v.* weak growing plants.—Having been much troubled with strong plants overgrowing and smothering their weaker neighbours, I have made round mounds in our cottage garden of good soil of from 4 feet to 6 feet in diameter, and thus keep each plant to itself; this has answered well with such plants as the double Periwinkles, all the Acænas, especially sanguisorba, the leaves of which are now beautiful; Fragaria lucida, Arenaria grandiflora, Viola semperflorens, Pyrethrum Tchiatchewi, &c. The double Periwinkle now completely hides the mound, and is one mass of beautiful flowers. Some of your readers may care to have this hint.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Wallflower Harbinger.—I find this to be one of the best and sweetest of outdoor flowers in winter; in mild seasons like the present it keeps on producing flowers without intermission the whole season through. It is a good dark variety and a great favourite with growers for market. This is a good time to sow seed of it; unless sown early, the plants do not get sufficiently matured to flower before the spring. Sow thinly, and as soon as the plants are large enough to handle, plant them out, 1 foot apart, in any good garden soil. The position I like for them is between rows of bush fruits; there they get shelter from cutting winds, that are more destructive to them than actual frosts. In a cut state there is scarcely a flower more welcome, either in castle or cottage, than the common single Wallflower, of which Harbinger is a good variety.—J. G.

Helleborus niger maximus.—The beauty of this large Hellebore is only now beginning to be generally recognised and appreciated at its true value. Than this no more serviceable plant could be had in flower at Christmas, being useful and beautiful alike in the church the ball-room, or in the boudoir. In order, however, to have it in perfection at that season, it must be lifted from the open border and placed under glass. On a plant so treated and taken up with others in the latter part of November, I had thirty-seven fine blooms all open at one and the same time. The largest plants, which were lifted carefully with forks, were then put in 18-inch well-drained pans, and placed in a cold vinery where they were watered overhead every day. When flowering was nearly over, being desirous of increasing my stock, the plants were taken to a tank of water and all the soil was washed clean away from the roots; they were then easily divided into separate pieces, each piece having capital roots with one large leaf attached. The border, a moist cool one, in which they were to grow was well manured and deeply dug, and after the planting was completed, some sand was placed around each division; they were then finished off with a mulching of rotten manure. Plants so treated continue to open the buds left on them regardless alike of relifting and dismemberment to which they had been subjected.—Wm. Allan, *Gunton.*

SHORT NOTES.—FLOWER.

Tritomas.—We note that these are in bloom in the gardens round London now—an unusual occurrence.

Night Scented Stock.—The perennial Night Scented Stock was, a quarter of a century ago, a favourite plant for the decoration of greenhouses and windows, but it is not often seen now-a-days, yet it is an interesting plant on account of its fragrance, which is given off at night, and for the peculiar colour of its flowers. It is an easy plant to grow and is readily increased by slips or cuttings. It must not be confounded with Matthiola bicornis, which is an annual, and therefore readily increased by seed.—J. C. C.

New Auriculas.—I read with much interest Mr. Horner's descriptive remarks respecting new Auriculas raised at Kirkby Malzeard. He did not say anything about Conservative and Silvia raised by me. Conservative was so named by Mrs. Whitbourn. It is considered to be a good white edge. It received a first-class certificate from the National Auricula Society, and also one from the Royal Botanic Society—the only times it was ever shown for one. Last year it gained the premium as the best Auricula of any class at the National Society's exhibition. Silvia has been exhibited annually during the last five years, and it too was awarded a certificate by the National Society. It has a silvery grey, almost white, edge. Miss Lodge, another seedling, has not been sufficiently proved yet; but if it maintains its character, it will hold no second place.—J. Douglas.

NOTES.

Gardens in the desert.—Just now, when all eyes are turned towards the East, the following extract from one of General Gordon's letters, written home when he was Governor of the Soudan, possesses an especial interest: "These interminable deserts and arid mountains fill the heart with far different thoughts than civilised lands would do. It was for this that the Israelites were led through them. You must not imagine the desert as a flat sandy country; the features of the ground are what they are in other countries. There are scrubby trees and stubbly Grasses, but no water, though there are watercourses. Water these lands and they would blossom as the Rose." Here and there in the desert, little oases or moist spots are found where the Reeds grow and flutter, and where Date Palm plumes wave in the wind, and their golden clusters of flower and fruit stand out bright against a cloudless sky. Truly water in the desert is the good fairy from whose footprints the blossoms spring. I shall never forget the Oleanders and fresh green Poplars, and glaucous Tamarisk and the Reed fences at Kantarah No garden of Roses could have been more sweet, while all around on either side of the canal was a rolling sea of hot, dry sand.

Perfume and colour indoors.—It has been well said that if we are really to enjoy our hardy flowers to their fullest extent we must cut their buds and leaves and bring them indoors to live with us. Especially is this true at this season when winds and storms are doing their best to soil and bedraggle the fully open blossoms in the open air. Rich golden and deep purple Crocuses arranged together with bronzy Heuchera leaves are very lovely, and if you have not already done so, place a few blue Squills and bronzy leaves together with a bit of red-gold—the deep orange buds of Crocus Olivieri will do—and I think you will say the effect is very beautiful. So also is a group of white Cyclamen blooms along with brown-red Polyanthus, edged with Primrose leaves. Three or four slender stalks and a few leaves of the Sweet Jonquil in a tall specimen glass contrast well with three or four blooms of Iris reticulata arranged in another glass, with the leaves of Iris tuberosa, its own foliage being too precious to be torn away. Daffodils with their own leaves, Snowflakes and Violets, or rich purple Crocus, and the Rush-like stalks and fluttering bells of the large blossomed Sisyrinchium, are all effective in specimen glasses, and seem much more lovely when thus brought near to the eye indoors.

Blue Squills.—When Snowdrops are on the wane and with the Daffodils come these "early daughters of the year," as if to keep the pale spring Snowflakes company. S. bifolia is the earliest with us, but S. sibirica is now rapidly pushing up its rich Prussian blue buds through the soil, and these make the flowers of S. bifolia look purple by comparison. We have five or six forms of S. bifolia, but none please me so well as the lovely white-flowered kind. Just now it is scarcely visible, but in a fortnight's time when the bluish purple type is on the wane, then comes its pearly buds and silver stars in all their beauty. Along with these blue Squills come also the earliest of the little Grape Hyacinths, and Chionodoxa Luciliæ opens its bright eyes to the sun. I noted a ten-flowered spike of this Snow Glory on one of our borders the other day, and when thus strong and happy it contrasts well with the golden yellow buds of dwarf Daffodils.

The early Sulphur Daffodil.—So far as our present knowledge extends, this would seem to be the earliest of all the Daffodils. Mr. Barr grows it at Tooting under the name of Narcissus pallidus præcox, and it was described (but not figured) by Parkinson at p. 73 of his "Paradisus" under the name of Narcissus pallidus oblongo calice flavo præcox, or, as he puts it in English, "the early straw coloured Daffodil with a long cup." The description is as follows: "The leaves of this Daffodil are as green as the former (the small early white Daffodil with a long cup), but much narrower, and the leaves of the flower (perianth segments) are more inclining to yellow, but yet very pale, as if it were a light straw colour, and seem to be a little more narrow and pointed than the former. The cup of this is as long and yellow

Narcissu Pseudo-narcissus pallidus præcox (natural size).

as in the precedent. The smell whereof is very like the former, yet neither of them being so sweet as those that follow." Mr. Barr sent me flowers last year and now it comes again this season, having opened its flowers at Tooting early in February, as Mr. Barr says, "weeks earlier than the other kinds." Our sketch shows the average size and shape of the flower. The perianth segments are, as Parkinson describes them, "light straw colour," the broad-mouthed trumpet being very soft lemon chrome. It is a beautiful and distinct form, and its early blooming habit will make it additionally welcome when it becomes better known.

Pleione humilis tricolor.—This is a very pretty little Orchid, and one so neat in its habit and so floriferous when well grown that it well deserves more extended culture. That it blooms thus long after most other species of Pleione are over is an additional advantage. Its sepals and petals are of a delicate rose or rosy lilac colour; the lip is white, elegantly fringed around the margin, and stained with yellow inside, delicately lined with brown, and sparsely spotted. Its bulbs are smooth and glossy, like those of typical P humilis, not warted up, as in P. lagenaria and other kinds. A little shallow pan of this variety is just now much admired, albeit that it bears only six or eight of its dainty little flowers. Sophronitis grandiflora, with its vivid scarlet blossoms, contrasts well just now with Cœlogyne cristata var. citrina (Lemoniana it is sometimes called). Cypripedium Boxalli and Lycaste Skinneri are alike bearing two-flowered scapes with us this season, and the scarlet Lælia harpophylla rivals Euphorbia jacquiniæflora in brilliancy of colour.

Gardening Illustrated.—"For the love of flowers, even the statesman takes a holiday, and the soldier can, for a season, turn his sword to a ploughshare. The clergyman, who visits on mercy's errand, can betake himself to the old manse garden, rich in old-fashioned sweet-scented flowers, and get his spirits refreshed, where in Nature all is fair and unsullied. The busy merchant, hardened by buying and selling, returns at evening to his Orchids and Ferns, and feels once more akin to mankind. The doctor, weary with the sufferings of the afflicted, finds a new interest among his flowers and rare plants, which for a little hide the pained faces from his weary sight. In the beauties of Nature the eager student can outrival the flowers of classic thought; and even the poor, pinched artisan, the Ishmael of depressions in trade, can find a little oasis in the desert of life, where, with his Pansies, he is for an hour, every weary day, above strikes and lock-outs. There, too, the delicate mother can breathe sweet breath, the stirring boy learn to labour with his hands, and the roses of the household gather their fair sisters of the garden."

Early Daffodils.—These in pots in the greenhouse have been attractive for some weeks, but this note is on *bona fide* open-air blossoms. Our "great Daffodil," N. maximus, has been beaten in the race by at least three other varieties. First of all came N. nanus, which flowers almost as soon as its buds leave the earth; secondly, the common double (N. Telemonius fl.-pl.); and, thirdly, the Tenby Daffodil (N. obvallaris) have all opened their flowers before "our grand old giant," with its big chalices of richest gold. N. maximus opened its first blossoms outside to-day (March 1), but buds cut and placed in water indoors opened fresh and fair nearly a week earlier. N. major is also now in flower, along with the dapper little Tenby variety. Varieties of N. Tazetta (little cupped Narcissus) from St. Michael's Mount (N. floribundus), and wild in the Mediterranean region, commence to bloom very early with us outside, and the latest only bloom in the end of May. Bunches of these are most useful for cutting when in the bud stage for indoor decoration.

Pinguicula caudata.—This showy Mexican Butter-wort is again opening its vivid rosy lake coloured blossoms, and it is very satisfactory for gardeners to know that the plant seems very amenable to cool house treatment. Our plants grow in crocks and living Sphagnum in small suspension pans, and are now in a warm house for the blooming season, although they were rested in a cool greenhouse from which frost only is excluded. This plant does not go to rest in the bulbous state peculiar to our native species, but in the autumn the large broad leaves die off gradually, and a dense Echeveria-like rosette of small fleshy leaves replaces them until after the plant has flowered in the spring, when the large leaves again appear. Some few months ago Miss C. M. Owen sent me a plant of the Italian P. hirtiflora, which has grown well in a pan of wet Sphagnum all the winter, and is now throwing up its dainty little blossoms. Although neither so large nor so showy as P. caudata, yet I consider this a "bonnie gem" of the greatest interest. P. grandiflora is as yet in its resting stage, but is lovely in summer among the Droseras.

Flower-pot reform.—For some time past there has been a rumbling disturbance in the literary atmosphere of the gardening journals concerning glazed or porous flower-pots, and it now seems fairly proven that the common porous pot is not perfection. It is very liable to become dirty inside and slimy without, and then, like the

"chatty," or porous water cooler of Egypt, it becomes after watering a sort of refrigerator around the tender roots inside, especially if exposed to the sun. In shape it is convenient, but not particularly noted for its elegance of design, and the question now to be decided is whether something more shapely and economical in glazed earthenware cannot be designed. That the gardeners of China, as also those of that little "Eastern England," Japan, have long used glazed pottery of forms artistic and varied, goes without the saying. Even that most primitive of all plant receptacles, a joint of Bamboo stem, is glazed with silex outside by Nature herself, and there now seems an opening for our garden potters to emulate each other in the production of well-shaped crockeryware for the garden indoors. The inside of vases or pots should always be that of an inverted cone frustrum, but the outside shape may be left in the modeller's hands. Surely Staffordshire can give us a neat, convenient, and durable glazed flower-pot if she tries?

Corbularia citrina.—This large sulphur Hoop-petticoat Daffodil is a great beauty, and now that it is tolerably plentiful will be much admired. I received a dozen bulbs from Mr. Barr last autumn, and when they came to hand their small size and shrivelled appearance gave me quite a shock of disappointment when I remembered the large, solid bulbs of the typical species. Now, however, when seven out of the twelve bulbs are flowering in a 6-inch pot, I am all admiration. No doubt there are, however, varieties of this plant some smaller and some larger in bulb or in blossom, but perhaps good culture may add to both these features, as is so markedly the case with the species of Tulip from Northern or Central Asia. When well grown, but few other Narcissi rival the typical Corbularia Bulbocodium, but it is pleasant to know that there are at least ten or twelve other varieties of it equally interesting. Some years ago the late Rev. H. Harpur Crewe sent me five or six very distinct sorts collected by himself in Spain, including Graelsi, nearly white; Crewei, with flat, rough-edged leaves; citrina minor, sulphur; and C. Bulbocodium minor in two forms. These have been grown in pots in a cold house, and bloom well every year.

Orchid composts. — Some growers (and especially Mr. David Thomson who cultivates Orchids so successfully at Drumlanrig) are of opinion that too much peat may be used in the culture of epiphytal Orchids, and that any great depth of compost in the pots is less essential than the breadth or extent of surface. Mr. Thomson prefers using a compost of Sphagnum Moss, charcoal, and crocks to one mainly composed of peat or loam, and hints that this is more in unison with Nature, seeing that it is difficult to understand how peat or loam "can get up a tree." Of course, neither crocks nor charcoal are found naturally in the trees on which many epiphytal Orchids grow abroad, and even if Moss does sometimes clothe the branches, it is but rarely, if ever, that Sphagnum does. Then the fact remains that any attempt to imitate Nature too closely often ends in failure. For example, Cattleyas and many Odontoglossums are found naturally on trees, but in practice pot culture is more satisfactory than block culture in our Orchid houses at home. There are many ways of growing Orchids with success; one man will grow his plants as well in a peaty compost as another will in one composed mainly of Sphagnum and charcoal.

Veronica.

A witty gardener.—George Canning, the eloquent English statesman, was one of the wittiest men of his day. He once found, however, his match in his own gardener. On receiving an appointment to a lucrative position in the ministry, which compelled him to reside in London, Canning gave up his house in the country. "I am sorry to leave this dear old place," he said to his gardener, as he took a farewell look of the grounds. "Pshaw, sir!" answered the man; "don't fret. When you had this *old* place, you were *out* of place. Now you are *in* place, you can get both yourself and me a *better* place." The hint thus wittily given was taken, and the gardener was provided for.

Fruit Garden.

Setting Peach Blossoms.

At this season of the year, when Peach and Nectarine trees grown under glass are either in bloom or more or less advanced towards that critical stage, many will doubtless be considering the readiest means of insuring fertilisation; like all other operations connected with horticulture, different cultivators pin their faith on the means they have found to answer best in their own case, and uphold it both in theory and practice; while others who have tried exactly opposite means with equally successful results faithfully record the same, and in many cases to the great perplexity of the uninitiated in gardening matters. Who has not read over and over again the desirability of maintaining a dry atmosphere while the blossoms are setting? while syringing is put forward by others as a ready means of fertilising them. I have no wish to question the possibility of getting a good set of fruit by the damping system; but I am so thoroughly convinced that it is not necessary, that I would always caution beginners in Peach culture against it. I have hitherto had very fair success in fertilising any kind of crop that appeared to need such assistance by using a camel's hair brush lightly drawn over the flowers about midday, when the pollen is dry, and knowing that the majority of growers get good crops year after year, without fail, by the same means, I would strongly recommend anyone to follow it in preference to adopting less firmly established customs. In fact, under glass the camel's-hair brush, in addition to being a powerful aid to the hybridiser in trying to raise new or improved varieties of fruits and flowers, is equally potent in assisting the cultivator who aims at perfectly developed fruits, as, if fertilisation is imperfect, the produce will be more or less affected thereby.

We have at the present time ripe Strawberries that were carefully fertilised about Christmas—for the Strawberry needs to be fertilised in every separate pip, or it will not swell evenly. The same with a bunch of Grapes. Every separate flower must be perfectly set, or small stoneless Grapes will be the result, spoiling the bunch, or rendering it anything but uniform or perfect. Some sorts are especially liable to be affected in this way—as, for instance, the Alicante, while Hamburghs seldom give any trouble in setting perfectly. But the Peach and Nectarine crop, being a valuable and important one, is worth all the pains that can be taken to ensure good fruit. The course that I have proved over and over again to yield such results is to keep up a light, dry, buoyant atmosphere by means of gentle fire heat; to admit of a gentle circulation of fresh air; and about midday, as long as the blooms are expanded, to go over them with a camel's-hair brush, and set the varieties that are deficient in pollen with those in which it is abundant—for, as a rule, the small-flowered section are much more liberally supplied with pollen than the large-flowered varieties, such as Noblesse. Of course late houses, which flower about the same time as those on open walls, do not need anything like the attention necessary for trees in flower in houses during the short days of January; but by carefully attending to the above simple rules, and not being tied to any fixed temperature, but regulating it by the external atmosphere, viz., forcing very slowly in dark, dull weather and pushing on whenever favoured by a few bright intervals, I have invariably had as good a set of fruit in early as in late houses.

I have no doubt that many beginners in Peach culture fail as much through keeping too low a temperature as from any other cause, as the ranges of temperature given in many works on forcing are so low that in mild weather any nervous cultivator would be afraid that the temperature ranging outside would be too much for his trees. But this is quite a fallacy; a gentle heat in the pipes from the time of starting never yet spoilt a crop, if other conditions were favourable. I have oftener seen the best set at the warmest corner of the house than the coldest. A still, damp atmosphere is more likely to render the flowers abortive than any other cause of which I am aware. After the blooms are set, and the foliage healthy and active, a moist, growing temperature may be safely indulged in, going gently over the period of stoning, after which they delight in heat and moisture as much as any fruit which we cultivate.

J. G.

Value of a Forced Strawberry Crop.

Mr. Groom makes some sensible remarks on this subject in last week's Garden (p. 159). I should like to see the forcing of the Strawberry taken up on a far more extensive scale by amateurs and others than it is. I doubt if the possessers of cold frames, orchard houses, late Peach houses, greenhouses, and the like could grow a surer and more satisfactory or a more profitable crop. I am not speaking of getting the fruit ripe in February or March, when crops are more precarious, though excellent and plentiful in skilled hands, but of crops in April and May, when ripe Strawberries can be had under glass almost without artificial heat of the very best quality and with but little trouble. The finest Strawberries that ever were produced were forced into fruit at that season. Plants grown in cool orchard or Peach houses are sure to fruit well, provided they have been properly prepared the season before, and all kept well watered when bearing their crop. All the plants need under such circumstances is a clear space to themselves near the front lights, and a position on the ground, border, or shelf, from which they will not have to be moved till they have done bearing. Round the sides of orchard houses, in front of the fruit trees, or in any spare corner of such structures, are just the places for them, where, if they are not allowed to suffer from want of water, they will flower, set, and swell without any other assistance. From rows of plants, set closely together the whole length of a cold Peach case, I have seen magnificent British Queen and other Strawberries gathered in greater quantities than they could be used for dessert in a large establishment during the greater part of March and April; in fact, they paid better than the Peaches.

Propagation. — One thing is particularly necessary in the case of those who go in for Strawberry forcing—they must propagate their own plants for the purpose. Prepared plants can be bought, but I never saw any that were worth the money paid for them. Besides, the propagation of plants for forcing is an exceedingly easy matter. Runners of some good sort must be layered and rooted in July, and potted by the beginning of August—not later. Five-inch and 6-inch pots are the proper size—the large size for the strongest growers, and the small size for the weaker kinds. Good light loam is the best kind of soil to use; but common garden soil sifted will do, if some half-decayed horse droppings are added to it, or, what is better, Standen's manure, at the rate of one-half teaspoonful to a pot, as near as can be guessed, for the manure must be added to the heap at the beginning. Good rooted runners, potted in this compost, will make fine crowns by the end of September, and by the middle of October they should be piled away in ridges, packed with ashes, heads out to the light, or at once set in the orchard house where they are to fruit, provided that structure is not heated during the winter. Here they will need little or no water till spring, and may be stored quite close together. By the beginning of February, or the middle of that month, the dead leaves should be picked off, and the plants set in rows, about 2 feet asunder, where they are to fruit. The value of forced Strawberry plants does not end here. The plants after they have been forced may be planted out of doors in June and July, and they will bear a fine crop of fruit in September and October without fail, and an extraordinary crop the summer following; but they are then done, and should be discarded, as they are usually half barren the

second year outdoors. For eighteen years I have treated forced plants in this way, and every year gathered the whole of our fruit for preserving from them alone, and had lots to spare.

In planting out forced Strawberries in the open ground for a crop, they generally follow early Potatoes. The balls of roots, which by that time are usually very much pot-bound, are half shaken out and loosened, the whole of the forced old leaves shorn clean off, and the plants planted well up to their collars. The first thing they do is to make a growth of fresh green leaves and flowers, and the fruit ripens just according to the time of planting. June planted ones fruit in August, July ones in September, and August put-out plants in October and November, if the weather be favourable to the ripening of the fruit. I advocate the culture of the Strawberry in this way to those who have not tried it, as likely to give more satisfaction than the culture of almost any other kind of orchard house fruit. It pays far better than forcing pot Vines, of which so many thousands are sold every year to amateurs, who have the most indifferent success. A medical friend who took up Strawberry forcing not long since was quite gratified at his success the first year, although knowing nothing of the subject previously, and doing all his garden work under glass himself. A plant in a pot will bear from twenty to thirty berries of good size. It will show many more, but that number is as much as should be allowed. The pots cost a few shillings per hundred, and the rest of the expense consists in the potting and watering. Our late plants for fruiting in April and May have stood the whole winter in cold frames, crammed together as close as they would go in order to economise space, and from these they were some time ago transferred to a late Peach house, where in several rows they will remain till the fruit is all gathered. Speaking from familiar knowledge of the subject, were I an amateur in possession of a good orchard house, I should go in for Strawberries in spring, and realise good crops, such as I have no doubt would pay the whole cost of the working expenses of the house otherwise, and have plenty of good fruit at the same sime. I find, in my own case, that very few late Grapes are eaten after Strawberries come in. W.

FIG TREES ON THE SOUTH COAST.

Mr. Groom has done good service in calling attention to the culture of Figs, and in pointing out how well they do on the south coast. Not only do they succeed there, but they thrive and bear freely near the sea both east and west. They do not seem to mind the salt air in the least, as though other shrubs and trees standing near may often be seen scathed by saline-impregnated winds, Figs, equally exposed, escape injury and have their foliage and shoots unaffected by gales from the ocean. This being so, the wonder is that they are not more planted near marine residences and gardens attached thereto than they are, as besides the fruit which the plants yield where the situation or site suits them, they have leaves that are highly ornamental, and the Fig is quite worth growing for their sake alone. Not only will Figs bear and ripen on any of the coasts referred to, but there are many inland districts where they will do almost equally well, and few where they will not succeed against walls or buildings having a southern aspect; they may also be planted with good results in hot, sunny nooks and corners, or confined spots in yards that would be quite unsuitable for anything else. I know of several so situated, and it is astonishing to witness the luxuriant health they are in with their stems pinched by the paving stones or bricks laid close around, and which cover the whole of the ground over their roots. How these find moisture is a mystery, and yet those acquainted with the Fig know that they search far and near, and their doing this is often the cause of failure, as, by getting into rich ground, they obtain too much food and grow gross; the big pithy wood never ripens and seldom bears any fruit. For Figs to be prolific they must either be planted in hard, hungry ground or have the root space restricted, a good and easy way of doing which is to run up a 4½-inch brick wall, so as to form a box or trough from 2 feet to 3 feet deep, and concrete the bottom; then drain the box with coarse chalk. This will absorb any excess of moisture, and part with it slowly as the trees need it, and not only that, but it helps materially to consolidate and harden the short stubby wood which Figs so treated are only able to make, and such shoots are sure to be studded with fruit. Anyone may see this with Figs at Muntham Court, near Worthing, and other places where they have a similar subsoil, and yield excellent crops. Fig pruning, so far as regards the knife during the winter or spring, is quite a mistake, as cutting, beyond the total removal of branches for thinning, does little or no good; the only way to benefit the plants is to disbud where the shoots show thickly, and pinch the roots by only allowing them a very limited space to be in, and if so cramped the tops will require little or no attention, as they will only make 3 inches or so of growth in a season. The generality of deciduous plants are best moved in the autumn, but Figs may be transplanted till quite late in the spring, at which time I have always been most successful with them, and never think of interfering with any till April; when they are on the move they start off at once. If disbudded during the autumn, they seem to suffer greatly, and frost often kills them unless protected, and even when their removal is left till spring they should have a good mulching of half-rotten manure or litter laid around and brought well up close to their collars. D.

PROTECTION OF FRUIT TREES.

It will be well to bear in mind the proverb that "March comes in as a lion," and be prepared for its fierceness. Already fruit trees are becoming very forward, and many of the earlier kinds are now showing their blossoms. This is the case with Apricots and Peaches, which, unfortunately, are very precocious, and if they are to be saved must this year have some kind of protection, the best being glass copings, but if these are not already in existence, it is too late to think of them for this season, as they take too long to put up, and the only substitute that can be applied quickly is board, which, in long lengths and 9 inches wide, answers admirably as a temporary shelter to keep off the wet and intercept radiation from the face of the wall, which goes on at a great rate if there is nothing between the top and the sky. Not only is a board coping of great service for the purpose above stated, but it keeps the blossoms dry, which is very important, as, without being in that comfortable condition, it is impossible for the pollen to ripen and disperse, and without that takes place a "set" is out of the question, as there can be no fructification of the organs to make the fruit swell. It will be seen, therefore, how essential it is to keep rain and snow off, and a great aid towards doing this is to use old fishing-nets, which may easily be run up in front of the trees and secured to the edge of the board at top, and strained tight and made fast below to a few stakes driven into the ground, to which a rod may be tied and the side of the net tied to it. The advantage of having old fishing-net as a protector is that it may be left on night and day, and if used double the meshes cross each other, and not only break up and repel rain and snow and keep the drops or flakes from reaching the surface of the wall, but sift the wind, as it were, and take out its sting; besides which, frost, unless severe, is warded off and the trees rendered safe. To make quite secure, it is a good plan to have blinds made of stout, thick canvas, that can be run up and down morning and night, as well as the net, and if they do not reach the ground, as they need not, a temporary screen may be made by sticking in some Laurel or other evergreen branches below, by doing which the air under the blinds is kept still and warm, as radiation is then slow. Another good way of protecting Apricots and Peaches is to get some Spruce Fir branches and tie them, point downwards, in front of the trees, but not so thick as to obstruct much of the light or hide too many blossoms, as otherwise they would be weakened and perhaps fail to set. Whatever is used should be made secure, as wind chafing, by the movement of the protectors, is almost as bad and fatal as frost, as the tender pistil and other organs get bruised and injured, and when so affected are unable to perform their functions, and therefore fall abortive in showers. S. D.

VINE CULTURE.

Much has at different times been written on this subject, and yet there are numbers of readers of The Garden who evidently require advice respecting the best methods of growing good Grapes. The number of amateurs who have of late years turned their attention to horticulture, and especially to Grape growing, is remarkable, and of these many know next to nothing about it. To these a few seasonable hints now and then may be useful. As to form of house, on the whole I consider an ordinary lean-to with a nearly or quite south aspect to be the best, and by having the border outside it will better admit of the interior being fully utilised for plant culture throughout the winter and early summer months. For the same and other reasons, the house both at the back and front should be of good height, say 12 feet and 5 feet 6 inches respectively, and not less than 12 feet wide. The brickwork of the front and side walls should be about 3 feet above the ground level, and if it is intended to plant the Vines inside and allow their roots to eventually find their way outside—a plan, however, not generally to be recommended—arches must be formed under every rafter or opposite to where it is intended to plant the Vines. There should be hinged top ventilators in one or more sections, according to the length of the house, capable of being raised or lowered by means of the ordinary crank and lever apparatus, while the whole of the front lights should also be hinged and opened simultaneously by means of crank and lever. Use good 21-ounce glass and glaze without top putty, this being next best to some of the patented imperishable systems. The best way, too, is to have the house properly heated at once, for that is what must eventually be done. The least that should be done is to provide a sufficient number of hot-water pipes to keep out severe frost.

Formation of the borders.—It is not absolutely necessary to form large and expensive borders, but on the other hand it is quite possible to be too parsimonious. Those who go intelligently to work and expend a moderate sum on a border will inevitably, other conditions being favourable, be amply remunerated. Whether the border shall be outside or inside, or a combination of both, should depend upon circumstances. As a rule they are best outside, as there they usually get the requisite abundance of moisture during the greater part of the year; whereas inside borders in the hands of the inexperienced, or where water is scarce, are generally kept too dry, the result being the gradual ruin of the Vines. In most positions the borders are best made above the level of the surrounding ground, as then the drainage is more perfect and not a matter of much expense, and there is less likelihood of the roots rambling beyond the control of the grower. If the border is eventually made the same width as that of the house it will be ample, and it need not be so wide if liberally treated. It may be enclosed with a good 9-inch wall, this at the back being of the same height as the front wall of the house with about 6 inches fall to the front. This will admit of drainage to the depth of the top spit of soil, or from near the foundations of the walls to the ground level, about 30 inches for the border, and 6 inches for enclosing top dressings and mulchings. If the subsoil is cold and clayey, a concrete bottom should be formed, the motive being to keep the border warmer and drier, and in particular to prevent the fine roots from penetrating the bad sub-

soil. On gravelly and naturally warm well-drained subsoils the concrete bottom is not needed. If the bottom is concreted, a single drain along the front and sunk below the level is all that is necessary; but otherwise small sunk drains formed with 2-inch or larger ordinary draining pipes should be taken from the back to the front of the border about 9 feet apart, and be connected with a rather larger drain running along the front. In every case the bottom should slope slightly to the front, and a good outlet should be provided for the drains; otherwise they are useless. The foot or more of drainage may consist of any available insoluble material, such as clinkers, broken bricks, stones, and rough mortar rubbish. A layer of the coarsest of the materials should be placed in the bottom, care being taken not to displace the drain pipes; over that distribute the medium-sized material and finish off with the finest, a surfacing of cinders being by no means to be despised, the aim being to prevent eventual choking of the drainage.

The compost, if not principally composed of good fibrous loam cut from a well-drained pasture, ought to consist of at least one part in two of the best turfy loam procurable. In the former case all that is necessary is to chop the turf up roughly and to every heaped-up cart-load add a half hundredweight of half-inch bones, a barrowful of old lime rubbish, and a bushel of wood ashes, or a barrowful of burnt garden refuse. The whole should be well mixed and kept dry till it can be used. In the event of turf or good virgin loam being scarce, use an equal quantity of good garden soil as a partial substitute. Whether the border be made whole or piecemeal must depend upon circumstances. Not unfrequently borders are wholly formed in the first instance by gardeners who would prefer to make them by instalments were there no difficulty in collecting materials after the first heavy start. Making a border say 12 feet wide, unless inside and required for the floor of the house, when one-third of the width would be ample for at least two seasons, I hold to be a waste of material. If the roots are confined to a small border, they will thoroughly occupy it and will readily spread into fresh soil when added, the Vines thus obtaining fresh feeding ground when they need it; whereas if larger borders are formed the roots are apt to ramble through them without properly occupying any part. The aim should be to have the border swarming with roots and as near the surface as possible, and then they can be fed to any extent; but on big borders with the roots hard to find, but little can be done till they are brought under proper control again. If it is decided to adopt the piecemeal plan, it is advisable to preserve enough of the turves to form a front wall, so as to enclose the finer compost. This wall of turves should be built according as the compost is thrown in, disposing the Grass downwards, and for strength should slope slightly inwards. In all cases when forming the border place a layer of the roughest of the compost over the drainage, and make the whole tolerably firm. To prevent outside borders becoming badly saturated early in the season cover them over with either boards, strips of corrugated tin, felt, or other material adapted for throwing off the rains.

W. I. M.

SHORT NOTES.—FRUIT.

5158.—**Watering Vine borders.**—In reply to "H. G.," allow me to say that the Grapes had all been cut in October when the manure water was given. It would be contrary to the usual practice to give an inside border so much water at such a time if there were Grapes on the Vines. So much water applied to the border would tend to increase the internal atmospheric moisture, which would be undesirable.—J. C. C.

5140.—**Red spider.**—I would advise "Enquirer" (p. 51) to use Murray's Vine and Peach dressing. But before using it or any other dressing, he should wash all the glass and wood down; red spider being light floats in the air and lodges in the highest parts, as will be seen on examining them, and if not well washed down it will come on the young growths next season. The walls should be lime-washed first, and the trees then should be dressed.—G. M.

MRS. PINCE'S MUSCAT GRAPE.

The notice of this Grape which appeared in The Garden (p. 158) has brought me several letters of enquiry. It appears from these communications that there is a feeling abroad that it is a difficult Grape to manage in more points than one. It is evidently looked upon as a bad setter and but an indifferent bearer. Such is not my experience of it; on the contrary, it is a vigorous grower, a good bearer, and sits as well as any other Muscat, producing long well-shouldered bunches. The only fault I have to find with it is that the colour on the berries comes and goes. It retains a good colour up to the end of November, and then it gradually loses it again, when its appearance is not good; but its excellent keeping qualities, which enable the grower to send it to table in good condition through February and March, are a good set-off against want of colour. It takes fully three weeks longer to ripen than the Muscat of Alexandria or Lady Downes, a fact testified by the persistent way in which it retains its leaves, as it is always the last to lose them. In my practice I do not treat it in any way different from other late sorts until the ripening period, and then I keep that end of the house in which it is growing warmer than the other, and this treatment continues for a fortnight or three weeks after I consider the Muscat of Alexandria to be ripe. Even Lady Downes is fit for bottling before it, and I find it is better to cut the bunches of Lady Downes and put them in bottles than to expose them to the high temperature which Mrs. Pince requires to ripen it properly. Our Vine of Mrs. Pince is growing in a house in which Lady Downes and the Muscat of Alexandria are grown. The rafters are about 20 feet long and 4 feet 6 inches apart, one rod being run up each rafter. The roots have possession of both an inside and an outside border. We make it a rule to give a little fire heat to the house after the 1st of March, so as to keep the temperature up to 60° both night and day, increasing the heat as the season advances. While the Grapes are in bloom my temperature for Muscats is 65° at night and 75° during the day by means of fire-heat, but these figures, it must be understood, represent the minimum; the day temperature varies from 75° to 90° and 95°, according to the state of the weather. To set the Muscats, I simply draw a warm hand down the bunch about twice a day when they are in bloom, and I never fail in getting a good set; but I believe I give more air to Grapes than the majority of cultivators do. Looking at the natural conditions under which Vines are grown, I am a firm believer in the strengthening influence of fresh air, and shape my course accordingly. I am also a believer in judicious cropping. I have seen such ill effects from an opposite course, that I prefer to see a regular crop every year to a heavy one this year and a poor one next. Our Vine of Mrs. Pince I allow to carry one large bunch to about every 18 inches of rafter. It has done so for the past twelve years, and the last season's bunches were equal to those of any previous year.—J. C. C.

—— I fully believe that if this most excellent Grape were grown in company with white Muscats, it would colour much better than we usually see it. My Mrs. Pinces are growing in company with Alicantes and Lady Downes, and we never can get the colour perfect. We have no difficulty whatever in setting it. The usual way of setting Grapes here is to take a plume of the Pampas Grass and gently draw it down the bunches when they are perfectly dry and in flower. My opinion of Mrs. Pince is simply that we have no other black Grape to equal it in flavour.—R. Gilbert, *Burghley*.

Gros Maroc Grape.—I noticed in last week's Garden two opinions expressed respecting this Grape. Mr. Sheppard tells us that in flavour and appearance it is superior to Alicante. I agree with him so far as appearance goes, but as to its being superior in flavour to Alicante, I wholly disagree with him. Mr. Westcott tells us the truth when he says it is deficient in no point to the eye, but adds, it never exceeds Alicante in flavour, and when kept till January is perfectly uneatable. It may, however, suit some, and it is a Grape of which one can eat a quantity without cloying the palate. It reminds me of a gentleman I once knew who always found fault with his cook for making his plum pudding too rich. "You see, my girl," he said, "one can scarcely eat any of it." Mrs. Sharpless, the worthy cook, took the hint and made it much plainer. These exactly suited his taste, and he observed, "These are the puddings; one can eat some of these." I may state for the information of your readers that I have at the present time, March 1, Alicantes of very good flavour, but not so sweet and enjoyable as Lady Downes.—R. Gilbert, *Burghley*.

Garden Flora.

PLATE 430.

SCHIZOSTYLIS COCCINEA.*

The beauty and usefulness of the freely-produced blossoms of this Ixiad have won for it a first place among winter flowering greenhouse plants. It is only recently that its value for garden purposes has been fully recognised, although its introduction from Kaffraria dates back some twenty years. Three or four years ago one met with it in but a few collections, and in some of these the treatment adopted for its cultivation was such as failed to reveal the fine characters of the plant. Now, however, a more liberal, and at the same time extremely simple, course of treatment proves how valuable this plant is in supplying an abundant crop of handsome scarlet flowers at a time when Roman Hyacinths, Chrysanthemums, and a few other winter-blooming plants are the staple producers of flowers for decorative purposes. Lasting for a week at least when cut and placed in water, and possessing a colour such as is rare between the months of September and Christmas, it would be difficult to find flowers with a higher claim to favour than those of this Schizostylis.

Although a native of Kaffraria and Natal, S. coccinea is perfectly hardy in this country, and in the counties of Devon and Cornwall it is as much at home in cottagers' gardens as the Pinks and Flags with which it is associated. To those who are attempting the cultivation of South African bulbous plants in borders out of doors the fact of the Schizostylis proving quite at home when exposed to the rains and cold of winter may be worth attention, for, notwithstanding the absence of a bulb in the Schizostylis, the fact of its being an Ixiad and first cousin to the Ixias, Babianas, Watsonias, &c., may be taken as an indication of what may be done with many South African bulbous plants in this country. It remains to be proved that deep planting in a well-drained south border, and allowing the bulbs to remain in the ground all winter, would not prove more agreeable to the majority of such plants than the drying-off treatment to which they are usually subjected. The great drawback in the case of the former method is the treacherous character of our springs, when many of these plants produce their flowers; still, the possibility of their adapting themselves to the altered conditions of our climate points out the advantage of the let-alone treatment over that of taking up the bulbs and resting them. In the latter case the plants are prevented from becoming acclimatised; whereas we know that many plants when allowed to take their chance become gra-

* Drawn in Mr. G. F. Wilson's garden, Wisley, October 18, 1883. The plant from which the plate was drawn was fully 3 feet in height, and was unusually vigorous; it was growing in an unshaded spot, quite unprotected, in a deep loamy soil.

dually changed in their growing, resting, and flowering periods through the influence of our seasons.

I have seen large patches of Schizostylis coccinea growing and flowering as well as one could wish in a border against a south wall, and when the autumn has been mild and genial the flowers have been a perfect blaze of colour. Mild autumns, however, are not the rule in this country, and therefore in order to ensure a good crop of flowers, the safer plan is to take the plants up in the autumn and plant them in pots, protecting them from heavy rains and blasting winds by means of a cool frame. The treatment now generally practised in the management of Schizostylis is as follows: In April the plants, which after flowering have been wintered in a cold frame, are turned out of their pots and planted in a bed of rich loam and leaf mould. If the clumps in the pots are large, they may be divided into smaller ones, consisting of about six plants each. After planting, a good watering should be given, and a liberal supply of water will be required by the plants until they have completed their growth. In September the clumps should be lifted with a fair quantity of soil attached to them and placed in pots. A cold frame with a cinder bottom is then the most suitable situation for them, where if well watered and shaded for a few days till established they will continue to grow and produce flower-spikes. By placing successional batches in a temperature slightly warmed, flowers may be had from October until Christmas. All the sunlight possible should be allowed the plants during their stay under glass. Equally good results may be had by growing them in pots all the summer if the roots are not too much cramped, and a rich, well-manured loam is used. The pots should be plunged in ashes or fibre to prevent excessive evaporation, and plenty of water should always be supplied. Seeds are produced by plants cultivated in this country, and these, if sown early in spring, germinate quickly, after which the seedlings may be potted on and treated as just recommended. About six plants in a 5-inch pot are sufficient to make a clump of useful size. As has been stated, this plant does not form a bulb, so that, like the Bobartias, Aristeas, and Witsenias, to which it is closely allied, it has no other means of storing up a supply of food for times of drought than is afforded by the fleshy roots and stems. When well grown, S. coccinea produces spikes from 2 feet to 3 feet in height, each spike bearing about a dozen blooms, which open in succession. B.

The Imperial Cowslip (Primula prolifera). —The following note concerning this plant, alluded to in THE GARDEN (p. 73), occurs in Mr. A. Wallace's delightful book, "The Malay Archipelago." After describing the changes from a tropical to a temperate flora observed during his ascent of the Pangerango Mountain, in Java, Mr. Wallace proceeds to say: "At about 8000 feet European forms of plants become abundant. Several species of Honeysuckle, St. John's Wort, and Guelder Rose abound, and at about 9000 feet we first meet with the rare and beautiful Royal Cowslip (Primula imperialis), which is said to be found nowhere else in the world but on this solitary mountain summit. It has a tall, stout stem, sometimes more than 3 feet high; the root leaves are 18 inches long, and it bears several whorls of Cowslip-like flowers, instead of a terminal cluster only. Buttercups, Violets, Whortle-berries, Sow Thistles, Chickweed, white and yellow Cruciferæ, Plantain, and annual Grasses everywhere abound. Where there are bushes and shrubs, the St. John's Wort and Honeysuckle grow abundantly, while the Imperial Cowslip only exhibits its elegant blossoms under the damp shade of the thickets." Since Mr. Wallace wrote this the Primula has been identified with P. prolifera of the Khasyian and other hills in India, so that the supposition with regard to the Pangerango Mountain being the only spot in which the Imperial Cowslip would deign to grow is incorrect. Of course, it remains to be proved whether the Indian form is exactly the same as that from Java. It will be understoood that growing under the shade of trees at an elevatioo of 9000 feet, and almost on the equator, is vastly different from growing under shade in this country, where at least this Primula will require a warm, moist, but sunny position.—B.

SEASONABLE WORK.

INDOOR PLANTS.

Ferns.—See that the whole of the different species now begun, or about to begin, growth have the soil thoroughly moistened, or the fronds will have a crippled appearance and be deficient in size. At no time can Ferns be allowed to get so dry at the roots as the generality of other things will bear without injury, but whilst the fronds are in a tender, half-developed state the want of root-moisture is most injurious. Except comparatively few species, such as the Gymnogrammas, that require a high temperature, it is a mistake to give Ferns so much warmth as that in which they are often grown, the effect of which is to make the fronds long, weak, proportionately less enduring, and more liable to injury from insects. Use manure water freely, but in not too strong a state, to all that are under-potted, and to which it is not deemed advisable to give more root room. This does not apply to the creeping stemmed kinds, which must have space to allow their spreading rhizomes to extend, or they will suffer permanently. One mistake that has been too general in the cultivation of Ferns is the supposition that because they are mostly found in a state of Nature more or less shaded by other vegetation, or the positions they occupy, they will succeed in any sort of dark structure. So treated, strong-growing species that require anything above a greenhouse temperature attain an undue size and smother the weaker kinds. Do not have fixed shading on the roof where it can be avoided, and use no more than is necessary to prevent scorching, with enough air daily to solidify the growth as it is formed. By following this course the plants will preserve a much fresher appearance than they otherwise would do through the latter part of the year consequent on the increased substance imparted to the fronds. Todeas are often spoilt through being syringed overhead. The condensed drops of moisture with which the fronds are usually studded when confined in cases in which these and other filmy species do best leads to the idea that watering overhead will benefit them, but this is fatal to their well-being. Keep them quite cool; the temperature of a cool greenhouse is much better than more warmth.

Potting stove plants.—Such portions of the stock as were potted some time ago for early blooming will now be making progress, and should have an increase of heat as they begin to move freely. No time should be lost in completing the potting of the stock generally. It is well to consider what form the plants are to assume, whether to be grown into large specimens or flowered in as small a state as the nature of each individual species will admit of. Most stove plants are quick growers and will bear plenty of root room with large shifts, and where the object is to have large specimens this is the course to follow, but if the plants are required for standing in rooms, or to be removed to cooler quarters, such as a conservatory during summer, the small pot system of cultivation will be found most satisfactory, as under it the restricted leaf growth will better bear the adverse conditions under which the plants will have to be placed. The same holds good with regard to fine-foliaged subjects; the smaller growing Caladiums if grown in large masses, are all but useless for employment in cool places, and are amongst the best decorative plants when cultivated in small pots with abundance of light and air, and no more heat than is requisite to induce moderate growth. Allamandas, Ixoras, Dipladenias, Gardenias, Clerodendrons, Aphelandras, Franciscеas, Hibiscus, Hoyas, Bougainvilleas, Medinillas, Jacarandas, Tabernæmontanas, Rondeletias, Thunbergias, Aristolochias, Æschynanthus, and other flowering species, together with Crotons, Dracænas, Aralias, Marantas, Pandanus, Musas, variegated Pine-apples, Cupanias and Dieffenbachias should at once be shifted, giving them room proportionate to the size of the specimens and the respective purposes for which they are intended. See that the soil is in right condition as to moisture. To those who have not had much experience in plant cultivation it may be well to say that it is better to pot in soil that is a little too dry than the opposite. Another important matter is to see that all plants before being potted have the balls of earth well moistened, so that there may be no necessity for giving water for some days after the operation is performed. The effect of this is that the roots, more or less unavoidably broken in removal, have time to heal, and are less liable to rot than if water were given immediately the plants were potted. Pot moderately firm, but in the case of such stove plants as are partially shaken out at the annual potting, and which have the old soil removed to some extent, it is not advisable to ram the material so tight in the pots as with hard-wooded greenhouse stock where there is no annual renewal in this way.

Striking cuttings.—See that a sufficient number of the old plants of Euphorbias, Begonias, Thyrsacanthus rutilans, Sericographis Ghiesbreghti, Plumbago rosea, Pentas carnea, Jasminum gracillimum, Eranthemums, and Aphelandras are at once put in sufficient warmth to produce cuttings for use next autumn and winter. Plants to be thus treated should have been cut back a short time ago, and ought to be placed where they will have enough light to induce stout growth in the shoots intended for cuttings, for upon this depends in a great measure the character of the plants which they will afterwards make,

Luculia gratissima.—Wherever there is a warm greenhouse this should find a place, planted out if convenient; if not, in a large pot or tub. It is rather a difficult plant to strike, and the cuttings must be put in when they have arrived at the right age and size. If too young and sappy they are liable to damp off, and if too old they will not root freely. We found them to succeed best when about 4 inches or 5 inches long, taken off with a heel. Healthy plants in a genial temperature, say that of an intermediate house, start into growth immediately they have done flowering, and when the young shoots have attained the size just mentioned they should be put in pots filled with sand in the ordinary way, kept moist, and covered with propagating glasses, being careful that the cuttings are neither allowed to flag before being put in nor afterwards. Should this occur the chances are that few will strike. In other respects this most beautiful and fragrant of autumn flowering plants requires no special treatment. It thrives in good turfy loam with a little sand, and makes more progress, especially in its early stages, if treated to an intermediate temperature than that of a greenhouse.

Pelargoniums.—The large-flowered and fancy kinds should have attention in the way of tying the shoots well out, so as to keep the plants open and stocky. With this view they should be placed where their heads will be close to the glass. Those that after flowering were cut down earliest last summer will now be about setting their bloom-buds, and, if the pots are well filled with roots, will bear the application of manure water once a week; the soil also will do to be kept a little more moist, but any excess in this way must be avoided. The flowers of Cape Pelargoniums

are comparatively small, and by many looked upon as insignificant; yet amongst them there are many that possess both brilliancy of colour and elegance of form. Their propagation is not so easy from shoot cuttings as that of the better known varieties, but they strike freely from root cuttings, and their after treatment is similar in other respects to that of the ordinary sorts, except that, being weaker growers, they require less root space, 6-inch or 7-inch pots being large enough for most of the species. They occupy little room, and are very suitable for cultivation by amateurs who have small houses.

THE ROCK GARDEN.

Reserve stock wintered in cool frames should be lifted, and the usual watering, recommended after a long winter, deferred until the pits are drier. All hardy annuals and some of the hardy perennials should be sown now in a cool frame, but many of the latter class should be kept for sowing out-of-doors later in the year. We can often save ourselves a good deal of work in spring when we are busy by gathering and sowing seed as soon as it is ripe in the open ground. It is necessary only to give a covering of sand and a few Yew twigs in hot weather. We have sown seeds of various Drabas in pots, especially D. cuspidata and D. Kotschyi, and have been unable to rear them, whereas plants have come up the same year from self-sown seed. Æthionema cordifolium has never come up in pots, but when self-sown the seeds have germinated freely. Other kinds which sow themselves are: Arabis rosea, Arenaria norvegica, A. verna, Armerias, Aubrietias, Cerastium Biebersteini, Claytonia sibirica, Coronilla minima, the majority of the Pinks, several Erigerons, E. caucasicum, E. philadelphicum, E. glaucum, E. grandiflorum, and E. regale, Erinus alpinus, and several Heron's-bills; indeed, large numbers might very well be left for outdoor sowing in any odd bare spots on the rock garden. It should only be in cases in which one's knowledge does not justify outdoor sowing that the cool frame should be resorted to, or in the event of the quantity of seed being limited. If a plant has the reputation of being quite hardy, one may be sure that at some season of the year its seed will germinate either in a cool frame or out-of-doors. The hotbed should be tried in certain cases, as, for instance, if you want to get a few biennials to flower the first year; doubtfully hardy members may be sown in a cool frame a month hence, and those with which one is better acquainted now. The greatest difficulty we shall have will be with plants which bear an ordinary winter in this country, but, which, when we get a severe one, are killed or very much injured. These cannot be truly called hardy, and therefore should have a hotbed, as, for instance, Calandrinia umbellata, Callirhoe involucrata, Chlora perfoliata, and Umbilicus spinosus. Among plants in flower are Saxifraga Burseriana major, Cyclamen Coum vernum, several species of Croci, C. Imperati, C. Sieberi, C. biflorus, C. minimus, and C. vernus niveus; Snowdrops, including Galanthus Imperati, Elwesi, and plicatus. A patch of that pretty Crucifer, Ionopsidium acaule, has been in bloom from December until the present time.

FLOWER GARDEN.

Gladioli and other bulbs.—As a rule, in warm sandy soils Gladioli winter safely when left in the ground, and old-established bulbs produce flowers far more profusely, though not so fine individually, as when the bulbs are selected and replanted annually, but for effectiveness, give us the long-established bed with its long season of flowering and irregular heights of the flowers. Those not favourably located as to climate would, however, do well to keep to the more general plan of lifting the bulbs in autumn and planting afresh at this season. We are now planting out a few in clumps of five and seven among herbaceous plants, putting them near those kinds that will have done flowering when the Gladioli begin, in this way maintaining the gaiety of the border. Anemones, Ranunculuses, Lilies, Schizostylis, &c., are used in exactly the same way; these should now all be planted. In heavy soils the bulbs should be placed in a handful of sand, and the depth should be less than in light soil, say about 2 inches deep for Ranunculuses and Anemones, and 3 inches for Gladioli; but 1 inch deeper for all kinds in sandy soil may be allowed. Lilies, of course, must be planted in depth according to the variety and size of the bulbs, but it may be well to remark that they are generally not planted sufficiently deep. Where ground can be afforded to plant each kind in beds by themselves they well repay the space and labour by the quantity of cut flowers they produce, and of course can be had finer, because of the convenience of being able to specially prepare the soil for them by trenching and manuring.

General work. — Complete all alterations, specially such as necessitate the removal of turf, as it is important that this gets re-established before drought and bright sunshine become excessive. Edgings or verges of turf should also be cut; they will presently be too hard to be operated on nicely, not to mention the longer time which they take to cut when in that state. Planting, too, should be pushed to a close, at least as regards deciduous subjects, but if needs be most Evergreens may safely be removed for some weeks yet, but even with these were we certain of a dry summer, our experience is such that nothing would induce us to transplant at all after the beginning of March, and those moved as late as that should be kept thickly mulched with Bracken or litter during summer. Hedges and belts of any kind may now be clipped, and young hedges be encouraged to grow by pricking up the soil and clearing it of weeds. Laurels and Hollies that have got naked at bottom should now be headed down to any height that may be thought desirable; younger plants may be kept in compact form by pruning back the more straggling shoots. We have far too much of this kind of work, but though at the time we are apt to begrudge the labour, there are few operations that give us an equal amount of satisfaction.

FRUIT.

Peaches.—In the earliest house still attend to the thinning, disbudding, and tying in of the young shoots intended to form next year's fruit-bearing wood. As we have before observed, the disbudding of house Peach trees is an important operation which requires daily attention, combined with a complete knowledge of the condition of the roots. If the latter have been recently disturbed, or the trees have been weakened by heavy cropping, a little delay will give them time to pick up before many of the shoots are removed, but as trees of this kind generally set freely, the timely removal of a great number of the least promising fruit may precede disbudding, when good mulching, followed by a moderate supply of warm liquid, will soon start them into growth. Vigorous young trees, after being divested of foreright shoots, may have many of the side shoots pinched either to form spurs or to supply foliage where there is likely to be a scarcity; but it must always be borne in mind that the best shoot, which starts from the base of this year's fruiting wood, must have plenty of room for growth and exposure to the influence of warmth and light. Where young trees are trained upon the extension principle and last year's shoots are from 2 feet to 4 feet in length, the latter may be allowed to carry a Peach at every foot run, and, provided they were well thinned out at the autumn pruning, two or more shoots, also the leading point, may be laid in full length. See that the trees are well syringed twice a day, and regulate the quality of the stimulating liquid by the condition of the tree. If well made and properly drained there is little danger of overwatering inside borders, as Peaches having a large breadth of foliage exposed to sunheat and light will take immense quantities, provided it is a few degrees warmer than the house and can pass away freely. Let the temperature range about 55° at night and 10° higher by day from fire-heat, and make up for a low minimum by closing with plenty of sun-heat whenever that luminary penetrates the pall of which forcing gardeners have experienced more than enough for one season.

Figs.—A temperature of 60° to 65° at night and 70° to 75° in the daytime will not be too high in the early house during a continuance of this unusually mild weather, but in the event of a change to the long-delayed winter, a lower figure, particularly through the night, will be advisable. Although the Fig delights in an abundance of heat and moisture, it does not succeed where there is not a corresponding supply of light and air; hence the importance of keeping the glass clean and stirring the fires early every morning in order to admit of a free circulation of fresh air. The enemies to which the Fig is most subject are mussel scale and red spider; the first does not often become troublesome until late in the season, but the latter sometimes springs into life before the first crop is ripe. The best antidote or preventive is copious syringing with clean water, generous feeding with tepid liquid, and the maintenance of a constant supply of ammonia by turning the plunging material and surfacing the pots with fresh horse droppings. Continue to give the necessary attention to pinching, thinning, and tying out where there is trellis room for extension; also thin the fruit where too thickly placed. Pay attention to directions already given for the management of early pot trees in succession houses by feeding, mulching, and syringing, always bearing in mind that the timely and vigorous treatment which the good cultivator applies daily improves his prospect of excellence by making the position of the enemy untenable. Young trees in pots intended for next year's forcing may now be started, in order to give them a long season of growth and time to ripen their wood. If stock is wanted put in eyes or cuttings and treat as Vine eyes, using well-drained sandy soil and plunge in a sharp bottom-heat in a close pit. If well managed a fruiting plant may be grown from the eye in two years.

Cucumbers.—Since our last notes were written we have experienced a change to rather colder weather, which will necessitate extra firing to prevent the occupants of this department from receiving a check; and as few subjects are so easily and injuriously affected by sudden changes, the cultivator must be ever on the watch for the appearance of red spider and thrips, which invariably spring into existence when old plants are placed under the influence of overheated hot-water pipes. If taken in time the most effectual remedy is sponging with warm soap-water; but prevention being better than cure, frequent syringing with a weak solution of Gishurst on mild evenings or dull days, when hard firing can be dispensed with, will keep these troublesome enemies in check. If mildew, the outcome of insufficient bottom-heat, hard cropping, and a low stagnant atmosphere, puts in an appearance syringe well with a clear sulphur water, renovate the beds, and stimulate the plants with copious supplies of clear tepid liquid or guano water. As young growths break away under generous treatment, gradually remove old leaves, crop lightly, fertilise the most promising fruit, and cut before they attain their full size. Ventilation and cleanliness—two important items in successful culture—must not be overlooked; but draughts being objectionable, the air should be conducted through ventilators placed in front of the pipes, and on a level with the surface of the fermenting material from which moisture and ammonia will be carried to the foliage and fruit. Cleanliness may be secured by the removal of all decaying matter and the frequent washing of the floors, shelves, and glass. Give every attention to spring-sown plants intended for pits or houses, and pinch or train to suit the position they are to occupy. If not already sown, a few seeds of some good prickly kind may now be sown for fruiting in ordinary pits and frames. Although we have tried a great number of startling novelties, we have not yet met with anything to surpass a

variety sent out by a Worcester firm, under the name of Smith's Frame. Many people think the prickly kinds superior to the smooth Syon House section. As consumers we do not feel competent to venture an opinion; as growers we prefer the first for frames in the summer, and the last for house work all the year round.

Hardy fruit.—Although fruit trees in the open air are in a forward state, yet, owing to the absence of sun, they are not so much advanced as we at one time expected to find them. Another retarding cause may have been the unusually late spring of 1883, which threw the ripening and resting period well into the succeeding autumn and winter. Be this as it may, the abundant blossom buds justify the expectation of an excellent crop of fruit, provided we can protect from the troublesome spring frosts, which generally follow mild winters. In all cases where movable screens can be adopted, no time should be lost in getting them fixed, as much may often be done by shading, and so retarding the blossoms of Apricots and Peaches from bright sunshine; but, as we have before stated, the coddling system must be regarded as one of the greatest evils, when perhaps there is neither sun to force nor frost to kill. On the other hand, it will be well to avoid being lulled into carelessness by the favourable appearance of the early part of the night, as it is well known that the greatest depression frequently takes place shortly before and sometimes after daybreak. The first important item in wall covering protection of the blossoms from wet either by the use of glass or boards, and as these checks to rapid circulation produce a dry, steady atmosphere, the flowers near the wall are capable of resisting several degrees of frost with impunity. The weather having been favourable for outdoor operations, it is hardly possible that any part of the winter routine can be in arrear; but where this is the case, no time must be lost in setting matters straight, as a busy time is at hand, and doing things at the right time is quite as important as doing them well.

KITCHEN GARDEN.

We are now busily engaged digging and manuring Potato land. The late varieties we always plant before the earlier. Varieties of Potatoes are now so numerous, that one feels perplexed what to grow and what to avoid. We stick closely to some of the old kinds for field work; the best are Paterson's Victoria, Scotch Champion, Schoolmaster, and Beauty of Hebron. Magnum Bonums are useless in some soils. Last season without a particle of manure they grew too large by one-half, while the quality was soapy and disagreeable. Scotch Champions are excellent, but that objectionable deep eye is against them. Schoolmaster if anything supersedes Victoria. Beauty of Hebron is simply unique as an early Potato, and it may be lifted and housed as soon as Myatt's, and so escape disease. A thorough cleaning and in many cases fresh planting of herbs should be made at this season. Tarragon, Thyme, pot Marjoram, and Pennyroyal may all be planted. That very useful herb, Chamomile, may also be parted and planted. Mint, perhaps the most useful of all, should be planted in the shape of cuttings when 3 inches high. Sage does best as cuttings put in in the first week in May. Seed of many herbs may be sown, but not at present. Knotted Marjoram, summer Savory, and Sweet Basil are much sought after in early spring; a small pinch for using in a green state may now be sown. Indoors, we are now sowing Canadian Wonder Beans for the last batch, and intend growing them in 8½-inch pots. Bear in mind a potful of healthy roots is what is required, and not a potful of soil alone. Young plants now showing in outlying frames should be aired regularly to keep them sturdy and strong, but do not be caught napping by giving air in the morning and at night find the crop gone. Always take time by the forelock and place a bit of old netting over the lights, making all safe before leaving. Seakale, Asparagus, and Rhubarb may still be brought forward in case of need. Our plan is to have Asparagus in in November and keep the stock well up until about the middle of February. In the first week in April one can have it outside, and after being without it so long it is relished and much more thought of than if the supply had been continuous. This also we do with Seakale, but always have one of these two if possible. Vegetables are plentiful this year. We are supplying beautiful Spinach, Broccoli, Tomatoes, Artichokes, Seakale, Rhubarb, French Beans, and Asparagus.

NOTES ON CURRENT TOPICS.

Specimen plants.—It is one of the signs of the times that formally trained specimens of plants are a good deal less popular now than formerly. Formality in the flower garden and formality in the flower-pot are both at a discount, and the saving of labour and anxiety effected by the abolition of so much tying and staking is something to be really thankful for. The wearisome hours that used to be spent on such subjects as Heaths, Azaleas, Epacris, and mostly all hard-wooded stove and greenhouse plants were oftener than otherwise taken from the evenings and mornings of the young men, who received no other remuneration than the credit that was supposed to be earned by the task. Many kinds of plants need some assistance in the way of stakes and ties; but the informal shaped plant makes by far the handsomest specimen, if we would only think so from an artistic point of view, and, besides, there is really no more justification for training our indoor Azaleas and Rhododendrons and other plants than there is for training the bushes that grow in our shrubberies. The Azalea has long been a favourite subject of the "specimen" grower, and the height of his ambition has been to produce a plant of as perfect and formal a shape as a sugar-loaf, and if he could have so many flowers upon it as to render the foliage—Nature's setting to the flower—invisible, he was all the better pleased. There are, however, no handsomer little bushes than those compact little Azaleas with the informal tops that come from Belgium, and which are now beginning to make our cool houses gay, and the best plan is for the cultivator to keep them in the same bush form as long as they live. You may cut as many flowers from them as you please without disfiguring them, for the growth being free and natural, they fill up again the same season and look as well as ever, and all without the aid of a stake or a tie.

Possibilities of spring gardening.—Now is the season to begin making notes of all the pretty border flowers and dwarf flowering and ornamental shrubs that render the garden gay from February till June or July, just according to the climate. I think that spring and early summer is the richest season of flowers in the whole year, as at that period most of our hardy flowers and shrubs are in perfection. By planting thickly, mixed or in masses, a perfect kaleidoscope of colour may be provided, not to mention the fragrance of the many subjects that scent the air sweetly at all times. One need not be too severe about arrangements and artistic effect; it is planting that is needed to fill those barren wastes that still exist in nearly all gardens. The more densely the ground is covered the better, so long as nothing is choked. This should be the aim. We have seen few borders or beds as full as they might be, and one is left to imagine the effect of masses of those choice shrubs and herbaceous plants that will be in bloom during the next three or four months from what we do see of them in a small way. It is the amateur who stays at home during that season who enjoys our spring and summer flowers, but in large gardens what a gap they fill in the supply of cut flowers to the town house. Hardy flowers and Orchids now really constitute the main supply in not a few large establishments.

Rest for plants.—Notwithstanding the abnormally mild winter we have passed through trees and shrubs are only as yet beginning to move sensibly. It is the herbaceous subjects that are most easily excited into growth in such seasons. Perfectly ripened growth of shrubs and trees requires a period of rest, and seldom or never begins to move till January is out. The trees from which the leaves fell in October and November are still as dormant here as they were three months ago for all the heavy rainfall and the high temperature, but Primroses, Auriculas, and other border plants of that kind have been growing throughout the whole winter and will soon be in full flower; while in the kitchen garden Celery has long since "bolted," and Broccoli, Parsley, Cabbages, and Turnip-tops, &c., have been about as green and fresh as they were in July. It is between now and May that our fruit trees will have to run the gauntlet, for it is doubtless true that early springs, as a rule, mean poor crops or no crops at all.

Blooming of the Eucharis amazonica and candida.—It has long been a disputed point whether the first named of these two plants will flower more than once during the same year. It is held that, with the exception of the plant being evergreen, its habit is the same at that of the Daffodil, which blooms but once a year, like all other bulbous plants which have a season of flower, growth, and rest. The idea that Eucharis amazonica blooms more than once has probably arisen in most cases from the fact that when a number of bulbs are in the same pot they sometimes bloom at different periods, but the certain fact that E. candida produces blooms from the same bulb within a less space of time than even a year renders it probable that the old variety has the same habit. One single bulb of candida bloomed twice with us within about six months, having been the whole period in a stove temperature and never gone to rest. This rather singular habit of the Eucharis enhances its value considerably.

The Potato disease.—The discussion on this subject during the last few months has not been of an edifying character; the very existence of the resting spore is imperilled. The contention of the two parties is plain. One side maintains that the Potato disease can be prevented by deep mould-ing, thereby preventing the fungus from filtering through the soil to the tubers, which it enters direct; while the other side, oblivious of the fact of the disease being at least prevented, are sorely troubled about the fate of their theory. Mr. Jensen does prevent the disease by the means he employs, and he explains why, and it is now the turn of the other side to tell us how it is done if the Jensenian hypothesis be a wrong one. According to the investigators of the fungus, it finds its way into the tubers in a variety of ways, and in spite of Mr. Jensen's deep earthings. How, then, does the Jensen method prevent it? This is the problem to be solved, and we wonder at the advocates of the Jensen method concerning themselves so much to defend a theory when the practice answers. Fungologists, owing to the little practical acquaintance people have with their subject, are mercifully spared from criticism; but when they fall out among themselves we see that they are just as much at variance with each other as gardeners are about Vine borders and other controversial matters.

Canker in Apple trees.—It may be doubted if there be any more in the reputed discovery that canker is caused by insects than there is in the opinion entertained by "experts" that "blister" in the Peach is produced by a fungus which, do as we may, inevitably returns year after year till the "cause" of the fungus is removed by giving the trees a suitable growing temperature; hence gardeners attribute blister to exposure, and practically they are right. Quite probably insects may live and thrive in cankered branches, just as disease germs are developed in wounds on animals, unless antiseptics are used, while they are unable to gain a footing on any sound portion of the same body. It has hitherto been held that it is to the condition of the roots, or rather to conditions under which they are placed, that canker is due, and the best proof of this exists in the fact that single orchards and even single trees become affected in bad soils, adverse root conditions, and get better

again when these soils are removed. If an insect is in any way responsible for the disease, it does not appear to have the power to harm trees growing in a wholesome soil.

Horticultural books.—Still they come! Works that have already become stale before the first edition has been sold are succeeded by others not likely to have a much better fate. We hear that a well-known publisher of popular educational works has consented to bring out another work on general gardening, which is to be the united production of some half-dozen gardeners, marshalled by a leader whose pen runs with greater facility than circumspection, so that we shall probably have something speculative, if not practical; but we must not anticipate. The Erckman-Chatrian plan of producing gardening books is not, it must be acknowledged, so objectionable as the "first-person-singular" style of authorship, and if the staff be only well chosen a good book is possible. There are some comprehensive subjects that can be treated well in a book, in which form they are handy for many learners, but they are not many in these days when there are so many periodicals.

Stoneless Grape berries.—Can anyone explain why small stoneless berries, sometimes found in imperfectly set bunches of the Muscat of Alexandria and Lady Downes Grapes are invariably the best flavoured? There is no doubt about the fact, and most Grape growers will testify to it in the case of the Muscat; but lately my attention was particularly drawn to it in the case of the Lady Downes, in which the small berries had a distinct, if not very strong, Muscat flavour. This Grape is said to have a trace of the Muscat in its flavour any time after the new year, though it requires an effort of the imagination to detect it, but not so in the case of the imperfectly seeded berries, which are decidedly the best flavoured. A curious fact this, assuming it to be true generally, and we believe analagous conditions occur in certain phases of animal life. So great was the difference between the large and small berries which we tasted from the same Lady Downes bunch, that had we not seen where they came from we should have said they were distinct varieties.

Bleeding in Vines.—The bald-headed vendor of a nostrum for restoring the hair soon found he had mistaken his vocation; so, too, have one or two horticultural writers found lately that it is dangerous to preach that confidently which they dare not put in practice themselves. It has been set about that bleeding does a Vine little or no harm—that what the plant loses in that way is only pure water, which runs in at one end of the Vine and out at the other, with no more ill effect to it than the water from the tap has upon the lead pipe which conveys it. One writer has collected and bottled some three gallons of sap from one Vine without the least harm to the plant—wonderful Vine that! One would imagine experience of that kind would inspire confidence in the cultivator. A confiding reader of these things proposed to cut, afresh, the ends of the said Vines just before starting, by way of putting both the Vines and the party who grew them to the test; but notwithstanding the prospect this proposal held out of supplying the latter with an unlimited store of what he describes, when bottled, as a "pure and refreshing" beverage, he declined the challenge in terms that indicated anything but gratitude for the opportunity. The sugar boilers of the backwoods set a limit to the amount of sap they draw from the Maple trees, not desiring to kill the goose that lays the golden eggs, and all vegetable physiologists and experienced gardeners are as certain about the ill effects of severe bleeding as doctors are in the case of animals. But we commend the "two or three gallon" story to the attention of Vine growers. J. S. W.

Jointing pipes.—It is satisfactory to read how well Portland cement answers for jointing pipes. Above twenty years ago I adopted this method, and made it generally known, but, like most good and useful methods of doing things, it was at the time repudiated. Its good qualities, however, caused it to push its way, and most of the large city firms now use it. It must have been a boon to thousands, particularly market growers.—H. Cannell, *Swanley*.

Trees and Shrubs.

NOTES ON SHRUBS.

Azara microphylla.—This is probably the hardiest of all the species of Azara which have yet been introduced to British gardens: at any rate it is the one which suffered least at Kew and elsewhere in the neighbourhood of London during the hard winters of 1878, 1879, and 1880. Both in the open nursery and against a wall in the picturesque nursery of Messrs. Veitch, at Coombe Wood, specimens are now in flower, and, inconspicuous as the blossoms are individually, the profusion in which they are produced adds not a little to the beauty of the slender drooping Fern-like branches. I believe that the small orange-red fruits, which add to the ornamental qualities of this elegant plant, have not hitherto been developed by the Coombe Wood plants, but in some other parts of the country they have been ripened. A. microphylla was introduced from Valdivia some years ago by Messrs. Veitch.

A white variety of the Japan Quince.—The numerous varieties of Cydonia—or, as some prefer to call it, Pyrus—japonica are amongst the most handsome of hardy ornamental trees and shrubs. They exhibit a considerable range of colour, from almost pure white to deep crimson. In size of individual flowers, too, a great advance has been made amongst the cultivated forms and the seedlings raised since the old Cydonia japonica was introduced, about seventy years ago. One of the most desirable of these is one of the late Mr. J. G. Veitch's Japanese introductions, which is now flowering profusely at Coombe Wood, and has been distributed by Messrs. Veitch under the name of Pyrus japonica nivalis; in this there is no trace of the pink colour which is so prominent in the old so-called white Pyrus japonica, the large flowers being almost pure white.

Elæagnus macrophyllus.—This is one of the most distinct and striking of the hardy Evergreens from Japan, a country to which we are indebted for some of our most popular garden plants. It has larger leaves than any other cultivated species of the genus, and although the flowers are inconspicuous (plants are now in bloom at Coombe Wood), the noble aspect of the large leaves, which, when mature, are a deep glossy green above, and at all times a bright silvery white beneath, renders it a very desirable bush either grown as a single specimen on a lawn or in company with the ordinary inmates of the shrubbery border. Although at present comparatively little known, the attention of the gardening world only requires to be called to E. macrophyllus to cause it to become as great a favourite as some of its allies.

Hymenanthera crassifolia.—Before the present planting season passes it may be worth while to call attention to this curious New Zealand shrub, which in the Coombe Wood Nursery and elsewhere in the south of England has proved itself hardy. The inconspicuous flowers resemble those of the Violet in structure; indeed, Hymenanthera is, practically speaking, in spite of its superficial dissimilarity, a shrubby Violet. During the autumn months the pure white berries which succeed the flowers render the plant particularly attractive and ornamental. The rigid, much-branched, ashy-coloured branches clothed with alternate or tufted small leathery leaves, and the compact habit of the bush, render it distinct enough from any other hardy shrub. Grown in company with some of the smaller Cotoneasters and other berry-bearing plants, it forms a very striking contrast.

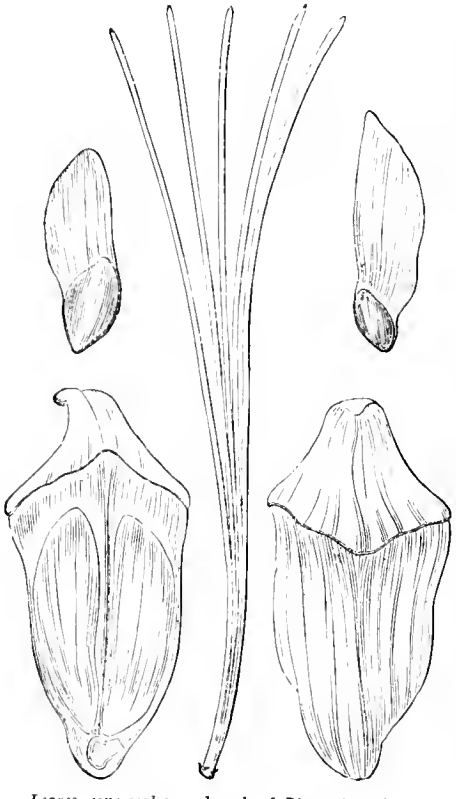
Cone of Pinus Ayacahuite (full size).

Loropetalon chinense.—This is especially interesting as being a member of that curious group of plants, the Witch Hazel family, of which the species of Hamamelis, the Sweet Gums (Liquidambar), and Parrotia persica are the most familiar examples, Loropetalon chinense is not unworthy of general cultivation from a purely garden point of view. It is a free-flowering shrub with the flowers, clustered in small heads, terminating the branches, the calyx being pale green, and the long linear petals pure white.

When better known this shrub will probably become a favourite; quite small specimens in pots are flowering freely at the present time in the nursery to which it was first introduced in this country a few years ago—Messrs. Veitch's. It is a native of China, from whence it was sent by Mr. Charles Maries.

Rhododendron barbatum.—This is readily distinguished from the other Himalayan Rhododendrons by the stout bristly hairs which clothe the leaf-stalks and young shoots. The bark of the old wood is reddish in colour and papery in texture; the flowers are a deep puce or blood colour. In its native habitat it attains a height of from 40 feet to 60 feet, being branched from the base. As it has proved hardy in some places in this country, it is to be hoped that so distinct a species will become more widely known. A good-sized bush of it is now blooming in the winter garden at Kew.

Fertile twig of Pinus Ayacahuite (reduced).



Leaves, cone scales, and seeds of Pinus Ayacahuite (natural size).

Rhododendron parviflorum.—At Coombe Wood Messrs. Veitch have now in flower this very interesting little Rhododendron, from the Baical Mountains; it seems to be somewhat intermediate between the arctic evergreen species, R. lapponicum and the deciduous Siberian one, R. dahuricum. The flowers in R. parviflorum are almost as cheerful and bright a purple as those of R. dahuricum, and the plant altogether is much prettier in habit. By hybridising, probably a race of small-leaved, neat, bushy-growing forms would be obtained if R. parviflorum were duly utilised. N.

RETINOSPORA FILIFERA.

Among the many Japanese Coniferæ that succeed so well in this country, this is one of the most useful. It forms, when young, a somewhat globular bushy plant, but as it increases in size it acquires a tree-like character. What makes this Retinospora different from all others is the long pendulous, thread-like branchlets, often terminated by tufts of little shoots. For small gardens and in permanent bedding arrangements, or for similar purposes, this Retinospora is, in its young stages, well suited, and when 6 feet or 8 feet high it forms a handsome specimen for lawns of limited extent. When larger, it growth is, as a rule, more irregular in character. Retinosporas are easily propagated, quite hardy, and do well in most situations; if they outgrow their bounds, they can be reduced by means of the knife without destroying their beauty, as, if cut back, they all again break freely into growth. R. obtusa and pisifera are the largest growing sorts, but of both, dwarf, compact specimens may be met with.

The principal recognised variety of R. pisifera is that in which the foliage is golden, but of R. obtusa, which varies more than R. pisifera when raised from seeds, there are several varieties recognised as distinct. Amongst them are aurea and gracilis aurea, compacta, and pygmæa, the distinctive characters of which are explained by their respective names. Apart from these recognised varieties, however, from a bed of seedlings may be picked out many distinct and beautiful types varying greatly in habit, colour, and rate of growth from the original. R. plumosa is of rather dense habit, with delicate plume-like branchlets. In colour it is an attractive shade of green, and altogether a very desirable kind. Of it there is a variety (alba picta) in which some of the shoots are marked with white, and two others, argentea and aurea, in which the young growth is suffused with white and gold respectively. R. squarrosa is a pretty low tree or bush, noteworthy on account of the beautiful silvery hue of the foliage, a character which stamps it as very distinct from the rest. The leaves, too, are longer than those of the others and not adpressed to the branchlets, but stand out clear of each other like the juvenile foliage of Thujas, Biotas, and some Junipers. R. filicoides is a good deal in the way of obtusa, but the branchlets are unusually short and stout, and the colour a very deep green.

R. lycopodioides is of loose, irregular growth, with branchlets curiously flattened at the tips. It seems to be more particular as to its requirements than the rest, as it frequently fails to grow satisfactorily. R. leptoclada is a densely pyramidal plant of slow growth, with cheerful greyish green foliage. It is well suited for cultivation in pots or for winter bedding, as it will by no means outgrow its bounds. Among small or select shrubs, too, it well deserves a place. It has been contended that this Retinospora originated as a seedling from Cypressus thyoides, and certainly its appearance tends to bear out this supposition, another point of affinity being that both do well in dampish spots. R. ericoides is a dense, upright shrub, seldom more than a yard high, with long pointed leaves, green during the summer, but changing to a purplish brown in autumn, a colour which it retains throughout the winter. R. tetragona aurea is a little dwarf plant, with spreading branches and bright golden-coloured leaves. It is a very desirable subject for rockwork.

Propagation.—Retinosporas constitute one of the easiest classes of conifers to strike from cuttings, the quickest to root being R. ericoides and R. squarrosa, the two that bear only juvenile foliage; then come R. pisifera, plumosa, leptoclada, squarrosa, and filifera; while the slowest rooting, but still by no means difficult, are R. obtusa, filicoides, and lycopodioides. Alpha.

PINUS AYACAHUITE.*

In its native country this handsome Pine forms a fine tree, and attains a height of 100 feet. It occurs at elevations of from 7000 feet to 11,000 feet in the mountains of Northern Mexico, from whence it was introduced to this country in 1838–39 by the Horticultural Society of London through their collector, Hartweg. A considerable number of other Mexican Pines were discovered and sent home at the time, and by the collector mentioned, but few of them are to be found in British gardens now, except in very favoured spots. Although in Veitch's "Manual" the present species is said to rarely escape injury during severe weather in England, even in sheltered situations, yet specimens, and large ones too, may be met with under conditions and in localities which do not impress one as likely to be specially propitious to tender or half-hardy plants. The cone figured in the *Gardeners' Chronicle* was furnished by a tree growing in the nursery of Messrs. Paul & Son, at Cheshunt; and in one of the nurseries of Messrs. W. Paul & Son, of Waltham Cross, I have seen examples which do not exhibit any trace of ill usage by severe weather. In the grounds of Westonbirt House, near Tetbury (the residence of Mr. R. S. Holford), where numbers of rare trees and shrubs are grown, cones are freely produced, and one of these now in the museum (No. 1) is a

Young tree of Pinus Ayacahuite.

* Pinus Ayacahuite—Ehrenberg in Linnæa (1838), vol. xii., p. 492; Loudon, "Encyclopædia of Trees and Shrubs," p. 1023, figs. 1919, 1920, and 1921 (1842); Carrière, "Traité Général des Conifères," p. 306 (1855); Gordon, "Pinetum," p. 216 (1858); Engelmann, "Revision of the Genus Pinus," p. 15 (1880); Veitch, "Manual of the Coniferæ," p. 184 (1881); *Gardeners' Chronicle* (1882), vol. xviii., p. 493, fig. 83.

good deal larger than that produced by the Cheshunt tree. The dimensions of the cone from the last named locality are, length nearly 9 inches by 1½ inches in width, whilst that from Westonbirt House measures 12 inches by 4½ inches. There is, however, a considerable variation in the size of cones from different trees and from different localities. The largest specimen, a native one, in the Kew museum measures 15 inches in length by 6 inches in width. In general habit and appearance Pinus Ayacahuite much resembles the Weymouth Pine; it has whorled spreading branches and longer, slender, glaucous, three-sided leaves. The strikingly handsome cones are, when fully grown, pendulous, cylindro-conical, straight or slightly curved, with egg-shaped, sharply pointed, leathery striated scales, having on the outside at the apex a small, elongated, pyramidal boss. The tips of the scales are recurved and the body of the scale is wrinkled lengthwise. The seeds are oval, with an oblong acute wing nearly twice as long as the seed itself. George Nicholson.

Royal Gardens, Kew.

FLOWERING SHRUBS.

Berberis japonica.—This in good soil produces large pinnate leaves about 2 feet long and is very handsome. The flowers, which are lemon-yellow, are borne in erect spikes overtopping the foliage. When cut they last a considerable time in water, and when used along with the large dark green leaves have a good effect in vases. The chief point of importance in connection with this Berberis is its flowering early in the year, when for a couple of months, if the weather is favourable, it is very conspicuous. The blossoms, too, are succeeded by large berries of a bluish purple colour overspread with a fine bloom. To the taste they are sharp and sour, but nevertheless I find that birds often destroy them. This shrub belongs to the Mahonia section of the Barberries: indeed, it is frequently known as Mahonia japonica.

Berberis aristata.—This is a vigorous-growing Barbery of the common type, but especially noteworthy from flowering much later in the season than that kind, a circumstance which should commend it to planters. During winter, too, the leafless branches are of a bright reddish colour, and therefore very conspicuous. It is in all respects variable when grown from seed; indeed, I observed last season great differences not only in the flowering of our plants, but also in their colour. This Berberis is a native of the Himalayas and is quite hardy in this country.

Magnolia stellata.—In a cool house this Magnolia is unfolding its pretty sweet-scented blossoms, consisting of narrow petals, which, when fully expanded, droop in a very graceful manner. When in the bud state the flowers are slightly suffused with pink, but when they open they are white inside. This Magnolia, which is quite a low, dense-growing shrub, flowers freely in a small state; indeed, I have had little plants of it in 5-inch and 6-inch pots with half a dozen flowers on them. It is a native of Japan and perfectly hardy in this country, but, perhaps, it is most valuable as a cool house plant; under glass the spotless purity of the flowers is easily maintained, which is not always the case when out of doors, as it flowers even then early in spring, and is sometimes damaged by severe weather or heavy rains. As a pot plant it does well in good fibrous loam, and should be plunged out-of-doors in spring. It is often known by the name of M. Halleana.

Daphne Mezereum.—There is often a great difference as regards colour among plants of this Daphne, some being of a deeper and brighter hue than others, and consequently more attractive. Such being the case, when purchasing plants of it the finest form, known sometimes as rubra, should if possible be selected. The white variety (alba) affords a pleasing contrast with the ordinary pink kinds. The best time to transplant the Mezereon is in autumn, as it commences to grow soon after Christmas.

Rhodotypos kerrioides.—This is a very handsome flowering shrub, and one which is easily propagated and comparatively cheap. It may be defined as a counterpart of the well-known Kerria japonica, except as regards the flowers, which are pure white and 2 inches, or nearly so, in diameter. The Rhodotypos forms a bush about 4 feet or 5 feet in height, and flowers profusely in summer; it is perfectly hardy, and not very particular as to soil or situation, though it likes a fairly good loamy soil that does not bake too much during summer. It is a native of Japan, where it is much cultivated for the sake of its charming blossoms.

Eucryphia pinnatifolia.—This is one of the most beautiful of shrubs of recent introduction, and valuable on account of its flowers being produced about the end of the summer, when blooming shrubs are getting scarce. It is deciduous, somewhat upright in habit, with pinnate leaves and large white flowers about 3 inches in diameter. The blossoms are in form much like those of an Hypericum, to which the cluster of prominent stamens adds another point of resemblance. It is of rather slow growth, but has withstood the last three winters in the neighbourhood of London; therefore it may fairly be classed as hardy. This Eucryphia can only be satisfactorily propagated by means of layers, which will, to a certain extent, account for its scarcity. It is a native of Chili, and was introduced by Messrs. Veitch.

Desmodium penduliflorum. — From the middle of September frequently till cut off by frost this Leguminous plant continues to unfold its pretty rosy purple blossoms. Although generally classed as a shrub, it would, from its habit of dying nearly to the ground each season, be better defined as half shrubby. The shoots are long and slender, the upper part being terminated by large crowded racemes of pea-shaped blossoms, which, when expanded, cause the slender shoots to droop so much, that they need a little support. It should, however, be tied no more than is absolutely necessary. It is a native of Japan.

H. P.

Jasminum nudiflorum as a hedge plant.—It may not be generally known that this Jasmine makes a good hedge plant. A few years ago I saw a fine hedge composed entirely of this plant in a cottage garden near Wellington, and when in flower it really had a fine appearance. It was not, however, a hedge in the ordinary sense of the word—grown with a view to form a fence. It was simply planted to form a divisional line between two cottage gardens; but in thickness and height it was in every way worthy of the name of a hedge. It was about 4 feet high and 2 feet thick, and it had evidently been sheared up regularly, the same as a Thorn hedge would be. —J. C. C.

The Almond tree.—The Almond is a lovely tree in blossom, a tree well fitted for our northern climate, and one that seldom fails to boldly announce the coming to quick life of trees and buds and flowers. Occasionally, by a suburban road, one may see beautiful aspects of the Almond tree in spring; but it is a tree which is neglected in the larger places and in country seats; and this is a pity, because such places have better means of developing its beauty than the suburban garden. In Japan, we have been told, the flowering of the Almond is a festival time, the climate favouring a more complete development than ours does; but our climate suits the tree thoroughly—much better than it does the Peaches, double or single, which were brought from Japan some years ago, and which are beautiful enough, so far as they go, and extremely bright in colour; but they do not seem to grow into healthy trees, no matter what care they get. Therefore the improvement of the Almond tree would be much more worthy of our attention; raising good varieties from it, brighter in colour or hardier, would be a gain. There is a very large-flowering variety in cultivation now in the nurseries about London, and no doubt where the tree is cultivated for its fruit there are other varieties. However, the common kind, well grown, is good enough for our purpose; and the main thing to say about it is that it should not be always crowded and forgotten in a shrubbery, or starved there. The tree, it seems to us, deserves growing for its own sake as an individual, or, still better, as a small group. In country places a considerable amount of taste may be employed in the placing of these individuals or groups, because, from its bright colour, it is a tree that admits of landscape treatment, so to say, a well-placed group telling well in the distance. Another consideration is worthy of mention, and that is the possibility of having a succession of this bright tree's blossoms by planting it in different positions. A group or an individual in a northern exposure or on heavy clay would flower at a different time from one in a sunny exposure and on light soil; and one might escape and give a satisfactory bloom, while perhaps another opened at a time of severe weather. The trees in all cases ought to have room for fair development in good soil.—V.

Varieties of Hamamelis.—I cannot agree with Mr. Lynch, of Cambridge, in his opinion, as stated in The Garden (p. 118), that there are only three varieties of the flowering Witch Hazel, as besides those he mentions there is certainly a fourth grown at Kew under the name of H. japonica, flowering specimens of which were quite recently kindly sent to me for comparison by Mr. Nicholson. I found it to be horticulturally, at least, quite distinct and different from both the comparatively well-known H. arborea and the very scarce H. Zucariniana, which is now flowering nicely in my shrubbery, being in fact almost intermediate between these varieties, the outer petals being of the pale shade of yellow of H. Zucariniana, while the centre of the flower was almost of as dark a hue as H. arborea. It also seemed to be an exceedingly free-blooming and desirable variety.—W. E. G.

INDOOR GARDEN.

DAPHNE INDICA.

Amongst sweet-scented subjects there are few, if any, that possess a more agreeable perfume than this Daphne, and even the plant itself when not in flower looks very pretty; its stout, shining, handsome foliage gives it a distinct appearance. It is neither so plentiful nor so well grown as it ought to be. When met with it is oftener than otherwise in the form of a solitary example or two—most frequently in anything but a flourishing condition. This is attributable to the mistaken idea generally accepted concerning the plant, viz., that it will only succeed when grafted; and as private growers seldom have within their reach stocks suitable for it (it is generally grafted on the Spurge Laurel, Daphne Laureola), and often are not adepts in the art of increasing such plants by this means, they do not often attempt its cultivation. Another cause of failure is giving it greenhouse treatment continuously, to which may be assigned the unsatisfactory condition in which it is often found. This Daphne is a native of China, and will live in the temperature of an ordinary greenhouse; but when no more warmth is given it than this, the progress it makes bears a very small proportion to that which follows growing it in more heat. So great is the difference that an ordinary young grafted or cutting-struck plant, if kept in an intermediate or cool stove temperature continually for two years, will in that time attain a size that would take six or seven years to acquire under the cool course of management.

Cuttings should consist of pieces of the young shoots, 2 inches or 3 inches long, taken off when the wood is about three-parts matured, such as is usually obtainable towards midsummer. Put several together in a pot or seed-pan, half filled with sifted peat and sand, the remainder all sand; cover close with a propagating glass, keep moist and shaded, and place them in a cool pit or greenhouse until the bottoms of the cuttings are callused over, which will be in about two months; then, if moved into a moderate stove tempera-

ture of about 65° or 70°, they will soon strike. After that dispense with the glasses, allowing the young stock to remain for a month or two longer, so as to get plenty of roots before potting them off singly. Three-inch pots will be large enough at first, using peat and a fair amount of sand. Keep them through the winter in a temperature of about 55° at night, giving no more water than is necessary to keep the soil slightly moist. As soon in the spring as the young plants have made an inch or two of growth, pinch out the points, so as to cause them to branch out, and increase the heat a little as the weather gets warmer; by May they should have made enough roots to require more room. This Daphne is not a vigorous or profuse rooting plant, and will not bear nearly such large pots as most things; but, when grown in heat in the way here advised, it will require more root space than when treated on the cool system; a 2-in. shift will be enough. Now use some well rotted manure with the peat and sand, using enough crocks to admit of the water applied passing away quickly. As the weather gets warmer, give more heat and plenty of light, but shade a little when the sun is bright, and admit air in the day, such as is required by he generality of stove plants, sprinkling them overhead in the afternoons. Towards August they ought to bear moving into pots 2 inches larger, again pinching out the points of the shoots, after which continue to treat as before until about the end of September, when they will require less water at the roots, and no syringing, through the remaining portion of the year and the beginning of the next. A night temperature of 50° or 55° will answer. This will keep their roots active, although they may not make much shoot growth until March, when, if a little more warmth is given, they will push vigorously, making much longer and stronger shoots than hitherto. As soon as

The spring growth is partially solidified, and the buds, which will be seen at the base of the leaves, are formed, again pinch out the points of the shoots. In May give pots 2 inches larger; let them have additional warmth night and day, proportionate to the increase of solar heat, shading and syringing as in the preceding summer. They will now grow rapidly, pushing several shoots from the back eyes, forming early stout bloom-buds at the points, with prominent eyes at the base of many of the leaves. This latter is a sure sign of strength in the plants, and when the flowers have to be cut is a necessary condition; for when the shoots are not strong enough to form these wood-buds, and the trusses of bloom with the necessary portion of wood attached are cut, it generally happens that the shoot makes no further growth for the year. If the intention is to get the plants large in as little time as possible, they must be treated as to temperature through the autumn and winter as before, not attempting to regulate the time of their flowering by keeping them cool; thus managed, they will bloom in the early months of the year, after which they should be moved into pots larger in proportion to the amount of roots they are found to possess, increasing the temperature as previously advised at this season. If all has gone well, the growth they make this year, both in the quantity and strength of the shoots produced, will be beyond all comparison better than what is possible under greenhouse treatment; and when the flower-buds are plump and prominent, the plants may be set in a pit or house kept at a temperature such as that required by ordinary greenhouse stock. Some may be put in warmth at the commencement of the year, and others kept cool, so as to give a succession of bloom, in all cases after flowering placing them where they will get extra warmth, similar to that usually given to Camellias that are grown for early flowering; in this way they will continue in a strong healthy condition. The plants are much benefited by the use of manure water whilst making their growth after they have got well established, and all on afterwards through the later stages of their existence. They will last for a number of years, and when the pots they occupy are deemed large enough, a little of the surface soil may be removed each spring, and some new added, being careful not to disturb the roots much. There are two varieties, D. indica rubra and D. indica alba, differing little except in the colour of their flowers.

T. Baines.

FLOWERS FOR THE CONSERVATORY.

A good display of spring flowers is always appreciated, and, as this is the time when a stock of such plants is generally procured for associating with Hyacinths, Tulips, and other spring-flowering bulbs grown for decoration during February and the following months, a few words respecting such as are easily managed by anyone may not be without interest. The selection will chiefly consist of plants such as anyone can purchase ready prepared for forcing; and the majority of them may be grown on year after year when a stock has once been obtained, provided ground can be spared to plant them out in after they have been forced and properly hardened off.

Lily of the Valley and Solomon's Seal will both be found most valuable for early flowering. The former can be purchased in clumps, or single crowns of it may also be had, but the former will be found to be the best. When obtained, pot the crowns in 6-in. pots, using rather light soil and pressing it down firmly, or the moisture will drain through it too quickly, leaving the middle of the ball dry. Place the pots out of doors, covering them with Cocoa-nut fibre or some light material to the depth of 9 inches. When wanted a few pots may be removed from the fibre, and either placed in a forcing pit or in a hotbed at work. Place an empty flower-pot the same size, rim down, over the crowns. This induces both flowers and foliage to come up at one time, while if not covered the flowers oftentimes come up without the foliage, the plants being then but of little use for decoration. Remove the top pots as soon as the flowers and foliage are started into full growth. Solomon's Seal requires much the same treatment, and when in flower is one of the best plants, either for table decoration or for placing in vases in a room, one can have, as it lasts a long time in perfection, and looks well placed in high glasses along with fronds of Ferns. After the plants have done flowering they may be placed in a bed of well-prepared soil, when they will afford a supply of flowers at some future time.

Spiræa japonica is one of the most effective plants for early forcing, and also one of the most popular. It is imported in clumps similar to those of the Lily of the Valley. The clumps should be potted in 6-inch pots in rather rich, light soils, as the plants root freely and need feeding as soon as the foliage appears. They will require much the same treatment in every respect as the former, only when they come into full growth they will be greatly benefited by being set in saucers filled with water, as this is a moisture-loving plant. Deutzia gracilis is one of the most easily forced of spring-flowering plants, and at the same time one of the most beautiful. Small bushes from 15 inches to 18 inches in height should be procured, and potted in 4½-inch and 6-inch pots in good, rich, sandy soil. Place them under cover until they are required to be put into heat: early in the new year will be a good time to put the first plants into heat, bringing in successions as may be required. Place them in a greenhouse for a few days before putting them into the forcing pit, and syringe them twice a day to encourage the buds to swell. When placed in a warm temperature, they must also be syringed freely until the flower buds begin to open. When in flower place them in the greenhouse or conservatory, when they will last in bloom for some time, and will be found useful in a cut state for the drawing-room. To maintain an annual supply of plants for forcing, there should be two sets; then each set may be flowered every alternate year. The best plan is to plant them out after they have finished flowering, and let them remain two seasons, when they will be ready to lift in the autumn, and be potted ready for forcing. The wood when partly ripened will strike freely, when a few cuttings should be put into pots filled with sandy soil and placed in a pit; they will soon root, and if carefully grown will make useful plants; repeat the same treatment annually, when a stock will be maintained. I have Spiræa palmata. Few plants are more effective when grown in pots. It may be successfully forced if the crowns are strong and well ripened; use plenty of moisture, and a temperature ranging from 60° to 65°. This plant will be found to require much the same treatment as Spiræa japonica.

Dielytra spectabilis, when well grown, is one of the most effective for pot culture, but, as a rule, it is forced in a much higher temperature than is suitable to its growth. It should be placed close to the glass; if a long distance from it, the growths get drawn and weak, when the appearance of the plant is altogether unsatisfactory. Clumps of this of various sizes may be purchased, but generally those of a medium size will be found most useful. They require to be treated like the Spiræas just mentioned, and to be potted in rich soil, as they have to be flowered two or three years in the same pots. Thus managed, they will give satisfaction if fed during their flowering period. The temperature in which this plant will be found to force most readily is one of about 65°. Plants of it in flower last a long time in the conservatory. Allow them sufficient room to develop their beautiful foliage and graceful arching sprays of flowers. Primula japonica will be found to be of the utmost value for conservatory decoration, and by purchasing a few plants well established in 4½-inch and 6-inch pots, a continuous succession of bloom may be had for a long time. If clumps growing in the flower borders be lifted in autumn and potted, they will flower later in the spring, and will only require the ordinary temperature of a greenhouse. P. cortusoides and its varieties may be grown in the same manner for early blooming. Place them in a warm temperature, say about 60°, and keep them as close to the glass as possible. By sowing seed early in February and growing the plants on quickly in pots during summer, taking care to ripen their crowns well in autumn, they will yield a good crop of flowers during the following spring. The best varieties are P. cortusoides, P. c. amœna, and P. c. amœna alba. P. verticillata, the Abyssinian Primrose, makes a good greenhouse plant. It has powdery foliage and stems which bear whorls of sweet-scented flowers of a deep yellow colour.

A few well-selected shrubs will be found to be extremely beautiful when of medium size and well flowered. Bushy plants should be lifted towards the end of October, and carefully potted as soon as possible after they are lifted. They will then bloom early in the season if placed in a genial temperature. Some of the best for forcing are Andromeda floribunda, a neat-growing shrub with evergreen foliage, and bearing small flowers resembling those of the Lily of the Valley; Laurustinus, which forces freely when well established in pots; Persian and Siberian Lilacs; Ghent Azaleas in great variety; Prunus triloba; P. sinensis fl.-pl.; double Thorns; Rhododendrons in variety; Guelder Rose; and Acer Negundo variegatum, the foliage of which is most effective when forced in a small state. These may all be procured at any of the principal nurseries, specially prepared for forcing. When placed either in the forcing pit or in some structure devoted to that purpose, they will be greatly benefited by being frequently syringed overhead with tepid water.

W. C.

Chrysanthemums in January.—It may interest some to know that I cut my last bloom of Elaine on the 31st of January—as fair a blossom as I had in November. In the end of September we had very high winds for a few days, and I had the misfortune to get some twigs broken off my Chrysanthemums some 7 inches or 8 inches long. I had some 4½-in. pots with about 3 inches or 4 inches of Cocoa fibre and sand in them, in which I had been striking Begonia metallica. I placed the twigs in question in an unheated greenhouse, and if I had taken the trouble to pot them on, I

might have had a quantity of blooms, but I allowed them to take their chance. All I did was to give them a little artificial manure. I have just potted off the first hundred, and I am keeping some stock plants to try at different stages.—H. J. Farrow, 62, *Black Lion Lane, Hammersmith.*

PERPETUAL FLOWERING CARNATIONS.

These delightful flowers are becoming general favourites, and they well deserve to be so, seeing that they may be had in bloom with the accommodation of an ordinary Pelargonium houseat command from the time the summer-flowering kinds have ceased flowering until they again come into bloom. They are, indeed, a great boon where choice flowers are required for button-hole bouquets, table decoration, or for furnishing small tube glasses for writing tables. For decorating the dinner table we find them most useful, arranged in similar glasses to those for writing tables, with the addition of a little Grass of the commoner kinds or Maiden-hair Fern, either of which suits them well. For those who do not require many and are not particular about colours and kinds, plants raised from seed would probably suit. Of seed we purchased a 2s. 6d. packet from one of our principal seedsmen, and its produce gave us great satisfaction. It was sown in March on a moderate hotbed; as soon as the seedlings appeared above ground they were placed in a light position, and when large enough to handle were pricked off round the edges of 3-inch pots, and replaced on the bed in order to give them a start, and as soon as they had become a little established they were removed to a cold frame, when their after treatment was identical with that recommended for

Plants from cuttings. Where named kinds are to be grown and none at command, no time should be lost in purchasing a plant or two of such sorts as are wanted. They should be placed in a little warmth at once to cause them to break into a soft healthy growth; these young shoots, taken off with a heel, and inserted in sandy soil in small pots and placed in a moderately brisk bottom-heat, either from fermenting material or hot water, will quickly emit roots. Though cuttings do best when taken off with a heel, it is not absolutely necessary, as they will do very well if the cut is made in moderately firm wood just below a joint. The way in which I have often inserted cuttings when extra care has been necessary, say with an extra scarce variety, is to slightly crock a 5-inch pot, and in that place another 3 inches in diameter, filling up the inch space around the inner pot with sandy soil in which the cuttings are inserted; this method, I am certain, is well worth the extra trouble taken, and cannot but find favour with those who, like myself, have found that cuttings root best around the sides of the pots. Moreover, another advantage may be claimed for this plan—viz., it admits of the water being poured into the middle pot without damping the foliage, of which cuttings are not altogether fond. When they have taken root, which they will have done in from three weeks to a month, according to the state of the wood and the heat to which they have been subjected, they must be gradually hardened off, when they will be fit for potting singly into 3-inch pots, placed in a cold frame, and kept rather close for a few days; attention must, however, be paid not to allow this stifling atmosphere to be maintained too long, as nothing enjoys exposure more than these Carnations do. Therefore, as soon as they have got a slight hold of the soil, air must be admitted by degrees until it reaches a good circulation daily. When both cuttings and seedlings have filled their pots with roots they may be shifted into pots 2 inches or 3 inches larger than those they are in—say 5-inch pots for the smaller, and 7-inch ones for the stronger growers, sizes which will be found large enough for plants struck in March, as their pots should be filled with roots before winter. After this potting, if the weather is not so wet as to saturate the soil too much, their best position is on a bed of ashes in the open air from June to September. Then some of them should be throwing up flowers, and should be securely staked. If signs of flowering exhibit themselves too early in the season, the tops should be pinched off, which will induce the plants to break out laterally and become bushy. This pinching is more necessary in the case of some kinds than in that of others. The soil in which we have found them to thrive best is a mixture of loam, leaf-soil, dried cow manure, and a good portion of sharp sand; this is made up in the following proportions, viz, one-half loam and the other three ingredients in equal parts. The sand which we use is drift from the sides of the carriage drives—a sharper and better material for the purpose than the fine-grained sand too often used for potting purposes.

Varieties.—Those who have not had an opportunity of making their own selection will find the following kinds reliable, viz.: M. Baldwin, Lucifer, Alégatière (scarlet), La Belle, Empress of Germany, The Bride, and White Swan (white), Miss Joliffe (blush), Annie Williams (pink), and Andalusia (yellow). It is best to house the plants before autumn rains set in, assigning them as light a position as possible, and if a temperature of about 50° at night and 55° by day can be maintained, there will be no lack of bloom in the darkest days of winter. One great advantage belonging to these flowers over many others is their lasting properties. If not wanted at any stated time, they will keep in good condition upon the plants for a week or two, and almost as long in glasses, provided the water is changed occasionally. C. W. C.

ASPARAGUS TENUISSIMUS.

This is a very pretty Asparagus, and one exceedingly useful in a cut state. It does well in our case trained to the roof of an intermediate house, but when small it forms pretty little plants in 4-in. pots. It is somewhat in the way of A. plumosus, but altogether lighter in texture; so light, indeed, is it, that after syringing, when moisture is hanging in countless little drops from all parts of the delicate stems and leaves, it seems like a cloud of mist. Though so fragile in appearance, the sprays are very lasting when cut, provided they are in a mature state and have not been growing in too hot and moist an atmosphere. When cut off, young shoots are rapidly reproduced from the branches; therefore, a few plants of it trained wherever there is any vacant space will yield good returns in the shape of sprays for decorative purposes. Another use to which this Asparagus can be put, as well as the better-known A. plumosus and its variety nanus, is furnishing rafters in houses of small extent, for while clothing them with beautiful greenery the foliage does not obstruct the light, which is an important matter as regards the plants underneath. A. tenuissimus strikes readily from cuttings, which should be taken just as the young shoots begin to get firm, and put in a close case in the stove till rooted; when that takes place and they begin to grow, they must have air given them by degrees, and when sufficiently rooted potted off. The kind of soil which we use for large plants is a good fibrous loam with a liberal admixture of sand, leaf-mould, and well decayed manure, while for small plants the manure is dispensed with and the sand and leaf-mould increased. Asparagus plumosus is also extremely useful for cutting, as well as its variety nanus, the beautiful flattened bright green sprays of which are very distinct from those of the others, and the plant grows quickly enough, but will not strike root from cuttings, though the typical A. plumosus does so as readily as A. tenuissimus. Such being the case, A. plumosus nanus can only be increased by division, but each shoot may generally be detached with at least a few roots adhering to it, that with a little care will grow away freely. In dividing ours we keep those with but few roots by themselves, and put them in a close case till they have recovered from their mutilation. T.

Euphorbia fulgens.—This Euphorbia is generally considered to require stove temperature, but at Crowcombe Court a large plant of it lived for several years in a greenhouse heated only to keep out frost. I do not mean to say that it grew and flowered so well as when in a higher temperature; there is a great difference between plants living and thriving, but I was certainly struck by its healthy appearance after such a trial in a lower temperature than what it is considered capable of bearing.—J. C. C.

AZALEA MOLLIS.

For greenhouse or conservatory decoration during early spring this Azalea is very valuable. It can be had in bloom with but little trouble, and its flowers are borne in such numbers that the whole plant seems to be a mass of blossom. Little bushes of it bristling with flower-buds are imported yearly in great numbers from Belgium, and, as may be supposed, meet with a ready sale, being suitable for potting and forcing at once. There are now a great number of named varieties belonging to this class of Azaleas, but most of those imported are seedlings, and consequently there is generally amongst them a good range of colour, varying from pale yellow to orange, and even to reddish buff, while others exhibit different shades of a pinkish hue. Directly after flowering this Azalea and its varieties start into growth, so that when their beauty is over they should be kept in a frame till all danger from frost is past. When set out-of-doors they may be treated in different ways. In the first place, they can be plunged in a bed of Cocoa-nut refuse, spent Hops, ashes, or something in that way, and if attended to with water during the summer, each shoot will be terminated by a plump flower-bud ready to expand with the return of spring. Where forced in numbers, however, the better way is to plant them out in a bed prepared for their reception, if the soil be loamy, by the incorporation of some peat or leaf mould. As they like to be kept rather moist, the bed should, if in a hot and dry spot, be formed somewhat lower than the surrounding ground, and provision should be made if possible for watering it when required. It should be situated in a sunny spot, as in that case flower-buds are formed more freely than if shaded. At the approach of winter, the plants can be again dug up, potted, and placed in a cold frame till required, when it will be found that their blossoms open just as well as if grown in pots the whole year round and certainly without requiring anything like the amount of attention. If not required for forcing another year they may, after flowering, be hardened off as above described, and then planted out in the shrubberies; they are as hardy as Laurels, and their beautiful blooms are fully as attractive out of doors as when grown under glass, though, in common with all early flowering subjects, cutting winds and late spring frosts are apt to injure them. Alpha.

Selecting Tuberoses for forcing.—In selecting bulbs for this purpose, reject all that do not show signs of vegetation. They may occasionally flower when the centre does not indicate growth, but it is always doubtful. The bulb should be kept in a dry place over winter in a temperature between 50° and 60°, or the flower germ may be destroyed. To secure a continuous bloom, the first bulbs should be started in December; remove all offsets, and cut a thin slice off the bottom of the bulb, say a quarter of an inch, which induces it to emit roots quicker; then place the bulbs in sand, half covering them, and set them in a bottom heat of about 80°. If they are in a stove it will not be necessary to cover them with a bell-glass; give a good watering, and in about three weeks they will be well rooted; pot them in 6-inch pots, using good turfy loam and well rotted cow manure in about equal parts, treating them liberally with water; never allow them to get dry at the roots; place them as near the glass as possible in a house in which there is a night temperature of about 60°. Just before the flowers expand give less moisture and more air; they will be in bloom in about three months from the time of starting. To have a succession start some every two or three

weeks up to the end of August; after that the bulbs will be pretty nearly exhausted, and a further supply must consist of some of the strongest growing bulbs that you may have planted outside (supposing everyone to grow his own bulbs); rest them a month or so, and continue as first directed. For flowering at certain periods the strongest plants may be lifted and potted, so as to continue their growth; they will bloom during the fall and early winter months.—WM. S. KIMBALL, *Rochester, New York.*

Late Chrysanthemums.—In reference to these, allow me to tell "T. R.," Manchester, that I think the mild winter has had more to do with them than any particular method of culture. We were able to keep our plants out of doors fully a month later than usual, and by keeping part of them in a late and rather shady Peach house and keeping the atmosphere as buoyant as possible by the use of a little fire heat occasionally, we have had a good supply of blooms up to the present time, some plants of Guernsey Nugget, Princess Teck, Jardin des Plantes being still in the conservatory. Fair Maid of Guernsey, cut back to within a foot of the pot in July, gave us some good and useful blooms, the last not being yet (Feb. 25) fully developed. The plants are twelve and thirteen months old.—W. JENKINS, *Durham*

KITCHEN GARDEN.

ONION CULTURE.

THE rule with many growers is to sow seed for the main crop or keeping Onions as early in March as possible. A better rule is to sow the seed as soon as the ground is in a fit state for its reception, whether this be early or late in March, or even as late as the middle of April. To secure an evenly heavy crop the ground must be rich, thoroughly broken up, yet as firm as it can well be made by trampling. Now, the majority of heavy soils, before they can be said to be in good working condition, must have been first roughly dug and then exposed to the pulverising influence of either frosts or drying winds, such as we generally experience during March. Of severe frosts there have been none, and we must wait for the easterly winds to thoroughly dry the ground, and afterwards for sufficient rain to finish the disintegrating process. In our case a good dressing of the best farmyard manure obtainable is dug in any dry day or favourable opportunity during January or, as it happened this season, not till the middle of February. Directly after a good "wind baking," followed by showers, has been experienced, what is now an almost unworkable breadth of soil will separate most surprisingly well. Then for this piece of ground, which measures 20 yards by 25 yards, about three bushels of wood ashes, the same quantity of soot and salt, and about four barrowloads of road grit will be mixed together and sown over the surface. The men will closely trample the ground, and then will well stir up the surface to the depth of 6 inches with a garden harrow. If the quarter was much smaller, a proportionate quantity of the fertilisers would be given, and instead of the harrow, forks would be used for stirring the surface. By stirring I mean breaking up the soil to a good depth without burying the thoroughly pulverised surface soil. The surface is next well raked over and levelled; shallow drills are then drawn 12 inches apart and the seed is sown. We invariably fix the seeds in the drills with our feet, and also cover them by lightly ploughing our feet along one on each side of the drills. The whole of the ground is then raked, nothing being better for the purpose than ordinary wooden hay rakes. We also reckon to have seeds of the best quality, and rarely sow more seeds than we require plants. I ought, perhaps, to add that our drills are rather wider than are usually drawn, being about 3 inches wide, flat, and 1 inch deep.

THE SUMMER TREATMENT consists of frequent hoeings, these serving to keep down the weeds, and also to prevent rapid evaporation of moisture and consequent cracking of the ground. Should there be any blanks in the rows, these are made good by transplanting a few from where they can be spared, the operation being best performed during showery weather, and when the plants are 9 inches high. Watering is never attempted, no matter how hot the weather may be, as I believe this to be more injurious than beneficial to the Onions, especially if handsome exhibition bulbs are wanted. The more strong manure is used the greater need is there for making the ground solid, otherwise the bulbs are apt to become "bull-necked," and will keep badly. I would dispense with either of the surface-dressing manures rather than the road grit, as I have always observed that where we were in a position to use this freely, there we procured the best coloured and best keeping bulbs, bull-necked specimens being conspicuous by their absence. As will have been seen, we allow good space between the rows, but the Onions are not crowded into narrow drills, and when fully grown present broad bands of bulbs which are literally pressing each other out of the ground. Last season, in spite of the maggot and mildew, we stored twenty 4-bushel sacks of well ripened Onions. Those who sow in narrow drills ought to thin out the young plants to about 3 inches apart (we grow double that number in broad drills), and twice that distance should be allowed if extra fine bulbs are required. The old plan of sowing broadcast or in drills about 6 inches apart necessitates hand-weeding and hand-hoeing, and that in these times cannot be afforded. Firm small necked bulbs during most seasons ripen naturally, but any that are thick-necked when near the ripening period should be slightly twisted and laid down. We do not depend upon the Onions properly harvesting on the open ground, and usually well dry them on the stages and floors of the dry vineries. They are wintered thinly on hurdles resting on the rafters of a large shed where they can be protected if need be from severe frosts For the benefit of any exhibitors who may require early bulbs and are unavoidably late in sowing, I may add that I have been successful with Onions raised in heat and transplanted when about 6 inches high after being hardened off. In fact, some of my best shaped bulbs have been grown in this manner, though I have had larger by sowing in the autumn and treating them as Tripolis.

AUTUMN-SOWN ONIONS.—These are sown here about the last week in July. This may be too early for some gardens, but on our cold clayey loam if sown later they do not gain the strength we like to see. The drills for these are 15 inches apart and the plants are finally thinned to about 4 inches asunder, or 6 inches if large bulbs are required. The site chosen is generally about the upper part of the garden, as I find they cannot well have too much sunshine. On some soils it is necessary to transplant to check bolting, to which they are liable; but although we transplant a good breadth, it is not necessary as a preventive of bolting. We prepare the ground as described above; in fact, at one time we used to plant them adjoining the ground sown in the spring and at the same time. This was done because I like to have the various crops together as much as possible, and as the Tripolis or autumn-sown Onions are followed by Coleworts, and the spring-sown by the winter Cabbages, this worked very well in one district, but not here where our greatest enemy is mildew. In transplanting autumn-sown Onions, lift them with small hand-forks, so as to preserve as many roots as possible, and spread out these carefully in flat, shallow drills. The drills may be from 12 inches to 15 inches apart, the plants about 5 inches asunder in the rows, and only covered with sufficient soil when made firm to keep them upright. They are not good keepers, especially the white Tripoli, and these should be used first, while if the brown and red-skinned sorts are well harvested they may, perhaps, keep good till Christmas. Rather than begin to draw our Tripolis very early in the season, say before the middle or end of May, we generally thickly plant out during this month a number of large spring-sown Onions that are keeping badly, or which are past their season and are now growing strongly. Towards the end of April and onwards these may be lifted as required and divided, the bulbs or swelled stems formed at the base of each shoot being what are known in the markets as Scallions, and very serviceable they prove.

VARIETIES AND DISEASES.—We seldom use more than 10 ozs. of seed at the spring sowing, and in the autumn 3 ozs. are found sufficient. For the former, Improved Banbury, Brown Globe, and Giant Zittau are preferred, the former being the prettiest variety, while the latter is a heavy-cropping good-keeping sort, and in small gardens may well be the only variety grown. Of Tripolis, for autumn sowing the earliest is the Early White Naples, this being followed by the Giant Madeira, also white, and for the latest crops I prefer Brown Globe and Giant Rocca. The Tripolis are the most liable to mildew, and if grown near the spring-sown and really more valuable crops they are certain to communicate the mildew to these also. Slaked lime or, better still, flowers of sulphur freely dusted over the affected parts before the whole are affected is the best remedy I am acquainted with. The Onion maggot, which is sometimes so very destructive, is seldom very troublesome here, and this, I believe, is owing to the firmness of the ground, the comparatively little thinning out, and consequently loosening of the soil that is required. The fly emerges from the ground in the first instance, where it has been encased the whole of the winter. It deposits eggs on the leaves of the young Onions; from these are hatched the maggots which do the mischief, either by eating their way downwards or upwards into the hearts of the Onions. The first attack is generally towards the middle of May, and lasts from twelve to fourteen days, when the grubs or maggots find their way into the earth, change into pupæ, and in about three weeks from these the perfect fly again escapes to recommence the process which I have briefly attempted to describe. From this it will be seen that we ought to select fresh ground for Onions each season; while making and keeping this firm, if it does not actually prevent the egress of the fly, does at any rate militate against it. Then by way of prevention or for the purpose of destroying the eggs, it is a good plan to syringe the plants during May and early in June with paraffin at the rate of 2 ozs. or a wineglassful to a gallon of water. This should be repeated occasionally, the paraffin being kept forcibly mixed with the water, and preferably during showery weather and in the evenings. Any bulbs attacked during May or June soon change to a sickly colour, and these should be carefully forked out and burnt. If this is persisted in the greater portion of the crop will be saved; whereas if no precaution whatever is taken there is the prospect of the whole of the crop being spoilt. Sowing late in April is said to be a good preventive, but I do not believe in the efficacy of the practice. Doubtless the free employment of powerful artificial manures to a certain extent acts as a preventive, but firm, well-prepared ground is what I have most faith in.

W. I. M.

Snow's Winter White Broccoli.—"W. J." (p. 175) tells us that the middle of March is quite early enough to sow this excellent Broccoli. Permit me to say my experience tells me that it is at least five weeks too early. We sow ours in the middle of May, and this year we have grown about 1500 plants. We began to cut Broccoli the first week in November, and have been cutting ever since from the same quarter. It is the greatest of all mistakes to sow this Broccoli early. The plants grow so vigorously that the first sharp frost almost finishes them; whereas if sown late the plants grow dwarf and sturdy, their leaves being close to the ground. In particularly sharp weather we protect them with Bracken, and so always secure plenty of Broccoli. Our Broccoli is all planted on the crowbar system—no digging. —R. GILBERT, *Burghley.*

MARKET GARDEN NOTES.

The long continuance of mild genial weather which we have experienced has made market gardeners busy. Seed sowing and planting are now engaging attention. The soil in this part of South Hants is a light sandy loam, and soon dries after rain; even after the heaviest downpour, one fine day is enough to dry the surface sufficiently to allow one to tread on it without injury; all vacant ground has been either ploughed or dug up for some time past, and when broken down by rake or harrow is in fine condition; therefore but little labour is necessary to insure a good seed bed, and for small seeds this is of the highest importance. The only drawback as far as growers are concerned to such mild winters as the past is that vegetables of all kinds are not only unusually abundant, but prices extremely low. Potatoes and all kinds of roots were unusually plentiful and sound, the best picked samples of Potatoes being obtainable at from 4s. to 5s. per cwt., or about half the price that they realised about this time last year, while Broccoli fetches about one-third the value that it did twelve months ago, and common green vegetables hardly find customers at any price. Superabundant green crops, indeed, will probably be fed off by sheep, by which the land is manured ready for next crop, and, unlike stiff clay, the consolidation by trampling does more good than harm. The crops now claiming attention are the

Earliest Potatoes, such as Ashleaf Kidneys, Myatt's Prolific, Early Rose, Beauty of Hebron, and several of the early round varieties that do not make much top growth, and that therefore can be planted at about 2 feet from row to row, and 1 foot from plant to plant. These early kinds are lifted directly they are fit for market, and the ground is cropped again immediately. For these sorts the sets are sprouted in boxes, or laid out thinly in any warm place, so as to keep the first shoots intact; if rubbed off, they do not shoot out so strongly again.

Peas are being largely sown: those that only grow moderately tall are liked best, the tallest and dwarfest finding but little favour with market growers. William the First, Ringleader, Prizetaker, and Kentish Invicta are types of the sorts most in request. No sticks are used; the rows are drawn just wide enough apart to allow of hoeing between them, and thus the plants support each other. The first gathering is left until the majority of pods are fairly well filled, as, however carefully gathered, the haulm gets so much broken, that it materially injures the late pods. About three pickings clear the crop; then the haulm is hacked off with hooks, the surface soil stirred with a cultivator or horse hoe, and Turnips are sown at once, or Broccoli is planted.

Broad Beans.—These are sown early in the year, the Early Mazagan and Long-pod being the varieties usually grown; for main crops the Broad Windsor or one called Taylor's Improved is liked best.

Cabbages are still being largely planted. Autumn plantations of them are most luxuriant, and for a succession, the weaker plants left in the seed beds are now being put out. They are planted in the furrows of ploughed land, which is left quite rough until the plants begin to grow freely, when it is broken down by hoeing. This planting in hollows has the advantage of screening the plants from cutting winds that twist them about, and thereby prevent growth, owing to the roots getting broken

Cauliflowers are now being transplanted from handlights and cold frames, some of the strongest being left for the earliest crop under the handlights. The latter are raised on bricks as the plants need more head room. These early Cauliflowers are given the most sheltered positions at command, such as south borders or the sunniest situations in enclosed gardens. The Early London is the most popular variety, and usually realises good prices if got in early or directly late Broccoli is over.

Carrots of the Short Early Horn and Intermediate varieties grow to perfection in the light sandy soil of this district. These are sown moderately thick for drawing when about half grown, and when tied in bunches meet with a ready sale. The variety called Early Scarlet Nantes is an excellent sort for the first crop out of doors.

Onions.—These are in request all the year round as a green crop as well as in the shape of mature roots. The main crop is now being sown in drills a foot apart on deeply cultivated, well-enriched soil. Land that has been cropped with Celery is usually selected for spring-sown Onions. The varieties mostly grown here are James' Long Keeping, Deptford, and Reading Onion; for green Onions the White Lisbon is the variety most largely cultivated, being mild in flavour.

Spinach.—This is a crop that sells readily in the early part of the season, and if sown now in drills a foot apart on rich ground it makes rapid growth. It is cut right off close to the ground, and the crop cleared off at once. The round-seeded variety is the one used.

Lettuces, both Cos and Cabbage varieties, are in great request. Those planted in autumn have kept growing all the winter, and the latest sown plants left in seed beds are now sturdy plants for putting out at once. To succeed these seeds are sown in cold frames, and also in open-air beds, either by themselves or thinly amongst Onions. The brown Cos and hardy Cabbage varieties are those sown to stand the winter, but for present sowing white and green Cos and some of the large Cabbage varieties one selected.

Endive, both Broad-leaved Batavian and Curled, put out late in autumn have stood well, and are now fit for blanching, either by tying up the leaves or covering with inverted flower-pots, as, in addition to their use as salad plants, they are in great request for stewing.

Radishes are being largely sown in open-air beds to succeed those in frames, as they are at no time of the year in so much request as in spring and early summer. They are mostly grown in beds from 4 feet to 5 feet wide, with narrow alleys between them. The seed is sown broadcast and covered lightly with soil; a thin covering of litter or straw is shaken over them, and left until the seed germinates, when it is raked off into the alleys by day and replaced at night. The long scarlet is the sort most largely grown; the scarlet with white tip, called the French breakfast Radish, is, however, gaining in popularity as a market sort.

Mustard and Cress are largely used in spring both for mixed salads and as additions to the tea table. They are grown in shallow boxes filled with fine soil and set in houses or pits with a genial temperature of about 50°. They are usually put into small punnets, in which they stand just as if growing, being cut off close to the ground.

Rhubarb. — This has been supplied since Christmas as a forced vegetable, but now it is coming in from open-air beds. The earliest high-coloured varieties are the greatest favourites in the market. The roots are covered with litter early in winter, and growth commences very early. The greatest enemy to early Rhubarb is keen winds, and for this reason a sheltered position on the south side of a hedge is selected, if possible, for the earliest crop. The stalks, with leaves entire, are tied in bundles consisting of about two dozen. Later in the season the largest giant variety comes in, and constitutes the principal market kind, its stalks often weighing over 1 lb. each, but for quality medium-sized early kinds are decidedly the best.

Seakale is blanched for market in a variety of ways, but the majority of market gardeners have adopted the following plan: they grow young plants from root cuttings or seed every year, lifting a quantity weekly, and replanting it thickly together on beds of fermenting stable manure, and covering them with mats and litter. For the latest supply the roots are now being laid in thickly and covered with litter, as if growth takes place while exposed the leaves get so much discoloured that it is impossible to blanch effectually afterwards.

J. Groom.

EARLY KIDNEY BEANS.

Forcing Kidney Beans in November, December, and January is not easy work, as, unless the house in which they are growing is light, airy, and well warmed, the crop can never be a profitable one. In badly-heated, damp structures Kidney Beans may be induced to grow, and even bloom, but very few pods will be formed. Warm air alone suits them when in flower during the shortest days, and where this cannot be given freely forcing had better be deferred until February. At present, when the days are lengthening and brightening, forcing is easy, and as time wears on will become still more so. So much is this the case, that I would advise all who have a house or pit heated to 60° or thereabouts to try a batch of Kidney Beans. It will be found that they do not take up much space, are easily grown, and that they are most acceptable in April and May, which would be the time when the pods would be ready for gathering from sowings made now. I have put them in beds, in pits, in wooden frames, in boxes, and in pots, and for convenience I prefer and recommend the latter. The seeds may be sown in 3-in. or 4-in. pots. These should have a few leaves put into the bottom of each; then fill them half way up with a mixture of sand, loam, and leaf soil in the proportion of one part of the first and last to two of the loam. When all have been half filled and the soil made firm, six or eight seeds should be put into each; then cover them over with more soil.

Osborn's Forcing is the best of all sorts to use at this time, and 100 or so of the pots named will make a very good beginning. Two or three dozen pots would, however, give a dish or two of pods, and better grow this small number than none at all, but where 160 can be put in at a time the supply will be considerable. As soon as sowing has been finished the whole should be placed in a house or pit, where the temperature ranges from 60° to 70°. Do not give any water until the growths are seen pushing through the soil; then never let them suffer from want of it. When the young plants have attained a height of 4 inches, they should be put into their fruiting pots. These should be 8-inch or 9-inch ones, and to begin with they should be properly drained; over the drainage place a layer of leaves or rough pieces of soil. The mixture of soil this time should be substantial; no sand or leaf-soil need form part of it; loam and half-decayed manure should be the sole ingredients. Old Mushroom-bed manure answers well for this purpose, and we prefer it to any other.

The roots should not be disturbed when taken out of the small pots, and three or four of the small potfuls may be put together in one of a larger size. One hundred pots of seedlings may thus be reduced to thirty. Firm potting induces robust and fruitful growth. When potted, they should be again placed in a genial atmosphere, in which they will grow on rapidly and be in bloom from five to six weeks after sowing. Then it will take the pods about a fortnight to swell up, and the crop will be ready for the table in about eight weeks after sowing. As the pots fill with roots, large quantities of water must be given them, and frequent syringing as well, as having the atmosphere in which they are growing humid will prevent the attacks of insects. Red spider and thrips are very fond of kidney Beans, but both may be checked by water. When potted in good soil, manure water will not be required until the first pods have been formed; then it may be given them in quantity so long as they continue to bear. Sowings made every three weeks until the middle of April will keep up a constant supply of fine fresh pods until those sown outside come in. I know of no instance in which a special house is set apart for Kidney Beans in spring; they are generally grown here, there, and everywhere throughout the houses, and it is this system, if system it can be called, which has been followed here for a long time successfully.

Cambrian.

5165.—**Mushrooms in cellars.**—"J. S. S." (p. 177) need have no difficulty as regards grow-

ing Mushrooms in such a cellar as he describes. I have a similar one here, which was previously useless until I had a small stove (an old oven converted into one) placed in it to keep the temperature at 55° or 60°. The beds I make the same as those in an ordinary Mushroom house, and they receive similar treatment in every respect except that I seldom sprinkle or throw any water on the floor. I find that the damp walls and floor counteract the too drying effects of the heat admirably. Thus managed, I can say confidently that I prefer this cellar to a Mushroom house. The Mushrooms grown in it have been the admiration of not a few who have seen them.—C. P. Benham.

Celery.—The time is now at hand for sowing the main crop. The best way is to make up a little frame with a few barrow-loads of rough manure, filling the frame well up to the top; over that put 3 inches of any sandy soil, and on this sow the seed. When sown, flatten the soil down firm with a board, and add a little more to well cover the seed. The great variety of names with which we are troubled in these days of improvement is to the amateur quite perplexing. I will, therefore, give my experience and make a selection. There is now no doubt that Major Clarke's Selected Red Celery is among the best reds, and the True Sandringham White is also a capital white. Carter's Pink Celery, when true, is also a good hardy variety. The two former I intend growing this year.—R. Gilbert, *Burghley*.

CUCUMBER CULTURE IN SUMMER.

I have no doubt that many of your readers, chiefly amateurs, who have no means of growing Cucumbers in winter and early spring would be pleased if they could produce them in summer, and there is no reason why they should not do so, as Cucumbers are easily grown during the warmest part of the year. I know of many amateurs who, though they have no glasshouses, grow many good Cucumbers in frames. Many of them have not the manure to make up a bed, but they buy a cartload or two, and as it comes in for improving their garden soil afterwards, the first outlay is amply returned. Cucumbers are mainly wanted during warm weather, and their abundant production at that time will always give satisfaction. Under ordinary cultivation it takes about eight weeks from the time when the seed is sown until the first fruits can be cut. By sowing seeds now, fruit may be produced early in May, and if properly managed, the same plants will go on fruiting until September or longer—or the first plants can be thrown away and others reared to take their place by midsummer. But the seed will not germinate freely unless it has the assistance of bottom-heat; this must be 70° at least, or up to 80°. The seed should be sown singly in a 3-inch pot. Proper drainage must be given, and the soil should be composed of loam, leaf-soil, and sand in about equal parts. In this the young plants will grow and root freely, and they may be grown in the pots just named until they are 1 foot high or so; but when the pots become too full of roots the plants are very much checked, and should be shifted into larger pots or planted out before this occurs to an injurious extent. Where there is a propagating pit or any house with a bottom-heated bed near the glass and full in the light, any number of young Cucumber plants may be propagated with ease, or they may be bought from market growers, and this is an advantage in the case of those who have more difficulty in raising the young plants in spring than in growing them in summer.

Hotbed.—Where heated material is at command, a bed may be formed at once sufficiently large to get a one or two-light frame on it, and this will be an excellent propagating place for Cucumbers, which may be raised in quantity, to be planted out in extended beds further on. One good frame like this in a village or district might supply plants for many neighbours. If in proper order such a bed should be amply heated to germinate the seed and carry the plants through the most delicate stage of their growth, and as in a hotbed they are always near the glass and light, robust growth and healthy development is a certain result. The soil in which the seed is sown should be moderately moist, and no water should be given until the young plant is visible and some roots have been formed. Watering freely before growth begins often causes the seed to rot, and too much water before many roots are at work will make the plants yellow and sickly. When once the soil is full of roots it is difficult to give too much water. As soon as growth has developed sufficiently in the seed pots to indicate that more room is wanted they should be potted into 6-inch pots, or if the fruiting bed is ready they may be planted out direct from the seed pots. In potting or planting at this time rough soil should be used, and it should only consist of loam and half-decayed cow manure or horse droppings, three parts of loam to one of manure being a good mixture. We often hear that Cucumbers are fond of manure, and so they are, but too much of it produces soft wood, which is not by any means the most fruitful.

Planting out from a 3-inch pot or a 6-inch pot is done in the same way, and whether planted in the bed of a house or in a manure frame the treatment should be the same. In each case a mound of soil should be formed in which to plant. About two bushels of soil will be enough to plant in at first, and when the roots appear on the surface and the plants gain size or bear an addition can be made. Top-dressings of this kind put fresh energy into the plants at times throughout the summer, as then they seem inclined to stop fruiting, but they cannot be applied so well or so effectively if what may be termed a full quantity of soil is given them at first. In making the mounds ready for planting some very rough pieces of turf should be put at the bottom and the finer parts on the top. As the soil is generally cold when put in planting should be deferred until it is as warm as that in which the young plants are growing. In turning them out of the pots for planting the drainage may be taken from the bottom of the ball of roots, but the roots must be treated with care, as it is always a gain to transfer them without subjecting them to the slightest check. The soil should be pressed closely to the roots, and excessive watering must be avoided until they have found their way into the fresh soil. If potting and planting are carefully done shading need never be necessary, and this is much the best, as Cucumbers love the sun and are most satisfactory when constantly exposed to its influence.

Training.—I have said that whether in house or frame planting must be done the same, but in training the two are widely different. In houses the only good way of growing them is to train the shoots on a trellis and let the fruit hang down. In a frame the stems creep along the surface and the fruit lie on the soil and amongst the leaves. In a house the main stem should be taken well up the trellis; then take the top off, and many side shoots will break out and push forth rapidly, and the thinning of these should be attended to weekly, and at no time must any of them crowd on each other. Thinly trained shoots frequently stopped are the most prolific. In frames the point should be taken out of the plant before it has reached the glass, and the side growths which this will be the means of producing should be spread out and trained or pegged down in all directions. Stopping and thinning must be strictly attended to, and when the plants become too full of shoots which have fruited themselves barren these should be cut away and young growths laid in to replace them. It is while doing this that additions of soil and top-dressings can be most conveniently added. Thorough syringings on fine days and never allowing the plants to suffer from want of water or nourishment at the root will always insure the plants of being free from insects. As to the temperature in which to raise young plants just now, it should be from 60° to 70°, temperatures which will be found to agree admirably with them at all times, but in summer and in the hottest of the weather air can be more freely admitted than in March, April, or May. Of varieties there are many. Cardiff Castle is robust, prolific, and good in every respect; Telegraph is larger and also very good; and Wheeler's Empress of India is larger still, a real show variety, and in other respects meritorious. J. Muir.

Margam.

RECENT PLANT PORTRAITS.

Gentiana Walujewi (Regel's *Gartenflora*, plate 1140).—A pretty Gentian, with narrow pale green leaves, resembling those of the common Plantain or Ribworth, and spikes of small tubular white flowers, with a pale blue throat, produced in whorls one above the other on rather tall and slender stems.

Lycaste costata (Regel's *Gartenflora*, plate 1141).—A rather handsome Orchid, with large solitary flowers of a creamy white, delicately shaded with pale canary yellow.

Hedera Helix aurantiaca (*Revue Horticole* for February 16).—A form of the common Ivy, with bunches of bright orange-scarlet berries resembling those of the Mountain Ash, and very ornamental. This plant will shortly be sent out by Messrs. Besson, of Nice.

Costus igneus (*Illustration Horticole*, plate 511).—A fine new form of this family of Gingerworts from Bahia, in Brazil, with large and handsome perfectly flat flowers, which are produced singly, and not in a bunch, as is usual in this family, and are of a bright fiery orange colour.

Kniphofia foliosa (*Botanical Magazine*, plate 6742).—A fine double plate of this handsome variety, which is also known and has been described and figured by Dr. Regel, in vol. xxvi. of his *Gartenflora*, under the name of K. Quartiniana. It seems to approach more nearly to K. caulescens in habit of growth than any other variety, and bears apparently with great freedom tall spikes of pale lemon-coloured flowers, faintly shaded with orange, and with long protruding stamens. In shade of colour the flower closely resembles that known as K. Leichtlini, but it seems a much more robust grower. It is a native of Abyssinia, and was drawn from a specimen that bloomed in the garden of Mr. Elwes, at Cirencester, in 1881.

Picea ajanensis (*Botanical Magazine*, plate 6743).—This is said to be in several respects the handsomest of all the species of Picea, in so far at least as can be judged from somewhat young specimens. It is a native of Japan and the Amur River. It is also known, and has been described under the following synonyms: P. jezoensis, Pinus Menziesi, Abies ajaensis, A. Alcockiana, A. sitchensis, and Veitchia japonica.

Tinnea æthiopica var. dentata (*Botanical Magazine*, plate 6744).—A native of East Tropical Africa. This small shrub differs but slightly in appearance from the typical form figured in 1867 when first introduced on plate 5637 of this work. Its small flowers are deep claret colour, and conspicuous for the perfume, closely resembling that of Violets, which they exhale, and which alone make the plant worth growing in a stove.

Citrus Medica var. acida (*Botanical Magazine*, plate 6745).—This is the Lime fruit of the West Indies, and the specimen here figured fruited in the garden of the Earl of Ducie, F.R.S. It is also known under the synonyms of Citrus lima, C. limonellus, and C. Limetta. It is the principal source of citric acid.

Dichopogon strictus (*Botanical Magazine*, plate 6746).—This is a common and very attractive sweet-scented meadow-land plant from South-east Australia and Tasmania, where it flowers in November. The flowers are borne on a graceful spike, and are of a deep rosy purple hue, and of medium size. The specimen here figured was sent to Kew by Mr. Lynch, from the Cambridge Botanic Garden. The scent is that of Heliotrope, but somewhat fainter. W. E. G.

Birds and young kitchen garden crops.—"G. S. L." complains of sparrows destroying all young seedlings in his garden. Last year I was troubled in the same way, all my Peas and

Lettuces being eaten down to the ground. Someone told me that three or four threads of black cotton stretched across the beds about 2 inches or 3 inches from the soil would remedy the evil. I tried this with the late crops of Peas, &c, and found that not a single sparrow came near. This is a much cheaper way of saving the young plants than going to the expense of buying Pea guards.—T. Gordon Comber, *Brook Lodge, Chester.*

Orchids.

PRUNING ORCHIDS.

I have no hesitation in saying that the Dendrobiums mentioned by "G. B.," Weston Grove (p. 178), died from some other cause than pruning. If "G. B." will send me an established healthy plant of D. Wardianum, I will undertake to prune it without killing it, or pay the price of it. Our plant that I pruned produced spikes 4 feet long. It was pruned again, which should have killed it, yet it has now the same number of bulbs on it as before, five of which measure 12 feet in the aggregate, all finely bloomed. Understand this plant has been cut over like a Phlox two years in succession. Another plant of the same kind was pruned in 1882, but not in 1883, and has shown no difference in the length, number, or strength of its bulbs. A newly-imported root of O. formosum was clipped down to the base of every bulb, leaving nothing but a small patch of roots, and it produced five bulbs from 6 inches to 7 inches long the same season. Plants of D. nobile that have had all the old flowering bulbs cut out for three years show no ill effects, and are in fine flower now. Nine fine specimens of Cœlogyne cristata that had every leafless bulb cut out of them three years ago have grown and flowered grandly since, and will be so treated again in a week or two. Odontoglossum vexillarium that had the back bulbs cut off to secure new breaks did not appear to feel it in the least, and both the back bulbs and the old pieces did just as well as before. With such facts before one's eyes, you will understand in what light I regard the failures of "G. B" and others. At the same time, as I have said before, I do not advise anyone to proceed rashly with the practice. I only say it is quite safe to remove old and spent bulbs—such, for example, as three or four-year-old leafless bulbs of Cœlogyne, those that have flowered of Dendrobium nobile, three-year-old bulbs of D. Wardianum, and so on, according to the habit of the plant and mode of flowering. Let growers proceed on safe lines, and keep their minds free from prejudice and open to conviction. Whatever use the practice may be to anybody, I have at least proved to my own satisfaction and the satisfaction of all who have seen our plants that certain Orchids will grow perfectly well without their back bulbs, and that some will grow when deprived of all their bulbs for several years in succession, contrary to the general belief hitherto; and it is for those who write so confidently on the other side either to explain these facts or deny them. J. S. W.

SHORT NOTES.—ORCHIDS.

Cattleya Warcewiczi (*D. Kemp*).—The spike you send appears to be identical with that named delicata. The form superba is much larger than the flowers sent.

Angræcum hyaloides.—This small growing species is in the way of A. citratum, but has smaller and more delicate flowers; it is extremely free flowering; a small plant in Mr. Corning's collection, at Albany, only 3 inches in height is bearing sixty-four flowers on six spikes.—F. Goldring.

Cymbidium eburneum.—We hear that in Messrs Backhouse's nursery, at York, there is a grand specimen of this Orchid in vigorous health, and bearing no fewer than twenty flowers, the pure wax-like texture of which in combination with the deep green, grassy foliage must produce a charming effect.

5115.—**Calanthes.**—These like a liberal supply of moisture both in the atmosphere and at the roots, *i. e.*, provided the temperature in which they grow is high, say 65° at night. They go wrong from various causes. Too much moisture with a low temperature will cause the leaves to spot over-potting will also do so. The bulbs not being well ripened is doubtless the cause of the leaves being retained later than usual.—J. Douglas.

A fine spike of Odontoglossum crispum has reached us from Dr. Paterson's well-known collection at Fernfield, Bridge of Allan; it measured about a yard in length, was widely branched, and carried no fewer than thirty fully-developed flowers. Though about the variety there was nothing remarkable, the spike in question was highly attractive, and bore evidence of Dr. Paterson's skill as a cool Orchid grower. Accompanying this were two forms of Lycaste Skinneri, one having an unusually fine crimson lip. A very large spathe of Calla æthiopica, measuring 6 inches by 8 inches, was also sent by Dr. Paterson.

Striped petalled Cattleya Trianæ.—A singular form of C. Trianæ has been sent to us by Mr. D. Kemp, Dunlop Stewarton, Ayrshire. The sepals and petals, instead of being of a uniform mauve tint, are flaked and striped in a peculiar manner, giving the flower a very quaint appearance. The three flowers on the spike sent were of medium size. The plant, though a small one, imported two years ago, Mr. Kemp observes, has developed six flowering bulbs this season. This form is apparently similar to that named Massangeana. Last year a flower of C. Trianæ was sent to us having yellow stripes running through the middle of the petals. Whether these striped forms will be permanent remains to be seen.

Dendrobium fimbriatum oculatum.—I have just seen at the Castle gardens, Warwick, a magnificent specimen of this Orchid. It is 5 feet high, and is covered with beautiful blooms. It has no fewer than thirty-one flower-spikes, containing about 100 flowers, there being from ten to fifteen on each spike. They do not spring from the top only, but all down the stems. Mr. Christie has been remarkably successful with his small collection of Orchids, and on the occasion of my visit I noticed a fine specimen of Dendrobium densiflorum with eight large flower-spikes.—J. Lloyd Evans, *Warwick*

Cattleya amethystoglossa.—Having regard to the extreme beauty of this Orchid and its distinctness from almost all other Cattleyas, it is not so often met with well grown in Orchid collections as one would suppose. The tall slender bulbs, rising some 2 feet or 3 feet in height, when terminated by huge clusters of its lovely blossoms, render the plant remarkably attractive. The flowers, generally about 4 inches across, have sepals of a delicate mauve, more or less copiously spotted with mulberry-coloured blotches, while the labellum is of a rich rosy violet, varying in intensity to a very deep amethyst. In Mr. Bonny's Orchid houses at Downs Park Road, Hackney, this Cattleya is now one of the most noteworthy Orchids in flower. It is grown to perfection in this nursery in an intermediate house with the general collection of Cattleyas. It is afforded plenty of light, so as to well mature the bulbs, which no doubt is the secret of success in flowering this Cattleya well. Among the number of plants here several forms may be singled out as being much superior to others as regards the brightness and richness of colour. Among the numerous C. Trianæ varieties in flower here there is one almost the counterpart of the superb Bonnyana sent from Tring Park last week, and described at page 178. It is curious to observe that among the Phalænopsis Schilleriana in flower some are scented, others not; one plant, bearing a ten-flowered spike, was deliciously perfumed.—V.

LETTERS FROM INDIA.

Botanical gardens are not always what the name would lead one to infer. Some are simply an overgrown mass of all sorts of tropical Palms and trees without attempt at arrangement. Some are waste jungle, to supply a few flowers weekly to a crammed class of medical students, with a Palm house, conservatory, and nurseries, all in a state of disorder, particularly the overgrown Palm house. Others are kept up well, solely for the pleasure of the governor or Her Majesty's representative, and as long as the curator supplies plenty of flowers and other things for the governor's table and garden, nothing further is required. Some botanical gardens have done much good through introducing plants, such as the Cinchona, for instance, into India. I wonder if the authorities that be think they do their duty to those gardeners who first brought, propagated, and found out, I think, at least in one instance, the way to manufacture one valuable medicine? These men never get more than from 250 to 500 rupees per month, even the best of them, and if they live to serve a period of thirty years in a tropical climate, they only get about half pay on which to retire. With regard to curators of botanical gardens, good men have been sent out from Kew and other places—men well up in the science of gardening, and also able to hold their own with Government officials. But the general class of men sent out are far too young, and armed with little or no experience, and conceited, too, at being elevated from an improver to a full-grown assistant in a Government garden. Most gardeners know to their cost that it takes about fifteen years to become fairly well up in the art, no matter however good their training; such men are wanted for botanical garden work. They also want more pay. They should be well up in all English garden work; a man able to command other men under him, and conduct matters with reason and discretion. He should be, moreover, a professional propagator—one who has been in every department in some large English nursery, and thoroughly well educated. There are plenty of such men in England. Such gardeners would be a credit to the Government and a boon to society. Botanical gardens abroad should also be made and laid out in a more suitable way. They could be made to meet the requirements for which they are instituted as well as a source of pleasure to the public. In this, I think, more should be left to the curator, who should always be consulted in such matters. This he seldom is; indeed, it is astonishing how little a gardener is supposed to know about his own business by his employer. The scope for landscape gardening is generally very great inside the Tropics, and much remains to be done; but work of this kind will never be carried out till better men are sent out, and that means better inducements for men to come. C. Maries.

Forms of Ivy.—Many readers of The Garden must feel grateful to "Veronica" for his instructive remarks (p. 141) on the different forms of Ivy. They came to me most opportunely when I was comparing Ivy leaves, and found myself at a loss to name some of them. It is kind of the well-informed to write sometimes on common things which many possess, thus adding new interest to their culture.—A. G.

"English Flower Garden."—It would be hard to overrate the value of this book. Some sort of glossary in the shape of foot notes, explaining the meaning of the names of the plants, is the great desideratum. It would be a good plan if a number of amateur gardeners were to join together, divide the alphabet amongst them, and at once order the best plants, to exchange with each other afterwards as far as practicable.—Ed. Fison, *Allington House, Ipswich.*

Royal Horticultural Society.—We are informed that, in addition to the fortnightly meetings, arrangements have been made with the Council of the International Health Exhibition to hold monthly exhibitions of fruit and vegetables in the conservatory on the following dates, when prizes amounting to £1000 will be offered for competition, viz.: May 27, June 24, July 22, August 12 (cottagers' show) and 26, September 23, and October 14 and 28. Schedules are now being prepared, and may be had on application. A meeting of the Fruit and Floral Committees will take place at South Kensington on March 11.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*T. J. H.*—1, 2, and 27 are varieties of Narcissus Tazetta; 3, N. Pseudo-narcissus (apparently the variety named princeps).——*M. G.*—Abies pectinata.——*G. O. M.*—A very fine variety of Cattleya Trianæ, remarkable for the prolonged lobe of the labellum and its rich colour.——*J. E. Backhouse.*—Andromeda floribunda ——*D. C.*—Tritelcia unitlora——*W. E.*—1, Odontoglossum triumphans; 2, in the way of O. mulus (a scarce variety).——*W. Shepherd.*—1, Pandanus graminifolius; 2, Pilea muscosa; 3, Panicum variegatum; 4, Maranta vittata.——*C. M. O.*—We think we have seen forms of Rhododendron ciliatum quite identical with that of which you send flowers.

No. 643. SATURDAY, March 15, 1884 Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A DAFFODIL CONFERENCE.

NOW that Narcissi hold such an important place in our outdoor gardens, and the varieties of them are becoming so numerous and their nomenclature so bewildering, we are glad to learn that it is intended to hold a special exhibition of them this season, and, moreover, to hold a conference respecting them. This, we understand, is to take place at South Kensington early in April, where no doubt there will be a large gathering of people interested in these beautiful flowers. A paper on Daffodils will be read, and everyone will be at liberty to take part in the discussion. This movement is certainly a step in the right direction, and it has our heartiest support. We wish that other important tribes of garden plants could be dealt with in a similar way. One of the principal results from such meetings as this should, we think, be a uniform system of nomenclature throughout the country, for it must be admitted that Narcissi names are becoming somewhat mixed. Another good point would be to draw up selections of the best kinds, the most beautiful, and the most distinct. There are a great many Daffodils too much alike, the distinguishing characters of which can only be seen by the specialist. In short, we cannot but think that such a meeting as that proposed would tend to give us a wider knowledge of one of the most beautiful classes of plants which our gardens possess.

NOTES ON RHODODENDRONS.

IN August, 1882, I paid a visit to Ireland, hoping to find some of the rarer Sikkim and Bhotan Rhododendrons surviving in the open air. The mild, damp, congenial climate seemed to promise better things than had generally happened in most parts of England and the Continent to these plants; and as I had found very interesting survivals in parts of Brittany, in Cornwall, in Wales, and in the Isle of Wight, I hoped for even brighter luck in Ireland. Some of the very grandest of the Rhododendrons are nearly hardy with us; but what a world there is in the word *nearly*, even in the mildest of winters! For instance, last year an 8-foot high R. argenteum bore the winter well till the fatal bitter month of March caught it in bloom and froze the flowers through and through, and stunted some of the leaf-buds, destroying absolutely, however, only those leaf-buds which were in immediate contact with the bloom-buds, and which would seem to have been sympathetically affected, and so fell victims to the cold, for in the true R. argenteum the bloom-buds always open long before the leaf-buds. On the other hand, a plant of R. grande under a north wall did well, and set two splendid blossom-buds, although only 4 feet high; while a much larger plant of the same species produced blossoms fit to show at South Kensington. Last winter, however, was exceptionally mild, as we all know, and in rougher years bloom-buds and leaf-buds alike may be destroyed. It does not follow that the plants are thereby killed, but more generally there takes place what Mr. Noble (whose "old experience" in this branch of horticulture is notorious) well described to me as "dwindling away." Each year, or nearly so, with some species, the main shoot of each branch is cut back by cold. Later on side shoots replace it, but the vigour of the plant is injured; its habit gets stunted and unnatural; flower-buds never or rarely form; and by and by the poor cripple perishes, or is put out of its misery. To see such specimens in a garden is a mournful sight, although it is scarcely less so to see their pot-bound starved brethren sweltering in some blazing conservatory. Truly, these Rhododendrons must have iron constitutions to endure the terrible treatment they often meet with both out-of-doors and in, and yet sometimes to survive.

More than thirty years ago seeds and plants of the Sikkim species were distributed from Kew, and somewhat later on the Bhotan species, through Mr. Nuttall, over a great part of Europe. Many of the plants were grown awhile under glass or some protection, and then turned out to make room for more fashionable novelties. For several years I have been searching many parts of Europe to see the survivors of these plants. Here and there the original plants have been found in various conditions of preservation; but, for the most part, they appear to have "dwindled away" by the process above described, or to have been choked out of existence by the common hardy Rhododendrons among which they had been planted. Many a fruitless journey have I made to the sites of well-recorded former collections. In Ireland, however, I hoped for something better, and in the Glasnevin Gardens, to begin with, I was not disappointed.

So much has recently been written about these beautiful gardens, that I need not now dwell on the feelings of admiration with which I always view them. On my first visit, Mr. Moore (who may well be proud of the monuments of his own and his father's labours) was lecturing in one of the plant houses, where I had the pleasure and profit of hearing his remarks. When these were concluded, he accompanied me, and I owe him many thanks for the interest and zeal with which he helped me to hunt the shrubberies, and to find, examine, and name several relics of "30 years ago" still lingering in sheltered nooks and hollows, or protected, but not swallowed up, by other shrubs.

R. HOOKERI, to my surprise, seemed fairly flourishing. I do not remember whether it had bloomed out of doors; there certainly were no bloom-buds. Although I have received vague tidings of its survival elsewhere, I have nowhere else except in Glasnevin Garden seen this rare species growing in the open air; but why I scarcely know, for it is said to grow in its native land in company with R. eximium, which is far from being very tender. R. Hookeri is not a native of Sikkim, but of Bhotan, and it offers an excellent illustration of how the latter country furnishes so many equivalents (like, and yet unlike) of the Rhododendrons of the former. In Sikkim, the species is R. Thomsoni, so well known and comparatively hardy, with its almost round leaves and waxen bells of blood-red flowers. In Bhotan, the equivalent is R. Hookeri, with florets very similar in colour and shape, but much more numerous, and holding themselves differently. The calyx, moreover, is distinct, and the leaves very peculiarly so. These last are oblong, and show underneath on the nerves most curious tufts. In this respect R. Hookeri stands quite alone, so far as I know, no other Rhododendron showing this peculiarity, which is not transmitted to hybrids, of which I have raised a numerous progeny. It breeds freely with that most difficult of breeders, R. fulgens, both ways, with many forms of R. arboreum, R. barbatum, R. campylocarpum, and R. ponticum and the ordinary hardy hybrids, also with R. argenteum, but *not* with R. Falconeri or with R. grande, and this last fact confirms me in the persuasion that R. argenteum and R. grande must be kept apart. My other reasons need not be mentioned here. With the scaly-leafed Rhododendrons I have only succeeded as yet in breeding with R. dahuricum.

I have called R. Hookeri rare. At Kew there was a fine plant in the temperate house, which died a few years ago. On my mentioning this to my most liberal friend, Mr. Anderson-Henry, he replaced the loss. To him I also owe my two finest plants, which, after what I saw at Glasnevin, I shall with comfort consign to my canvas house (about which more hereafter). My friend, Mr. Luscombe, must have grown and bred from it, to judge by certain plants which he kindly sent me many years back. In various places I have met with it, but it is certainly rare. The flowers must not be judged of by the very poor plate in the *Botanical Magazine*. When well and generously grown, the truss is large and handsome, as well as most brilliant in colour. Mr. Booth found it in Bhotan, growing with R. eximium, which is to the Sikkim R. Falconeri what R. Hookeri is to the Sikkim R. Thomsoni; but R. eximium has strange vagaries of its own, which are rather puzzling, such, for instance, as deferring its spring shoots often until August, when they glow with an orange tomentum, like tawny Sunflowers. R. Hookeri, on the other hand, is early in its growth.

My next notable "find" at Glasnevin was a real veteran of R. lanatum; but I have trespassed on your space for the present quite long enough.

Valewood, Haslemere. J. H. MANGLES.

SPRING FLOWERS AT THE HOLME, GODALMING.

THE late Mr. Nelson's garden at Aldborough was known far and wide for its wealth of hardy plant treasures of almost every kind, but, unfortunately, owing to the rather out-of-the-way corner of the county in which Aldborough is situated the garden was visited by but few compared with the number who had a desire to see a collection about which they had heard so much It is therefore gratifying to find that the main portion of the Aldborough collection has been transferred to the garden of Captain Nelson, The Holme, Godalming, an easy distance from London. This garden we had an opportunity of seeing the other day, and were highly interested with it. It is not a large place, but lies high and dry on a sandy, loamy soil, a capital position in which to grow bulbous plants—the chief attraction of the garden. In very few gardens could such complete collections of species and varieties be found of such genera as Crocus, Scilla, and Narcissus, a circumstance which renders the collection particularly valuable. The late Mr. Nelson was an industrious collector of plants and a skilful cultivator of them, and his much-prized collection could not have fallen into better hands than those of his brother, who possesses a keen love for plants, grows them well, and knows them thoroughly. It would be a difficult matter to give a detailed account of the many plants which we saw in bloom here that interested us, but we cannot refrain from noting a few which particularly engaged our attention. First of all there was the Netted Iris, and we must confess that we had never before seen the plant in

such perfection. The garden fairly teemed with it, and in one long bed entirely filled with it there must have been hundreds of blossoms opened at once, and as we saw them waving in the breeze with the pale green foliage overtopping the richly tinted blossoms, it was one of the prettiest floral sights we have seen for many a day.

It was a special hobby of the late Mr. Nelson to raise seedlings, particularly of bulbous plants, and this Iris reticulata was one of those he took in hand. He raised quantities of seedlings, and from among these have been selected several distinct forms as regards colour, so that Captain Nelson possesses four or five distinct varieties. Besides the typical form, there is the well-known early-flowering Krelagei; then there is one with larger flowers than those of the type and with tall foliage. This is appropriately named major. Then there are two or three others, which vary in point of colour. One named cærulea is a lovely colour, a clear blue. It is so distinct from all the rest, as to be readily distinguishable at a distance. This lovely variety is probably identical with that named cyanea, respecting which Prof. Foster has written of late. Another distinct form is named atro-cærulea, and still another is apparently a cross between the Krelagei variety and the type, for it is exactly intermediate in point of colour.

Next to the Netted Irises the Scillas are the most attractive. Here one may see, we imagine, every known form of S. bifolia, which number some half-a-dozen. Besides the type and the pure white (alba), the rose-coloured (rosea) —all lovely varieties—there is a most delicate pink one, named carnea, the gem of the whole group. Another, a large-spiked form with pale blue flowers, named pallida, is equally beautiful; but the finest of all in point of size and depth of colour is the Taurian variety (taurica), with spikes twice the ordinary size and crowds of flowers of the richest blue imaginable, intensified by the ruddy tinge of the stalks. The red-tinged stalk, however, is not an absolute character of this variety, as there is a form here precisely identical with it in other respects, but with green stems. The common Siberian Squills make cheery little patches by themselves, and among other species is S. puschkinioides, a rare plant, though not nearly so beautiful as either of the foregoing. Puschkinia libanotica, with porcelain-blue bell-like flowers striped with deep blue, was just unfolding its spikes; also the little P. scilloides. The Chionodoxa was of course in its full beauty, and some were very strong masses, having been undisturbed for a few years, which is just what this plant likes. Besides C. Luciliæ, the new C. sardensis was in bloom; it is somewhat smaller than Lucilia, but the flowers are entirely blue, except the central white cone of stamens.

The Crocus collection is a rich one, and a great many species were in full bloom. Besides the commoner kinds, such as stellaris, chrysanthus, aureus, susianus, and others, there were a few choice ones that greatly interested us. The gem of the whole collection we thought was C. Weldeni violaceus. Weldeni itself is a very pretty Crocus, having white flowers grained on the outside of the petals with purple; but the violaceus form is a much showier plant, the flowers being pure white inside and heavily grained with violet-purple exteriorly. We had never seen this charming Crocus before; hence we imagine it must be extremely rare. Would that it could be represented in every collection of spring flowers. Another rare Crocus was etruscus, with violet-purple flowers. Two forms of C. chrysanthus also are worthy of note. One is named fusco-lineatus, with the petals heavily pencilled outside with black; the other, named fusco-tinctus, has the exteriors of the petals grained with black.

The Snowdrops were on the wane, though there was ample evidence of how fine they had been. Grape Hyacinths were just coming into bloom, and one fully expanded, named atlanticum, is one of the finest of the genus. Dog's-tooth Violets (Erythronium) were just expanding, and likewise the Narcissi, of which there is an extremely fine collection, including not only the bulk of the named varieties in cultivation, but a number of seedlings raised by the late Mr. Nelson, who made a speciality of Narcissi raising. In the greenhouse the new citron-yellow Hoop-petticoat (Corbularia citrina) was flowering finely in pots, and a lovely plant it is when so well grown. Besides bulbous plants, the garden teemed with a host of others, such as Anemones, Hepaticas, Primroses—in fact, with nearly all kinds of plants which render the open-air garden beautiful at this season.—W. G.

NOTES OF THE WEEK.

We learn that the National Chrysanthemum Society intend issuing an official catalogue of Chrysanthemum names, and as this work is to be entrusted to a committee of experts, it will undoubtedly be reliable and useful. The honorary secretary, Mr. W. Holmes, states that since they have adopted the title "National" they have every reason to be pleased with the support they have received, which will no doubt be further extended if such useful work as that promised is continued.

Kniphofia foliosa.—Of this very fine new plant, figured in Bot. Mag., 6742, from a plant which flowered in my garden, I have about a dozen strong plants which I shall be happy to send to anyone who may be interested in it, personal friends having priority, in exchange for any good or new bulbs or other hardy plants. I want especially the newer forms of Narcissi, Hellebores, or any good species of Tulips which I have not got. This Kniphofia flowers late in the season, and I should not advise its being planted out, except in warm sheltered districts, without some protection. It is very distinct from any other species I know both in colour and habit.—H. T. Elwes, *Preston, Cirencester.*

A Wicklow garden.—Yesterday I spent one of the days of a gardener's life at ——. Such a garden I never saw, not even in Ireland—Snowdrops, Crocuses, Daffodils, and Anemone apennina literally by the acre; Rhododendron arboreum, big bushes from 7 feet to 8 feet high with hundreds of trusses, and beside them Bamboos from 10 feet to 15 feet waving in the wind. Here a plant of Nymphæa alba rosea last August had eighteen flowers and buds! R. ciliatum was magnificent among the Bamboos, and a pink-flowered seedling 15 feet high was a picture of colour in March. The proprietor has lived here fifty-eight years and his father as long before him, and both were gardeners, so I need not tell you what the place is like in such a climate and with natural shelter.—F. W. B.

Sale of flowering Orchids.—A special sale of Orchids in flower took place on Wednesday last at Stevens' rooms. Over 300 lots were offered, among them being some exceedingly choice kinds, which realised high prices. The most remarkable plant was a form of Odontoglossum Rossi majus, which had very large flowers, with a labellum fully twice the ordinary size and of snowy whiteness. The sepals were half white and half spotted with deep brownish red on a white ground; it fetched 12 guineas. A large number of fine plants of Cattleya Trianæ were offered; the best forms realised as much as 15½ guineas, while others fetched 10½ guineas and 5 guineas. Odontoglossum crispum, a large specimen with a long spike, was sold for 15½ guineas. A fine plant of O. Pescatorei went for 7½ guineas, O. polyxanthum for 7½ guineas, a hybrid Odontoglossum in the way of O. Halli for 12 guineas; other good varieties of O. crispum realised from £6 to £2 and £3. A very fine large-flowered variety of Dendrobium nobile fetched £5, and D. Jamesianum, an admirable specimen, realised £5 10s. The whole display at the rooms on this occasion formed a splendid exhibition, as fine as we have ever seen here.

Eucalypti as water drinkers.—It appears that wherever there is surplus moisture a large Eucalyptus will prove of great service, and a group of them will dispose of a vast amount of house sewerage; but where there is water which it is not desirable to exhaust, as in a good well, it will be wise to put the Eucalyptus very far away. The owner of Bay Island Farm, Alameda County, recently found a curious root formation of the Eucalyptos in the bottom of his well, about 16 feet below the surface. The trees to which the roots belong stand 50 feet from the well. Two roots pierced through the brick wall of the well, and, sending off millions of fibres, formed a dense mat that completely covered the bottom of the well. Most of these fibres are no larger than threads, and are so woven and intertwisted as to form a mat as impenetrable and strong as though regularly woven in a loom. The mat, when first taken out of the well, was water-soaked and covered with mud, and nearly all that a man could lift, but when dry it was about as soft to the touch as wool, and weighed only a few ounces.

PEARS FOR STEWING.

These form a most acceptable addition to the list of home-grown fruits during the spring months, when the shelves of the fruit room begin to present a bare look, and those who have to supply a continuous supply of culinary fruits are taxed to the utmost to provide any variation in the daily supplies. But to provide for this time of the year some care in the selection of varieties is necessary, for although nearly any kind of Pears can be utilised for stewing purposes up to the time when the days begin to lengthen, they cannot be relied on after February, and at the best they are but poor substitutes for the right sorts; they have not that beautiful colour when cooked that the true stewing Pears have, and for keeping late in the season in plump condition the latter are simply unapproachable. In some of the coldest parts of the kingdom it is necessary to grow them as wall trees, but in the southern and western counties they may be most successfully grown as bushes or pyramids. In this locality we are very frequently visited by severe gales of wind, and large heavy Pears are liable to be blown down before they are fit for storing if on tall tree, but on dwarf trees they are comparatively safe, and may be allowed to hang till late in the season. They can be readily protected from the attacks of small birds by means of small meshed netting, although in hard-fleshed kinds tomtits will peck little holes close to their footstalks and cause decay. The best form of tree for such Pears as these is a branched bush, as in that case the sap is evenly distributed, and the whole of the branches keep fertile for a long series of years, while in the case of trees in the pyramid form the upper portion is apt to thrive at the expense of the lower portion. If planted about 8 feet apart, bush trees form a good background for central walk borders.

In forming dwarf spreading bushes the centre must be kept clear of shoots from the first, by cutting down the young maiden tree to within four or five buds of the base; this will give some good strong shoots to begin with, and if shortened at the next winter's pruning to about half their length, a good head of shoots will be formed, and by keeping the centre open and the outer shoots regularly disposed and shortened to about half their length at the winter pruning, good and fruitful bushes will be formed in from four to six years. After that they may be closely spurred in, and if top-dressed over the roots annually they should last many years.

As regards sorts, I can confidently recommend the following as worthy of a place wherever stewing Pears are in request, viz.: Uvedale's St. Germain, a very large Pear, and first-rate in quality; Catillac, a grand Pear, not so large as the preceding, but very solid and heavy; Bellissime d'Hiver, a very free cropping variety, one of the best for general use; Verulam, or Black Worcester, a fine old sort of medium size, and one which makes a prolific bush; Léon Leclerc de Laval, a very fine stewing Pear, and one that keeps well late in the season; Vicar of Winkfield, a free bearing sort of medium size when heavily cropped, but if thinned out in time it attains a large size. The above half dozen sorts will be found enough for any garden, and equal to any I have ever yet seen in cultivation. James Groom.

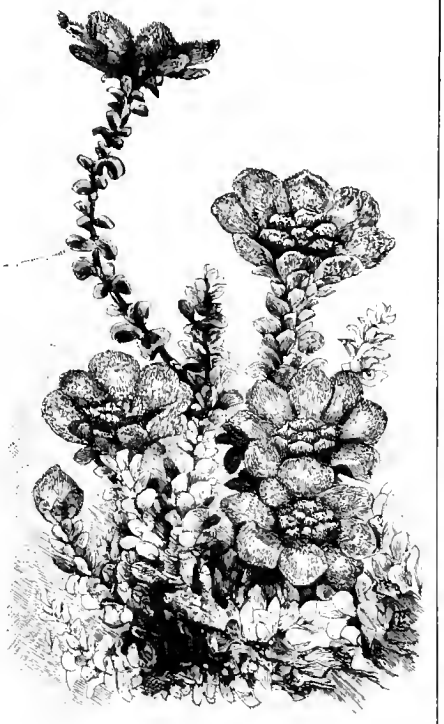
NOTES.

The colours of Daffodils.—The shades of colour in Daffodils are most subtle and delicate; hence comes the great difficulty in painting or in describing them correctly. Another difficulty is, that the depth of colour is different in different soils and positions, and even in individual flowers the shades of yellow vary from day to day, and become bleached or paler as the flowers become older, especially so if in exposed and sunny positions; but even when three or four observers see the same flowers at the same time, we get a variety of opinion as to their exact colours. Early this year Mr. Barr exhibited a Daffodil which Parkinson described in 1629. This is pale in colour, and, so far as we at present know, the very earliest of all the Daffodils; hence its name is not inappropriately N. pallidus præcox. Here are three descriptions of the colour of this flower taken from as many gardening journals. One says: "Crown clear yellow; sepals and petals paler than the crown." In another we have: "Sepals and petals nearly white; the mouth yellow." In the third it is described as "a Daffodil with very pale segments and a light primrose-coloured crown of equal length; or it might be said that, while the crown was sulphur-coloured, the segments were of the colour of flowers of sulphur." In THE GARDEN we find two descriptions. At p. 96 it is called "early sulphur Daffodil," and we are told: "The colour is a uniform soft canary-yellow, or perhaps more nearly a sulphur shade;" again, at p. 136, it is called "a delicate sulphur-yellow;" but as a fact there are two shades of sulphur in the flower as seen at its freshest and best state.

"The milk in the Coco-nut."—In the March number of the *Cornhill Magazine* may be found a very interesting article under the above title. The article, while containing nothing that is not well known to botanical students, nevertheless, has attractions for the omnivorous general reader, and it is to such that we recommend it. Apart altogether from the beauty and usefulness of the Cocoa-nut Palm—and it is useful and beautiful in a hundred ways—a good draught of fresh Cocoa nut water in a tropical land is a most delicious beverage. The writer tells us that, "At eleven o'clock every morning, when you are hot and tired with the day's work, your black servant, clad from head to foot in his cool, clean white linen suit, brings you in a tall soda glass full of a clear, light, crystal liquid, temptingly displayed against the yellow background of a chased Benares brass-work tray. The lump of ice bobs enticingly up and down in the centre of the tumbler, or clinks musically against the edge of the glass as he carries it along. You take the cool cup thankfully, and swallow it down at one long draught—fresh as a May morning, pure as an English hillside spring, delicate as—well, as Coco-nut water. None but itself can be its parallel. It is certainly the most delicious, dainty, transparent, crystal drink ever invented."

Bones *v.* crocks.—For most plants grown in earthenware pots, glazed or porous, as the case may be, there are but few that do not require ample drainage. Crocks are very convenient and mechanically well-nigh perfect perhaps, but the thought now and then crops up that the plants, if consulted as to their wishes, might like something more palatable to their delicate spongioles than baked earth can ever be. Thus all plants gypsophilous (a long word for lime-loving species) would appreciate nodules of lime rubbish or broken limestone itself to the broken potteryware generally given them. Even Camellias, Ericas, Azaleas, and other lime-haters treat oyster shells very affectionately, twining their roots about them very tenaciously whenever they are used as a substitute for crocks. But when we come to gross-feeding and rapid-growing plants, why not use something absolutely manurial? Charcoal as drainage keeps fresh for a long time and serves as a filter in retaining elements manurial—becomes a savings-bank, in fact, on which the hungriest of roots may draw freely whenever they are at all in want of supplies. Bones roughly broken are mechanically well-nigh as efficient as broken flower-pots, and that they possess, in addition, plant food of the most stimulating kind goes without the saying. Even Orchids of the dainty Dendrochilum type appreciate bones as drainage just as Cypripedes of the C. concolor, C. niveum, and C. Godefroyiæ section—Gypsophiles—like a drainage medium of broken limestone. But for strong-growing foliage plants and fruit trees in pots there is nothing like bones as drainage.

The Edelweiss of New Zealand.—The Rev. W. S. Green, a well-known member of the Alpine Club, has just written a very interesting account of an ascent of Mount Cook (alt., 12,348 feet), the highest mountain in the colony, and at p. 196 of "The High Alps of New Zealand," he thus alludes to the New Zealand Edelweiss (Helichrysum grandiceps): "The old moraine (alt., 3750 feet) was consolidated by the disintegration of the rocks composing it, and afforded soil for numerous tufts of Sword Grass (Aciphylla) and



New Zealand Edelweiss (Helichrysum grandiceps).

smaller plants. Here for the first time we found the New Zealand Edelweiss, and my men seemed to take fresh heart after all their fagging work when we had our hatbands adorned with the familiar little felt-like flowers. Boss (one of the Swiss guides who accompanied Mr. Green) had a piece of Swiss Edelweiss in his hat, so we were able to institute a comparison on the spot. Our new-found treasure grew somewhat taller; its leaves were smaller, and the petals (bracts) shorter and less pointed than in its Swiss namesake. The species were not identical, but at any rate they were first cousins." Our little sketch from a specimen kindly furnished by a friend gives a good general idea of the inflorescence and foliage. If good seeds could be obtained—and the plant is as amenable to cultivation as is the Swiss species—it would soon become popular in our gardens. The distribution of Gnaphalium is interesting; a bright golden-flowered species is common in the dry Rice fields in Borneo, at an altitude of 3000 feet.

On transplanting shrubs.—We often read that shrubs should be well watered immediately after they are transplanted, but a much better plan is to water the shrubs every day for a week or longer before they are dug up or removed as well as afterwards. The same principle is applicable to cut flowers which are to be sent long distances by post. They should be cut early and be placed in tepid water for an hour ere they are packed for transit. If thus treated and afterwards packed tightly on a thin layer of moist wood Moss, they will keep fresh much longer than if not watered ere starting. Of course in the case of flowers they travel best when cut in the bud stage. Experience will yield some few exceptions to this rule, but it is nearly invariably true. The Japanese gardeners, who remove large Camellias and other flowering shrubs into their houses and temples as they come into flower, always take time by the forelock in this matter, and water the roots copiously ere they are disturbed. So treated, it is but very rarely that any injury is done by the removal, and the plants after blooming are relegated to their open-air quarters with the utmost uncoocern, just as Mr. Waterer moves about his flowering Rhododendrons.

Art in the garden.—In the March No. of the *Magazine of Art* there is an article under the above heading, and it contains a good deal of nonsense on the subject of slopes, curves, and terraces, none of which are absolutely essential to a garden. The author reminds us of those people who waste much time on complicated dinner-table decorations and forget the food and its due service. In a word, it seems to have been forgotten that a garden is a place for plants useful and ornamental, rather than for terraces and stonework or statuary and fountains. Statuary and fountains are welcome in a hot and sunny land, but out of place in our dripping climate. Terraced gardens are right and often beautiful in hilly countries, but a flat garden may be equally as right and beautiful in its own way. The illustrations are commonplace, and altogether the article is an apt illustration of how not to make a garden beautiful. Of course there are localities where terrace walls become absolutely essential, but to build them or use them from an "art-in-the-garden" point of view is totally wrong in principle and most expensive in practice to boot. Given good soil and shelter, a beautiful garden of living things is preferable to all the gardens of the stone terrace and fountain type ever made.

VERONICA.

ROSE GARDEN.

PRUNING ROSES.

MR. D. T. FISH recommends (p. 176) double pruning as the best way of obviating the difficulty caused by the growths being so forward this season. In this I differ from him, and would advise Rose growers not to touch their trees with the pruning-knife for three weeks or so yet at least. He tells us that the term dormant as applied to buds "is inapplicable; though not broken, they are in motion, agitated with the throbbing of life within." This may be poetical, but surely not accurate. Whether dormant or not, they are inactive, "the great current of sap that rushes forward to the support of the growing shoots beyond them leaving them untouched." As it is these sleeping base-buds that we wish to conserve for our season's Rose crop, it would be wrong to shorten the shoots beyond them that act as safety valves by getting rid of the superfluous sap.

Instead of shortening back the growing shoots now and giving a final pruning later on, I would certainly recommend our Rose trees to be left intact and not even disbudded; then when pruning time arrives and there is less danger from frost, the usual plump outpointing eye will show where we must look for strong shoots and fine July blooms. That a fearful waste of nutriment is going on goes without saying: it is, however, unavoidable, and must be made up when all danger from frost is past by applications of liquid manure, and even before that by heavy mulchings In his remarks on disbudding Mr. Fish says: "Were two shoots or so left on the summit of early Rose branches and all the others disbudded except from

two to six or so near the base of the shoots, those base buds would be fuller fed or filled up, with the chance of bursting rather diminished than otherwise, for the upper shoots would grow faster, and hence form better safety valves for the overflowering sap than the competing shoots between." This is indeed good advice, and I quote it in contradistinction to that recommending a present and a future pruning, thus giving our already debilitated plants the additional work of healing the wounds made by the pruning knife twice, and frost a double chance of freezing the pith of their branches. R. A. H. G.

Horsforth, near Leeds.

PROPAGATING ROSES.

Most rosarians are fully acquainted with the art of budding, but there are few among the amateur portion of them who are aware that they may be successfully increased in any other way, and yet there are two methods by which this may be done with more or less certainty—the one by means of cuttings, the other by grafting. The latter, where there are good stocks to work on, is a very expeditious mode of getting strong plants. The kind of stock most in esteem for grafting is the Manetti. It is better than the common Brier, as it has hosts of small fibrous roots and succeeds in almost any kind of soil. There is also another advantage in using the Manetti instead of the Dog Rose, which is becoming scarce and difficult to obtain, and that is its cheapness, for though it has to be struck from cuttings, it is advertised for sale at from £1 to £2 per thousand; therefore by grafting one may soon have a large number of Roses at a nominal cost.

The first step is to make up a hotbed, which may be done by mixing stable manure and leaves, or leaves and fresh tan, turning them over, after a day or two's interval, so as to get the material into a regular state of fermentation, and let the rank steam out, when it will be ready for making up into a bed or placing in any close, dark shed, which is even better than a frame. The necessary heat being provided, the next thing is to cut back the stocks or behead them, leaving only about 3 inches of stem on which to insert the scions. The latter should consist of ripe shoots of different sorts of Roses, cut into lengths furnished with two or three buds, one near the base and the other at the top; then carefully rub off the spines, in order that the grafts may be more readily handled. Cleft or wedge grafting is the simplest, as all that has to be done in carrying that out is to split the top of the stock, and, having shaved the bottom of the scion into a wedge, then slip or thrust it into the opening, when it should be made fast by running a strand or two of matting round it, to prevent the slit from opening and to keep the graft in its place. A neater way than wedge grafting, and a better for Roses, is to make a cut downwards in the side of the stock and about a quarter or so through it; then split away the part from the top leading to it, and if the scion is shaved or sliced away for about an inch and a half at the bottom, the same as is done in making a quill pen, and the tip trimmed, it will fit exactly into the part prepared on the stock, and the two barks will come together, when the stock and graft will be able to unite in such a close, neat manner that the junction can hardly be traced. The tying is a very important matter, as the scion and stock must be brought in close contact, and this can readily be done by using pieces of soft matting or raffia for ligatures. The grafting and binding being complete, the next thing is

Potting the plants. This should be done in small pots, or, to economise room, several plants may be packed closely in large ones or in boxes, and at once placed in heat, where they should be kept perfectly dark and close in order that the wood may not shrivel. The proper temperature at which the shed or frame should be kept is about 75°, a degree of warmth which quickly excites the stocks and causes them to make fresh roots and begin to grow. Immediately after that a callus is formed, and the scions and stocks become united. As soon as this has taken place, light becomes necessary or the young shoots get drawn; air should also be given by slightly tilting the sashes, so as to gradually harden the plants and fit them for removal to a cold frame, and from thence to the open for planting in beds.

The time at which Roses should be grafted is from November to the end of January or even later, but the earlier it is done the better, and I always like to select the wood of which the grafts are made before sharp frosts have affected it, which they often do by hurting the bark.

Cuttings, too, ought to be in before the close of the year, as they strike with greater freedom when furnished with leaves, and it takes many months for the cut parts to heal and a callus to form. The way to make Rose cuttings is to select moderate-sized or small shoots, cut them into about 6-inch lengths, with a bud at top and bottom; they should then be inserted in prepared ground, made very sharp and sandy and nearly buried, as the less of the cuttings exposed to frost and air the greater the chances for them to grow. Where handlights can be spared, or an old frame is at liberty, it is a good plan to put the cuttings under the shelter of one or the other of them and keep them close; when so protected they remain plump and secure from all changes of weather. For Tea-scented kinds, which are more tender than Hybrid Perpetuals, glass is an absolute necessity, and it is useless attempting their propagation at this season unless they can have its assistance, as sharp frost kills them. S. D.

TOO MANY HYBRID PERPETUALS.

The Hybrid Perpetual and Tea-scented varieties of Roses have taken such a fast hold of the Rose-loving public, that weeping and climbing Roses, especially those that were in favour a quarter of a century ago, are now quietly elbowed out of the garden. Against the merits of the new-comers—the Hybrids and the Teas I have not a word to say; but do not the owners of gardens deny themselves some pleasure by allowing one or two sections of Roses to monopolise to the extent they do nearly every garden? If not aware of the fact, I am prepared to show them that such is the case. They not only deny themselves the form of tree for which their present favourites cannot be made available, but they lose the choice of selecting many old and useful hardy Roses that they might plant without fear of a hard winter doing them any injury; and that when once planted in a good soil, would last for many years with a minimum amount of trouble. I write thus advisedly. The formality existing in Rose gardens in nineteen cases out of every twenty is discreditable to us. Broader views both as to the formation of Rose gardens, and also the selection of varieties from the various sections of Roses, must be adopted if we are to have satisfactory results. But my object more particularly now is to refer to some good old Roses that may be made available in many more instances than they now are.

The first section to which I shall allude is the Hybrid Chinas. In this class there is no more useful Rose for a pillar or for forming a weeping specimen when budded on stems from 5 feet to 6 feet high than Blairi No. 2. The colour of its flowers is blush, and it is a vigorous-growing Rose, the foliage of which is excellent. When the choice of Roses was much more restricted than now, this variety was cultivated in every garden. It was frequently seen as a weeping tree, but more often trained to a wire frame in the shape of an umbrella. For pillars and for walls it is admirably suited, and there is no more fragrant Rose in cultivation. Severe pruning in the case of this Rose is fatal to the production of a full crop of flowers; only the old shoots should be cut away in winter. Overcrowding of the growth must be avoided, and when trained to pillars or walls the strongest shoots may be shortened back to a length of 18 inches or 2 feet: they will then flower abundantly. Brennus is a more highly coloured variety than that just named. It was at one time a great favourite, both in the form of standard and weeping trees, when grown on its own roots, or budded on healthy Briers, and a liberal freedom of growth allowed. One is not far wrong in saying that none of these Roses ever die; at all events, when grown in a properly prepared soil they are seldom seen in any other than a vigorous condition. I have on more than one occasion seen them growing on Brier stems from 4 inches to 5 inches in circumference, which took from fifteen to twenty years to produce, and yet the trees were perfectly healthy and strong. In quiet nooks and also in the corners of prominent walks such examples make an impression not soon to be forgotten. The modern pruner must, however, be careful how such varieties are dealt with. If he must work out his ideas regarding a neatly-formed bush in the case of these trees, he had better leave them alone, for directly he begins to prune on the same lines as he does his Hybrid Perpetuals, he will spoil their beauty. For covering old rooteries, banks of earth, or rough fences, this section includes some with more rampant growth than the above-named. The best for such purposes are Madame Plantier, a kind with white flowers, that are freely produced in summer; fulgens and Chénédole, two varieties with crimson flowers of about equal merit; and if more variety is wanted, Comtesse de Lacépède may be added; this has blush-coloured flowers and a vigorous constitution.

The Ayrshire Roses are the most hardy of any of the genus; they will grow in almost any kind of soil or situation, and not the least of their merits is that they flower in great profusion. I do not claim for them any particular merit as to form of flower or striking colours, but I have no hesitation in saying that for positions where rampant growth is required they have no equal. It is not unusual to see them making shoots from 8 feet to 10 feet in length in one year. For this reason they are to be recommended for planting where no other Roses will produce the same effect in the same time; they are suitable for clothing boles of trees, high buildings, or with the aid of a few rough poles and some wire they may be made to form charming pillars. If there is anywhere an ugly building to cover, these Roses will do it more quickly than any plant I know, producing both a wealth of growth and flowers such as cannot be obtained from any other Rose. Here again the modern Rose pruner must exercise caution; only a moderate use of the knife is required, and that merely to thin out some of the old exhausted wood.

The Hybrid Bourbons contain several varieties that were at one time great favourites, but while we have acquired more highly-coloured flowers with a better form in the Hybrid Perpetuals, we have lost many hardy Roses from the Bourbons, which are for the most part vigorous growers. It is hardly correct, however, to say they are lost altogether, but other sections are grown in preference to them; therefore they are not now often met with. All this section is suitable for either standards or bushes, and if planted in good deep soil, they will last many years in a healthy condition. If for standards, they should have the strongest and most healthy stock selected for them. The best varieties in this section are Coupe de Hébé, a well-known old favourite, with dark rose-coloured flowers; Paul Ricaut, another grand old Rose of fine form and of a charming carmine colour; and Charles Lawson, a great favourite twenty years ago, and in many points not surpassed even now by newer varieties. It produces pink flowers, and in sufficient numbers to render a strong plant of it very attractive. Amongst Noisette Roses there are a few good old varieties, now very scarce, but well worth more notice on account of their distinct characters. Some few of them are suitable for standards, especially Fellenberg, a kind with bright crimson flowers; Aimée Vibert, white; and Triomphe de Rennes, yellow. The most suitable varieties for a wall are Lamarque, Jaune Desprez, Jeanne d'Arc, and Solfaterre, but all may be used for training on walls and pillars. It will be seen that I have intentionally omitted the names of Gloire de Dijon and many others;

my aim has been to refer only to Roses that are not now so well known as they should be.

Referring more particularly to weeping Roses, if large examples are wanted, the best are the Ayrshire Roses. They are the most vigorous of any, and they may be worked on Briers 6 feet or 7 feet high; but if flowers of better quality are required, the most vigorous of the Hybrid Chinas and Hybrid Bourbons should be selected. These should be on stems 5 feet or 6 feet high, and be annually treated to good dressings of manure about the roots. Moderate pruning suits them best. C.

YELLOW ROSES.

These are such general favourites, that it may be useful to give the names of a few of the best and to state the purposes for which they are best suited. Let us begin with sorts best adapted for walls or pillars. For these purposes the greatest choice will be found amongst the Noisettes, and one cannot make a mistake by placing Celine Forestier first. This variety is well suited for covering walls of medium height, and also for pillars. It is sufficiently vigorous and flowers with so much freedom to justify its being planted in the most prominent positions. No other yellow Rose, too, is so well suited for pot culture; when trained to walls or pillars the only pruning it requires is having some of the exhausted wood cut out at the end of February. Solfaterre has pale yellow buds, but as they open the colour gets lighter. It is probably as hardy as any variety in this section. It is certainly unsurpassed as a climber, growing vigorously, and frequently making shoots 8 feet and 9 feet long in one season. Where there is a large space to cover with a Rose that possesses quality as well as a hardy constitution, it would be difficult to find one superior to this. Ophirie is a Rose that has lost some of its popularity since the introduction of Maréchal Niel—a misfortune so far as our gardens are concerned, for it is one of those Roses that thrive well against a wall with a south aspect. It has, however, one drawback, viz., it produces rather small flowers, but these are so plentiful that their size ought not to be a matter having any weight. Planted in good soil, and with but little pruning, it cannot fail to give satisfaction.

Marechal Niel is so well known, that I only refer to it for the purpose of saying that as a climbing Rose under glass it has no equal, but its behaviour in the open air, as a rule, is of quite an opposite character, and I have not yet met with a satisfactory explanation why it cannot be as satisfactorily grown in one place as in another. All I know about it is that here, in the favoured county of Somerset, it does no good on open walls; yet in a village five miles off a single plant covers the south front of a country residence, and flowers every year in the most profuse manner. Another instance of its thriving has been more than once brought to my notice by a lady who resides in Cheshire; she has this Rose growing against her house in the most luxuriant health, and it produces flowers freely every year. It appears that no one can say whether it will grow and flower well or not in any particular place until it has been tried. A singular fact connected with this Rose is that it does not adapt itself to pot culture. Triomphe de Rennes is an old canary-coloured Rose of considerable merit. It is a fairly vigorous grower, and produces its flowers in large clusters. When trained to a wall the most severe winters do not often injure it, *i.e.*, if it occupies a south or west aspect. When planted out under glass it is a very vigorous grower, but when so grown the flowers when expanded are nearly white. Than Fortune's Yellow we have no more vigorous growing yellow Rose for planting against open walls. Although I have placed it with the Noisettes it belongs to the family of Ayrshire Roses, an explanation sufficient to account for its vigorous growing character. The flowers are less beautiful than those of any I have yet named, but their coppery-yellow colour gives them a singular appearance. It is, however, deserving of a place in this list on account of its hardiness and its adaptability for covering large spaces. It is, moreover, not very particular as to soil—a sufficient recommendation of itself. As much of the young wood as possible should be preserved during summer and at pruning time, as the strongest shoots produce flowers from every eye.

The parentage of that valuable little Rose called Harrisoni is unknown to me, but it appears to be a hybrid between the Persian yellow and some of the Scotch Roses. The growth has a good deal of the character of the latter, but whence this Rose came is not of much consequence. It is so hardy and flowers so freely, that it is indispensable in a collection of yellow Roses. It succeeds admirably as a standard, but, budded on the Manetti and grown in the form of a bush, it makes an attractive object. It requires a rich, deep soil, and to be allowed to grow in its own way without any pruning, and then it never fails to flower in the most satisfactory manner.

The Persian yellow, a true Austrian Brier, produces large globular golden yellow flowers. It succeeds well as a standard if allowed to grow in its own way; if pruned at all it must consist in merely cutting out some of the old wood. Severe pruning will spoil its beauty if it does not kill it altogether; it also does well in the form of a bush when budded on the Manetti stock. It is an early bloomer, and fresh flowers continue to open for three or four weeks in succession. A hedge of it mingled with the pink Scotch Rose by the side of a walk makes an interesting feature in the month of June, and in a cut state they do well for filling small vases and similar receptacles.

The Tea Roses consist of several varieties having various shades of yellow. They are, however, too tender to be successfully grown in the open without protection, but for training against warm walls they are well suited. This class of Roses does best when planted in a good soil in a cool house. Thus protected, whether kept as bushes or trained to pillars, they produce a succession of flowers during the greater part of the year. The best yellow varieties are Belle Lyonnaise, Canary, a charming variety in the bud state: Jeanne d'Arc, Madame Falcot, Elise Sauvage, Monsieur Furtado, Safrano, and Perle de Lyon.

J. C. C.

PROPAGATING.

HOW TO PROPAGATE THE DAHLIA.

Those nurserymen who deal largely in Dahlias, and who have to maintain a very large stock of the leading varieties, usually make use of a propagating house for this purpose, which is heated with hot-water pipes. By this arrangement Dahlias can be multiplied with great rapidity. A bed of suitable soil is made up in February, and on this the ground roots kept with safety through the winter are placed, and nearly, but not quite, buried in the soil, leaving the neck of the plant fully exposed. Young growths issue from the neck, and when these are 4 inches or so in length they are taken off just below a joint, a few put into a 3-inch or 4-inch pot, and then placed in a hot-bed where there is a brisk moist heat, and there they soon root; then they are potted off singly into 2½-inch pots, kept quite close until established, and finally hardened off until they can bear exposure in a cold frame, but kept well protected from harm from frost. A great many Dahlias are sent out from nurseries in April and May in 2½-inch pots; they can be laid down on their sides in square hampers. Packed with soft Moss as firmly as possible, plants will travel a considerable distance without sustaining any injury. As soon as the plants are received they should be carefully unpacked, stood in a cold frame, sprinkled overhead with water, and the frame kept close and shaded from the sun for two or three days.

For ordinary propagation a hotbed should be prepared the first week in March, carefully avoiding a strong heat. A moderate warmth, averaging about 60°, will be found sufficient. As soon as the bed is made a frame should be placed over it, and 6 inches of suitable soil laid over it. In a few days the roots kept from the previous year may be placed in the soil, taking care not to cover the crowns. A little air should be given in the morning to allow the steam to pass off, but cover up close at night. When the roots have put forth shoots 3 inches to 4 inches long, they should be taken off as near the crown as possible without injury, and be inserted in small pots filled with light sandy soil. Then the pots should be plunged in a hotbed in a temperature of about 70°, watering, shading, and giving air to keep the cuttings from damping off. When they are sufficiently rooted they should be potted singly in small pots and placed in a gentle heat until they have made fresh roots. They may then be removed to a cold frame, and be hardened off as the weather will permit.

Where only a few plants of each sort are required, they may be increased by dividing the roots, but this is not so advantageously done as by means of cuttings. In this case the bed should not be made till the last week in March or the beginning of April, in the same way as already described. The roots should be placed on the top of the soil. They will soon begin to show signs of growth, and when the shoots are about 4 inches long, the roots may be carefully taken up, divided, and potted singly into small pots of convenient size. They should be placed in a little bottom-heat till the divided portions have formed fresh roots, when they may be put into a cold frame, hardened off gradually, and carefully covered up at night when required.

If not already done, the ground in which Dahlias are to be grown should be deeply dug, and if not manured in the autumn, a quantity of well-decomposed manure should be dug in at once and the ground thrown up rough, that frost (should we get any) and winds may act upon it beneficially. It may be forked over once or twice subsequently with advantage. R. D.

PROPAGATING PELARGONIUMS.

It has now become common, if not altogether general, to propagate tricolor and bronze Pelargoniums in spring, and not in autumn, when the bulk of the zonals are propagated; the former is the practice we invariably adopt, and with the most satisfactory results. Plants of the tricolor and bronze kinds do not generally grow any too freely in our climate, and unless planted out in the beds unusually thick in summer, they do not admit of cuttings being taken from them in the beginning of August, the time when they must be taken if they are to be of any use. Where these sorts are in any way scarce, and there are old or strong autumn-struck plants at hand, cuttings should be taken off them and inserted eight or ten in 3-inch pots, and placed on a shelf in the stove, Vine pit, or any similar place where abundance of heat is at command, and where the sun's rays can play directly upon them. Never upon any account should they be shaded. Treated in this way, we seldom lose a cutting. Another method which I saw practised at Sarsden House by Mr. Greenshilds, and with which I have since had every success myself, is to put the cuttings as before into small pots and plunge them into larger ones with the bottom and sides packed with Moss in such a way that the small pot is held quite firm in the other. They are then set on the pipes in a light position and watered as required. Treated in this way, I have known every cutting to root in little more than fourteen days from the time at which they were inserted. Cuttings thus treated will, if potted off and kept in a growing state till a few weeks before planting-out time, compare favourably with those struck in autumn. This treatment is also applicable to the whole of the zonal section. Where there are numbers of named kinds grown for autumn and winter blooming, probably no better time could be found for inserting cuttings of them than the present, but where only a few of a kind are wanted, place them singly in small pots instead of several in one

pot; these will form a good succession to those struck in autumn and will be quite as useful.

C. W. C.

Flower Garden.

PLANTS FOR WINTER BEDS.

I think one may venture to name the following plants as suitable for massing in what may be termed a winter or spring bed. The fine and distinct colours of their flowers, the verdancy of their foliage, contemporaneous blooming, and long continuation are of more value than plants commonly employed for such purposes; moreover, they are plants that are easily cultivated, and that endure repeated transplantings well. I mean the Doronicums, Cardamine asarifolia, Scilla sibirica, Iris reticulata, Saxifraga oppositifolia, Narcissus minor, Anemone fulgens, Muscari botryoides album, Chionodoxa Lucilæ, Daphne Mezereum, and Erica carnea. Numerous as early flowers are now becoming, it is no easy matter to select a group possessing qualities such as these possess, or that will keep bright and fresh-looking under the varying conditions of our climate during winter and early sping. Those who have grown these flowers can testify to their duration, and the foliage of some, to my mind, is as valuable as regards effect in spring bedding as the bloom. What, for instance, could be more pleasing than the large, flatly arranged, pale apple-green leaves of the Doronicums, and they never suffer from the severest frosts, though they are as delicate in appearance as if they had been grown in a warm glasshouse. Into such a bed, on account of their blackened leaves, I would not introduce the otherwise charming Hepaticas. The Daphne and bulbs have few or no leaves, on which account I consider them preferable to plants having sere foliage either naturally or through damage. The colours are white, porcelain-blue, purple, pale yellow, orange, scarlet, and rose. By judicious selection and planting these colours may be pleasingly blended, and the highest of the plants in the centre need not be more than 15 inches or 18 inches. All are of the hardiest, and seem to flower in profusion, even when the earth is ice-bound. That such hardy flowers can be more naturally grown in borders, where they can remain undisturbed, is beyond doubt; but whilst beds are formed in the more conspicuous parts of our gardens—and it is the choice of many that such beds should be rendered as gay as possible—this kind of bedding is deserving of attention at a season when only hardy plants can be used.

For some of the plants just named special treatment, though simple, is required in order to ensure flowers and the subsequent health of the plants. Assuming that they can be planted in autumn as soon as the summer bedding plants have been damaged by early frosts, they should have been well grown in a rich and rather holding loam as a preparation. This not only suits the whole of them, but the roots can be lifted with so little damage that scarcely any check is experienced. In glancing at each subject in the order of colour, it will be seen that there is no difficulty in adapting them to winter bedding.

Cardamine asarifolia has small white flowers with a yellow eye, arranged in corymbose heads on stems 6 inches or 9 inches high; it is an almost perpetual bloomer and at present is as white as Arabis will be a month later. Simple as the Cuckoo flowers are, in this kind they are very pleasing and effective when good blooming plants are used. The large, nearly round and dark green, but fresh-looking leaves are also a feature; they spread themselves out almost flatly and help greatly to set off the flowers to advantage. Divisions of the somewhat woody, creeping, rooting stems should be made in spring and planted in good loam fully exposed to sunshine; these will probably be fit for forming beds the following autumn.

Muscari botryoides album is a gem. It grows from 3 inches to 6 inches high and lasts a long time in beauty, and though it does not increase so fast as the type, it multiplies at such a rate, that it ought not to be so scarce in gardens as it appears to be. The bulbs only need to be set in the ordinary way in autumn and if not quite ripened off by the time the beds are wanted in June they lift well; the better plan would be, however, to use a little extra care and leave them in the beds for another season or two.

Scilla sibirica.—This amongst blues is a great favourite, and in every way reliable for producing a sheet of rich colour; imported bulbs do well the first season, but are much finer afterwards, and if they can be left in the beds they ought to be. Similar treatment should be given to

Chionodoxa Lucilæ. How quickly this charming little bulb has met with general patronage. It is now almost everywhere, and how well it does in our climate; imported bulbs have more than doubled in size, and in the flowers there are many shades of colour as well as other slight differences. Its flowers are superior to those of the Scillas in delicacy of tint, and though something like the Puschkinias, so much praised, it is far more robust and beautiful. It may be treated exactly the same as the Scillas.

Iris reticulata has, as we all know, handsome purple flowers, with golden or orange-coloured markings. We often see it stated that its flowers need protection, but my experience of it growing fully exposed, is that its dwarf and rigid habit enables it to endure the worst of weather. It grows from 8 inches to 12 inches high. Three or four small clumps, consisting of about six bulbs each, on a small bed would shine like jewels for four or six weeks. Owing to the early period at which these bulbs emit their new roots, they should be started very early in the autumn, and for bedding I should put them in 8-inch pots, and then plunge them after the beds were made ready, just covering the rims of the pots.

Narcissus minor has pale yellow flowers 3 inches or 4 inches high; when grown in stiffish loam, it can be transplanted at any time without being hurt. It has plenty of roots and not much top, and therefore lifts with a good ball of earth. The bulbs should be liberally planted and for bedding purposes rather close, but for permanent clumps they may be a few inches apart, as they increase fast.

The Doronicums flower when only 3 inches or 4 inches high, and continue in blossom for two months or more, at which time they may be 1 foot or 15 inches high. I have found D. caucasicum and D. austriacum to answer best; they have large, nearly orange-yellow flowers—practically spring Sunflowers—and their verdant foliage gives freshness to the borders or beds in which they are used. D. Clusii is too shy to be of use as regards bedding, and D. Pardalianches is too coarse and rather late. Newly divided pieces are not reliable, but if divisions are planted in good loam in spring they will do admirably for the following autumnal arrangement.

Anemone fulgens, if started in pots early in autumn, strong roots, and turned into the beds when ready, may be relied upon for early flowers. This brilliant scarlet Windflower is one of the most striking, and if well grown its flowers render any arrangement in which they occur very effective. It grows a foot high, and the tubers may be safely lifted and stored in sand about the end of May or in June.

Saxifraga oppositifolia and its varieties afford a dense and pleasing dark green mossy carpet, in addition to their large rosy purple flowers. In order, however, to have compact tufts, the plants should be prepared by being divided and grown for a year or so in rich loam. The usefulness of this really valuable spring flower greatly depends on this treatment, for unless so prepared the beauty of the carpet gets impaired, and the flowers are not so plentiful as they should be.

Erica carnea.—The dark shining evergreen foliage of this Heath, thickly beset with pinkish buds and flowers for many weeks, aye, months at a time, fits it for almost any part of the garden; it thrives in loam without a particle of peat, and from carrying plenty of soil at the roots, may be lifted at any time for bedding or other purposes.

Daphne Mezereum has also a root furnished with plenty of fibres, and will withstand rough usage at the planter's hands. Moreover, though very dwarf it flowers freely. It is a general favourite, and sure to be admired in any spring garden arrangement.

If some of these flowers have not been commonly used for winter bedding, they are at least all well tried and proved subjects, and there can be little doubt that they would prove highly interesting, even during the severest winters, whilst in one like the present, so far as we have experienced it, they would be very attractive.

Kirkstall. John Wood.

SLUGS AND OTHERS V. ALPINES.

"Delta" invites readers of The Garden to add to the *index expurgatorius* of his alpine garden. I do not know that I can do much for him in this way, but the following notes on a few hardy flowers may be useful to amateurs with small gardens, especially to those who lack time and inclination to give much attention to their own slugs. Among plants whose objectionable habit of running roots makes them *impossible* in small rockeries, Œnothera speciosa at once suggests itself. Œ. taraxacifolia, which I do not grow myself, has, I believe, something of the same aggressive tendency. Campanula pumila (blue and white vars.) should also be rigidly excluded. Lovely as they both are when in flower, they are unfit associates of other alpines, for they run everywhere and throttle every delicate plant with which they come in contact, coiling their fascinations round it like a "demnition rattlesnake," as Mr. Mantalini said. Even Gentiana acaulis dies in their embrace. "Delta" mentions Ranunculus anemonoides* as objectionable in this way, a fact that sets one wondering why this should still be an expensive plant. This reminds me, however, of my own pet aversion for which some two years ago I was weak enough to give a shilling; I allude to that interesting plant, Jaborosa integrifolia. This, which I planted in one of the very warmest and snuggest spots at the foot of one of my rockeries, is certainly the most appalling weed with which it has ever been my lot to have to concern myself. Couch Grass and Coltsfoot are nothing to it; it runs everywhere, chokes everything, and turns up half a yard or more away from its headquarters at levels and altitudes where no one could reasonably expect it. I spent half a day some little time since in endeavouring to eradicate it, and I trust I have successfully done so, for its place is now occupied by that high-bred Levanter, Omphalodes Luciliæ, and by Gentiana verna, G. brachyphylla, G. ornata, and other members of the *haute aristocratie* of the Alps and Himalayas, whose aversion to intrusive and obtrusive company is well known. Nuisance as it is, I must confess that I have not entirely banished it, for South American hardy plants are scarce, and one has a sort of superstition that they give a "tone" to one's collection.

Another plant that has taken possession of a large space on the top of one of my rockeries is Thermopsis fabacea. This is a plant for which I have a great admiration, and I shall let it alone as long as it does not seem to be injuring other things. The slugs are fond of it; but of all the plants in the whole of my collection the one on which these vermin seem to be most voraciously set is Aster alpinus, which is, oddly enough, about the most vigorous of all the plants of a genuinely alpine character. I find it next to impossible, except by taking up plants bodily and keeping them in pots through the winter, to protect this from being eaten to the quick; this does not kill it, but it pretty effectually spoils its flowering. I do not remember to have seen this characteristic of A. alpinus noted by any writer on hardy flowers.

Next to A. alpinus, the most difficult plant to keep from slugs through the winter, as far as my ex-

* This, we are informed by "Delta," was written in mistake for A. sylvatica.—Ed.

perience goes, is Phlox divaricata, alias canadensis (alias glaberrima ?). This is a lovely thing, one of the most beautiful indeed of the Phlox species, but for those who cannot protect it or give it constant care and attention, such as nocturnal picking, it is useless to attempt to grow it. Some of the delicate Campanulas, such as C. Zoysi, it is almost impossible to keep, whether in frames or in the open. C. Wanoeri I found the other day being viciously attacked, and have consequently had to give it police protection in the shape of a perforated zinc guard—a form of protection concerning which I find, I may say, highly efficacious, my plants of Edraianthus dalmaticus, for instance, having been untouched during the whole of this wet winter. I may say the same of Polemonium confertum, which the slugs killed for me last year. Another plant which I thought had passed the winter in security, but which, to my disgust, I found the other day seriously damaged, is Erodium chrysanthum. This was the work of one large brown slug, who had succeeded unobserved in gnawing the plant pretty well all round. That large brown slug has long ago joined what the sporting prophets call "the great knocked-out division," but it yet remains to be seen whether his victim will have to follow him to Hades. If he does, I hope he will see his way to "stalking apart," like the shade of Ajax. E. chrysanthum is a beautiful foliage plant, but the flowers, though numerous, are inconspicuous and of a poor colour. Some of the smaller Delphiniums, *e.g.*, D. chinense, are difficult, if not impossible, to keep over the winter in the open ground, at any rate, in heavy soils. Drabas, especially the embryo buds in the centres of the rosettes, are evidently considered "toothsome." I do not find that the Gentians, even the rarer sorts, are much attacked, and—what is contrary, I believe, to general experience—my Mertensias have hitherto enjoyed an almost complete immunity. I may add that I have never yet, as far as I can recollect, found a slug eating or even on my plant of Ramondia pyrenaica, which is itself, by the way, "not un-grandfathered" from the Kentish garden to which "Delta" alludes. J. C. L.

TALL-GROWING CAMPANULAS.

Bellworts have always held a deservedly high place amongst hardy plants, and for variety of form and fine shades of colour, especially blues, it would be hard to find their equals in any other genus. As regards size, they vary from the most diminutive of flowering plants, such as C Raineri, C. cenisia, &c., of the high Alps, to the Siberian C. lactiflora and the Canterbury Bells of Southern Europe. The dwarfness of the former two eminently fits them for the embellishment of shelves or ledges in the rockery and other places where it is desirable to have green natural carpets, beautiful in their season, and the latter two, along with a few more of the taller growing sorts, stand unrivalled for the decoration of beds and mixed flower borders; even in their native countries they are said to constitute most striking ornaments in the landscape, as they tower above dwarfer plants, or, as seen peeping through the taller growing bushes, reminding one of the Foxgloves of our woods and groves. When naturalised and associated with Foxgloves, Ragged Robin and others of our tall-growing wild plants, the effect of the contrast is most pleasing; indeed, in this way only can we make our woods and shady walks interesting or beautiful.

C. lactiflora is an extremely pretty Caucasian species, bold and showy in appearance. It grows from 3 feet to 4 feet high. It has a pyramidal branching habit, and bears a profusion of blue-tinted flowers, which last more or less all through the summer. They are cup-shaped, somewhat drooping, and have the segments slightly turned back; the leaves, which are narrow, clasp the stem, and are finely serrated. To grow it to perfection it requires a rich, heavy loam, and is all the better for having a shady position. C. lactiflora cœrulea is a lovely variety, with bright blue flowers and much the same habit as the type. Both are very useful border plants, and often used for beds in the flower garden in company with Lobelia cardinalis. They are increased by means of seed or division of the roots.

C. bononiensis (Panicled Harebell) is a neat-habited species, which grows from 3 feet to 4 feet high, and bears many small ascending branchlets, on which are borne pretty bell-shaped flowers, varying in colour from violet to pure white. The leaves are small, oval, or almost cordate, rough to the touch, and having a white nap underneath. It is a native of Bologna, Austria, &c, and a very useful plant for borders or rockery.

The Creeping Bellflower (Campanula rapunculoides)

The Peach-leaved Harebell (C. persicifolia) is a native of Europe from Sweden to Spain, and is said also to be found naturalised in some parts of this country. It was cultivated by Gerard as early as 1596. It grows from 2 feet to 3 feet in height, and when planted in large clumps presents a very handsome appearance. The leaves are very sparingly distributed on the stem, which is unbranched, and they are very narrow and long; the flowers are blue and broadly campanulate. There are five or six varieties of this species, among the best of which are alba, a kind with double flowers, and coronata, the latter being the more beautiful of the two, and well deserving a place in every collection. They commence flowering in June, and when the summer is not too dry last till September.

The broad-leaved Harebell (C. latifolia), which Sir Walter Scott calls the "Throatwort with its azure bell," is one of the handsomest and most useful of the genus for naturalising in woods, &c, as it has a preference for shady places, in which it will reach from 4 feet to 5 feet in height if the soil be rich. The stems are stout, often branching, and densely covered with broad, oval, doubly serrated leaves. The flowers, which are purplish, have long tubes, and are produced at the axils of the leaves, generally one, but often two or three if the plants are strong. The lowermost flowers open first.

C. latifolia macrantha has a much dwarfer habit than that of the above, and it may also be distinguished by the flowers being of a deeper purple and having longer tubes. This and the variety Van Houttei are very useful for the rockery, requiring a cool situation and heavy loam. They flower from June to August.

C. pyramidalis, although a much more fashionable plant thirty or forty years ago, when it was cultivated principally for decorating halls, staircases, &c., than now, it still holds a high place among hardy flowering plants. Along with Canterbury Bells it has become almost indispensable for the decoration of the greenhouse and conservatory in autumn. It is also very useful for forming light screens in the flower garden, for which purpose, however, the plants are best grown in pots and planted out in spring. It is a perennial, but never so strong as in the first year; it is therefore advisable to divide the old plants and grow a stock from the offsets or raise seedlings; the latter are the most satisfactory, being always the strongest. The seed should be sown in autumn as soon as it is ripe in pots under glass; prick off the seedlings when up and give them a shift as soon as they are ready to handle. The protection of a cold frame will be found quite sufficient for them. In rich top-dressed ground this Campanula often reaches a height of from 6 feet to 7 feet, the stem being straight, much branched, and pyramidal, and well furnished with flowers from bottom to top. The leaves are smooth, shiny, and evenly serrated, those at the root cordate, the upper ones being much narrower and ovate; flowers spreading, five-parted, light blue, sometimes white. It is a native of Southern Europe, and flowers late in the summer and autumn.

C. latiloba (C. grandis).—This plant is closely allied to persicifolia, from which, however, it differs in having sessile flowers and large permanent bracts. It is very useful for the decoration of rockwork, the more so as it forms dense masses of persistent lanceolate leaves, slightly undulated. It grows from 3 feet to 4 feet high, with a closely set spike of flat purple flowers. There is also a white variety.

The Creeping Bellflower (C. rapunculoides), the subject of the accompanying illustration, is one of the boldest and showiest of our native flowers. In some parts of Scotland—Fife, for instance—it is very common, but less so in England, and is naturalised in America. It is well worth growing in the hardy plant border, as it is so handsome when in flower. When well developed it is a yard or more in height, and the slender stems are burthened with drooping, purple bells, as shown in the picture. It needs no culture and will hold its own against the strongest. D. K.

Colchicum crociflorum.—As there seems to be a decided conflict of authorities as to which of two most distinct and different plants should bear the above cited designation, I shall be glad if any of your readers who is competent to do so, and who is able to refer to the botanical works mentioned in this note, will kindly inform me

whether the autumnal flowering variety figured in the 53rd volume of the *Botanical Magazine*, plate 2673, with medium-sized lilac flowers, with rounded incurved petals, or the early spring-blooming small white-flowered species, with purple stripes on the outside petals, as figured by Doctor Regel on plate 1035 of the volume of his *Gartenflora* for 1881, is the true Colchicum crociflorum, as both bear the name, and they have not the faintest resemblance the one to the other. The last named species was sent to me by a Belgian nurseryman as C. luteum.—W. E. G.

GLADIOLI AND THEIR CULTURE.

Much has been said about Gladioli dying off from disease, which they do to a great extent in some places and soils; but that they do well in others is equally certain, or bulbs would not be so plentiful as they now are. Many fail with them because they plant them in over-manured land, which stimulates them and produces large corms, but it is done at the cost of soundness; and the consequence is, they are neither firm nor ripe at the time of taking up, and, as a natural result, shrivel and die in the winter. Where I have always seen them do best is in fresh, sharp, gritty soil, from which they always come up clean and sound, and, if properly stored, remain so till the season arrives for planting again. The proper time to plant is just now, for if they remain out of the ground longer, they lose weight and shrivel, which reduces their vital strength very materially; so much so, that they start but feebly, and send forth the poorest of flowers. If the land is wet and unfavourable, as is likely to be the case after so much rain, it will be advisable not to wait, but to start the corms, by either potting them singly or placing them in boxes of sandy leaf-mould, from which they can be easily lifted and put in their places when we get more favourable weather Meantime the ground can be prepared by digging, or, if the plants are to be grown in clumps on borders among herbaceous subjects, or in front of shrubs, holes should be dug out, and have some road scrapings worked in among the other soil when returning it again to its former position. All will then be in readiness for planting, which should be done by the aid of a trowel, as the plants can then be dropped into and covered carefully with the earth without breaking or injuring the roots or young shoots starting from the crown of the corms. If these latter are dry and dormant, they may be dibbled in, in which case it is always advisable to drop a little clean sand over them, which keeps the soil from coming in immediate contact with the bulbs, and thus secures free drainage around them, and by that means preserves them from rot. When once planted, Gladioli require little or no further attention till they begin to send up their bloom, and then, if the weather is dry, they are greatly benefited by an occasional watering; but before doing this it is as well to mulch round them, which not only prevents a washing away and cracking of the earth, but impedes evaporation, and thus keeps the plants in a more uniform state as to moisture. As the flower-spikes are tall and heavy, they need support early, and in staking them care should be taken that the points of the stakes be not driven into the corms, as would most likely be the case if driven in near to the stems. Although the beauty of Gladioli is over rather early in the year, the plants should not be hurried out of the ground, but left there till quite late in the autumn to ripen, for so long as the leaves are green they are of use in assisting to swell up and mature the bulbs. Directly, however, the tops die away they may be lifted at once, and after being laid on shelves in a shed to dry stored for the winter. The way in which they keep best is in small bags containing a little silver sand, or in small pots covered with the same, as, being absorbent, it prevents damping, and keeps the air from acting on and shrivelling the roots. Not only are Gladioli effective in beds and borders, but they are also valuable in pots, especially the ramosus section, which are small and dwarf, and afford nice light spikes of varied and lovely coloured flowers, which when cut continue to open and last long in water. To have good masses of these kinds, several bulbs should be placed in a 7-inch pot, as they will have plenty of room, and if potted in good sandy loam, they are sure to do well. The hybrids of gandavensis and brenchleyensis should be potted singly, as, being so much larger, they require more root space; but, otherwise, the whole may be treated alike. The best place in which to grow them is a cold frame, where they should be plunged in ashes, and not watered, unless the soil gets very dry, till they are in full leaf, after which weak liquid manure will be a great help. Later on, when the weather becomes warm, the lights may be withdrawn; and at all times the plants should have air to keep them strong and prevent them from drawing, which they soon do if grown in a close, confined space. S. D.

CLEMATIS JACKMANNI ALBA.

In 1877 we published in "The Clematis as a Garden Flower" the following description of this variety, which had been raised by Mr. C. Noble, of Bagshot, and had been exhibited by him in the shape of cut specimens at one of the meetings of the Royal Horticultural Society:—

"A light-coloured variety, apparently belonging to the early Jackmanni group, and raised from C. Jackmanni crossed by C. Fortunei. It is of vigorous growing habit, the leaves pinnately divided with ovate lanceolate leaflets, or ternate with the terminal leaflets sometimes lobed. The flowers are four to six-sepalled, of a greyish white, the sepals elliptic-oblong acuminate, the filaments short, white, with whitish brown anthers. It is the nearest approach yet made to that great desideratum, a white-flowered Clematis Jackmanni."

From that time till the past summer little or nothing was heard of C. Jackmanni alba. Some fatality seems to have attended it, and prevented its oft-expected reappearance in public; in fact, we believe, it was at one time nearly lost, but it has at last revived, and on July 24 Mr. Noble produced at South Kensington a handsomely-grown and well-flowered specimen, which received the unanimous award of a first-class certificate, and well deserved such a mark of distinction. Like true Jackmanni, it has pinnated (not ternate) foliage, and, like that variety, too, it bears on the current year's shoots masses of flowers, also, like it, variable as to the number of sepals, some flowers having six, and others only five, or four. Again, as in that splendid hybrid, as soon as the earlier flowers die off they are replaced by clusters of buds which spring up to succeed them, by which means the continuous succession of blossoms characteristic of the group is assured. The colour effect of the flowers is white, but on close inspection they are found to be just tinged with blue, which gives them the faintest possible flush of grey. We hope it may prove to be as hardy and vigorous a grower as C. Jackmanni itself, which, on account of its hardiness, vigour of growth, and freedom of flowering, stands at the head of shrubby climbers for the outdoor garden.

"In a fine illustrated work on the larger flowered Clematises recently published, M Lavallée has asserted that C. Jackmanni is not Jackmanni—that is to say, it is not a hybrid, as stated by the raiser Mr. G. Jackman, but a species (hakonensis) first introduced from Japan, and then according to this theory claimed as an English seedling. We are bold to assert, on the contrary, that C. Jackmanni is Jackmanni and nothing else, a veritable hybrid, of which the origin and the whole history is well known to many of us, and which was raised nearly twenty years before C. hakonensis was described. The characteristics assigned to C. hakonensis, moreover, do not tally with those of C. Jackmanni, since the former has the leaves 'ternate,' and the sepals 'scarcely an inch long,' whereas in the latter the leaves are pinnate, with five or more leaflets, and the sepals are at least 2½ inches long. It must therefore be concluded that M. Lavallée is altogether in a fog respecting the true C. Jackmanni."—*Florist.*

WHITE NEAPOLITAN CROCUS.

(C. IMPERATI ALBUS)

The ordinary form of the Neapolitan Crocus, with its beautiful fawn and purple-coloured blossoms, is now pretty well known as one of the loveliest of early spring flowers. The white variety of this Crocus is scarcely less beautiful, as the blossoms are of ivory whiteness, without even a suggestion of colour. The first sight we had of this rarity was about a month ago, when Miss C. M. Owen sent some flowers of it from her garden at Gorey, and from which the annexed illustration was prepared. There are several white Crocuses, but they all flower later than the white Imperati; hence we welcome it as a valuable addition to early spring flowers. It exists, we believe, in very few gardens in this country, and it is presumably rare even in a wild state. Perhaps Mr. Maw could tell us more about it.

Ipomæa pandurata.—Though no doubt what Mr. Way says (p. 169) about the performance of Ipomæa pandurata in the New England States is strictly accurate, I do not think that any fears need be entertained about it here. I have grown Ipomæa pandurata for seven or eight years, and I have kept it in order with the greatest possible ease. My plant, which has now attained to a great size, was given to me by Mr. Falconer, of Cambridge, Massachusetts, U.S.A.; it has a white corolla, with a purple eye, and when the summer has been hot its beauty is very much admired.—H. Ewbank, *St. John's, Ryde.*

Helleborus fœtidus.—Much has been written of late in The Garden concerning Hellebores, and they well deserve the interest and admiration bestowed upon them. There is, however, one of the family which has not once been mentioned, perhaps owing to its unfortunate name. I mean Helleborus fœtidus. Certainly it does not send forth the subtile odour of the Violet as "the gale sighs along," but it will not offend unless sought out. Placed in a pot, it forms a very handsome plant, displaying a pyramid of deep green, finely serrated leaves, the under ones falling over the pot, while a strong stem of bright Pea-green rises in the centre, crowned with many prettily cupped pale green flowers, sometimes tinged with red. It is extremely handsome in a basket, and blooms freely in a sunless window.—A. G.

Omphalodes verna, although by no means a scarce plant in gardens, is seldom seen in that perfection which, under favourable conditions, it is capable of attaining. It seems to thrive best in a damp shady position, and is seen to best advantage on projecting ledges of rock where there is sufficient soil for it to establish itself. In light sandy soil or in sunny places it never does well; indeed, if it lives at all, it is only to eke out a miserable existence. In the form and colour of its flowers it much resembles the Forget-me-not, and when grown as just stated, it forms dense overnanging masses, literally covered with pretty little azure white-eyed flowers, opening in mild seasons as early as February, and continuing throughout a good part of the summer. Its leaves are oval-shaped. A variety with pure white flowers sent out by Continental growers makes a good companion to it, and requires much the same treatment as the blue kind.—D. K.

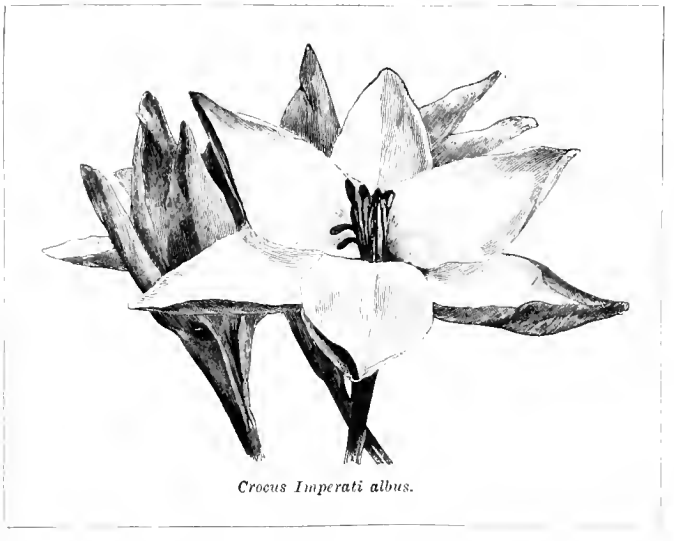
Plagues of the rockery.—I sympathise with "Delta" (p. 163), but if he has not been pestered by field mice he does not know what wholesale destruction means, although these vermin do not eat everything. They eat over all kinds of Pinks and Carnations by the square yard in a few days, but do not carry away the tops as a rule, only silently nibble every shoot through near the ground, and the injury is not discovered till the tops wither. I had a grand mass of rockery Pinks raised for planting last November, but by the time the place was ready for them they were nearly all de-

stroyed. I dare not use poison, but offered a penny a-piece for tails, provided the traps, and in a few days had 4s. worth of tails offered, and we have been going on at that rate ever since. In two or three days thirty were trapped at one spot, where the mice entered the rockery from the fields beyond. Soon after the Pinks left were transplanted, so I guessed the mice had communicated with their friends outside. As a last resource I have sprinkled the Pinks and Carnations, &c., with flowers of sulphur, and so far it seems to be a deterrent. There are two kinds of mice or voles—the long-tailed and the short-tailed, the former light grey in colour and the other reddish brown—two quite distinct animals that infest the same haunts and eat the same plants, but never seem to breed with each other. They will only take vegetable baits, Beans, Peas, &c.; a Crocus bulb they cannot resist; cheese they will also take and crusts, but not meat.—J. S.

KITCHEN GARDEN.

MAKING NEW ASPARAGUS BEDS.

THIS is the best time for making new beds for Asparagus. After having tried various seasons for transplanting, I find that the best results are obtained from performing that operation just as growth is commencing in spring, or when the young shoots are just bursting forth into growth. If moved during winter, or any length of time before growth commences, the roots that are broken in course of removal rot and weaken the crown; when, on the contrary, growth is active, fresh fibres are formed at once, and the cut ends heal quickly. Therefore I always transplant as soon as the young shoots are visible above ground, but, in order to ensure satisfactory growth afterwards, there must be thorough preparation of the soil by deep trenching and manuring, and regard should be had to imitate in some degree the soil in which it is found to grow most freely and to keep healthy for the greatest length of time. My own experience of Asparagus is that no vegetable is easier to cultivate if the soil is light and sandy; but, if stiff and retentive, it is one of the most perplexing crops that can be grown. In close proximity to the sea, where the soil is usually largely composed of sand, Asparagus grows luxuriantly and keeps healthy and productive for numbers of years. On the coast of Suffolk I have seen beds that had produced good crops for as many years as the oldest inhabitant could remember, and in this locality, where the soil is of a similar character, Asparagus grows freely in the natural soil without any special preparation. Young seedlings, too, spring up in abundance, a sure sign that the soil is congenial to their wants. Yet it is by no means rich soil naturally, but extremely light and stony. There is, however, usually a good depth of loose shingly soil and abundant drainage, and, thus situated, the fleshy roots of the Asparagus remain healthy. If enriched with manure, or, better still, with heavy dressings of seaweed, very fine shoots are the result, far superior to those produced in heavy, retentive soil in more inland counties, where Asparagus is short-lived at the best, unless special means are taken to render the staple light and porous by heavy dressings of sand or gritty substances, such as street sweepings, river or pit sand, ashes, leaf mould, or manure. The best I ever saw growing under purely artificial conditions was planted a yard apart each way on the surface, and covered with a mound of light sandy potting soil; that was added to annually, so that when the shoots were fit for gathering, the light soil could be drawn aside by the hand, and the shoots broken off at the base. Next in importance to providing a good depth of light sandy soil should be what is the only way of having really fine Asparagus, viz., allowing plenty of space from row to row and from plant to plant. No matter what variety is grown—either a Giant, Colossal, or any of the so-called new varieties—the produce will be no better than that of the old sort if crowded together. Put in healthy young plants a yard apart, being careful to cover the roots directly they are lifted with wet mats or Moss, or, better still, plant as they are lifted, covering each crown with a mound of rich, light soil, and as growth progresses, put stakes around each plant, and string or matting to keep the main shoots from getting broken off by wind-waving; and, after two seasons' growth, you may depend on getting such shoots, both for size, succulence, and flavour, as never could have been got in overcrowded beds. J. GROOM.



Crocus Imperati albus.

BUDA KALE BLANCHED.

QUITE a group of good qualities might justly be urged in favour of this useful and growingly-popular Borecole; it is easy to grow, fine plants of it being accommodated in less space than that which most others of the tribe need; it is tender and well flavoured, yet extremely hardy, affording till late in spring a sustained supply of delicious sprouts, and it is altogether a profitable and certain crop for anyone to grow. Moreover, by lifting the plants in small successive batches, placing them in some quite dark house to grow, and using the young blanched shoots in the same way as Seakale, an inexpensive and surprisingly good vegetable may be had for three months in winter. Numbers of people who like Seakale, but who deem it too expensive to grow, at least in any quantity, will find in this Buda, or Asparagus Kale, a capital substitute; it does not possess the full flavour of well-grown Seakale certainly, but when well blanched, gathered in time, and properly cooked, it is not greatly inferior to it. Plants of it with stout fleshy stems, grown in well-tilled ground, will furnish a dish each when gently forced. In the case of this Kale the term forcing is almost misapplied; no fire heat or fermenting material is wanted. If put in a dry, dark place, secure from frost, it will quickly commence to grow. Some such place is easily devised, and plants, according to the requirements, put in every week, would maintain a fresh and regular supply. Our method is to take indoors a couple of dozen at a time. We lift them with forks, with a good bunch of roots and soil adhering to each, and put them as close as they will stand together in a Mushroom house or on the floor of a dark Potato store. They must be lifted when dry, and all, except the small heart leaves, ought to be stripped clean off them; if cut with a knife close to the stems, the ends left of the leaf-stalks would soon rot, and, dropping, cause an offensive smell. A little moist soil is worked in amongst the roots, but they are not watered; there is moisture enough in them to feed the growth made in the dark. We find that if watered they imbibe too much; after the heart shoots are cut, much superfluous sap exudes, which injuriously affects the side shoots; if not watered, but little of this occurs. The crown shoots soon grow after housing, and these furnish the first cutting, but the profusion of side sprouts which follow are the best; these should be cooked when 3 inches or 4 inches long, and, above all, used soon after being cut. Much of the excellence of all forced vegetables depends upon their not being suffered to lie about for days before being sent to table, an occurrence by no means unusual, the result being that they become tough and ill-flavoured. I have not tried any of the other varieties of Borecole in this way; but doubtless some of them would answer quite as well as the Buda. The middle or end of April is soon enough to sow for a supply of plants; they will then be fit to plant out after crops of the earliest vegetables are cleared off.

Cranmore. A. MOORE.

Snow's Winter White Broccoli.—A correction by Mr. Gilbert is always welcomed by me, but I stated what I considered the best time to sow the above in our garden, the soil of which happens to be of a very different character from his. Everything when first planted on our cold clayey soil makes very slow progress, and at one time I was too late with the sowings of several important crops. Mr. Gilbert's "cultivators" would be useless, and the "crowbar system—no digging"—will not answer here. At the same time I commend Mr. Gilbert's practice (p. 197) to those in charge of or owning gardens more resembling that at Burghley than ours.—W. I.

Birds and seeds.—Allow me to inform Mr. Dobbie (p. 176) that even in suburban places we are greatly troubled with birds—more, perhaps, than he and others in the country may imagine. At all events I have experienced more difficulty with regard to birds here than in any other place I know. Last season, for instance, I could not get a good row of Peas, either early or late, on account of them. Even if netted they get underneath and commit sad havoc. I have also tried both black and white cotton as preventives, but all to no purpose. I have likewise tried soot, with which I have dusted Radish, Turnip, and Lettuce beds twice a week, but without effect. As to flowers, they have eaten thousands of Crocus and Primrose blooms this season. In fact, I think birds are worse in suburban gardens than in the country. In many places, too, employers dislike destroying these destructive creatures, though it is vexatious to a gardener to lose his crops in the way just described.—W. A. COOK, *East Sheen.*

Two large Potatoes.—Anyone on the outlook for very large Potatoes may find them in White Elephant and International. These are both kidney varieties which produce tubers of extraordinary size. Both are vigorous growers, and therefore should be planted a good distance apart.—J. C. C.

Broccoli and Cauliflower in some shape we have all the year round. Our early Cauliflower is sown about the middle of August, wintered in frames, and put out into south borders in April. We always highly manure the land for this crop, and get well repaid. After trying all kinds, Early Erfurt we like best. It is dwarf; the head is particularly close, and the colour milk white; in fact, we have all we can wish for in this variety. These came into use about the middle of June and lasted up to August. Very good small heads may be obtained from the side shoots by cutting away all the leaves at the time when the Cauliflower is cut, and treating the plants to a good soaking of manure water. By the above method I have had some very useful dishes.—R. Gilbert, *Burghley*.

Jerusalem Artichokes.—The planting season having again arrived, it may not be out of place to say a word in favour of this Artichoke, concerning which there exists much misconception. In the first place, any spare corner is considered good enough for it, simply because it will grow and produce tubers of some kind under any sort of maltreatment. In the second place, I have heard several people assert that a shaded position suits it best. Now, I can confidently state that this Artichoke will repay, being given the best position available, better than Potatoes, for it will produce treble the weight of tubers, and, moreover, they are frequently worth more in the market than Potatoes, simply because so few trouble to grow them really well, and as regards position, I may mention that last year I planted some in full sunshine where the soil was very stony, and in summer so hot and dry that the Artichokes looked as if they would be scorched: they did not make much top growth, but when we lifted them I was surprised to find quite a mass of fine tubers. I have frequently seen the tops more than double the height with less weight of crop; therefore in future I shall select the most open sunny position possible for this Artichoke, and place the rows a yard apart. This Artichoke ought to be more generally grown than it is; it is only from want of trying it that it is so little appreciated as a really first-class vegetable. Its culture is extremely easy, and the best storehouse for it is in this ground until required for use. When severe winters curtail the supply of tender vegetables, this Artichoke forms a most useful reserve to fall back upon.—J. G., *Hants*.

GUMMING NOT CONTAGIOUS.

I read in The Garden of March 1 that "Dr. Beijerinck was induced to make experimental inoculations of the gum disease by suspicions that, like some other diseases observed in plants, it was due to bacteria. He ascertained that it is in a high degree contagious, and can easily be produced by inserting the gum under the edge of a wound through the bark." In addition to this, we are told that: "The cells of this parenchyma, well known among the features of gum disease, are cubical or polyhedral, thin-walled, and rich in protoplasm. This in its turn is transformed into gum, such as fills the gum channels and other cavities found in wood, and sometimes regarded as gum glands. And from this also the new ferment fluid constantly produced, and tracking along the tissues of the branches, conveys the Coryneum infection beyond the places in which its mycelium can be found." From this I apprehend Dr. Beijerinck means that the gum disease is contagious, and spreads throughout the tree. Now, there are few diseases with which gardeners are more familiar than gumming, but their experience is quite different from that of Dr. Beijerinck. In this, as in many other things, the practical and scientific element appears to be in conflict. I have not the slightest faith in this new gum theory if it means that the disease is communicated from trees, like smallpox or the measles, &c., in the human subject, and so spreads, because in Peach culture, although gumming has every opportunity of spreading by contagion, it does nothing of the kind, but is produced spontaneously by external causes, and can be eradicated if not gone too far. Gumming in the Cherry and Plum, which is said to be the same as that in the Peach, never seems to do the least harm, but in the Peach it works great injury when developed in a serious form. It does not spread, however, and as often as otherwise is confined to a single limb or branch. I believe I have had as large an experience of it as anybody in our Peach trees, &c; I am therefore able to form some opinion of my own regarding it.

Our late Peach houses, previous to planting our young trees, were wired with galvanised wire to which the shoots were trained. The first year, as I have recorded before, these trees were allowed to grow as much as possible, and were all right at the end of the year, but in February when they came to be pruned the shoots were found to be injured wherever they had touched the galvanised wires, and at every wound they had commenced to gum. The branches that had been killed by the wires I removed, but the others having a good piece of bark and wood on one side I left, as if I had cut all the injured and gummed branches away I should have practically destroyed the trees. I knew, however, that the gumming was due to the injury from the galvanised wires, the ill effects of which have been so well substantiated by many gardeners since then, and by removing the cause through painting the wires I reckoned on the trees growing out of the gumming, which they did in a couple of years, for it quite disappeared. Now, here were trees affected by gum in nearly all their branches, and which recovered as soon as the cause which produced the wounds that caused the gum was removed, for it is notorious that gumming almost always begins at old wounds. If gumming is contagious in the sense in which the word is ordinarily understood, would trees so badly affected have recovered? I trow not. I have no objections to any physiologist vaccinating our trees with gum in as many places as he likes, as I am sure he will not be able to establish the disease.

Take another example. In the year 1866 I planted a Peach tree, now one of the largest and most fruitful on the place, and carrying at the present date about 100 dozen fruit about the stoning period. This tree was not well ripened when planted, and I cut back the four limbs it consisted of, as I thought, beyond the immature point, well knowing that such shoots were more likely to produce gumming than anything else; but in my reluctance to prune severely I did not cut one of the shoots far enough and the result was a severe attack of gumming at the point where the shoot was severed. About a year afterwards I examined the place and found the cut had never quite healed over and that the wood was black near the pith, extending down into the shoot a good bit. I scooped out this dead tissue as far as I could and stuffed the wound up, but the following winter it grew worse, so I took a narrow gouge and bored the shoot down the centre till I thought I had got out every portion of the dead heart and stuffed the hole up with white lead, cutting away all suspicious-looking bark, what was good consisting by this time of only about one-third of the thickness of the branch. This would be in 1868, and the treatment arrested the disease for some years, no sign of it appearing, but the limb remained much the weakest of the four till about three years ago, when it finally died off at the gummed place—nearly thirteen years afterwards. In this case more than in the other the disease had an excellent opportunity of infecting the other branches, for it originated close to the junction of all the main limbs, but it never appeared anywhere but at the one spot mentioned, and the tree is now one of the finest and largest in the kingdom. I attach more importance to instances of this kind than to artificial inoculation, because a contagious disease established in the plant is more likely to spread if it will spread.

No one need fear gumming unless it is very bad, provided the trees are tolerably vigorous; and the best means of eradicating it is to root-prune in the case of gross, watery trees, and encourage the branches to grow freely, getting the wood well ripened, and thereby inducing the trees to grow out of it. J. S. W.

Garden Flora.

PLATE 431.

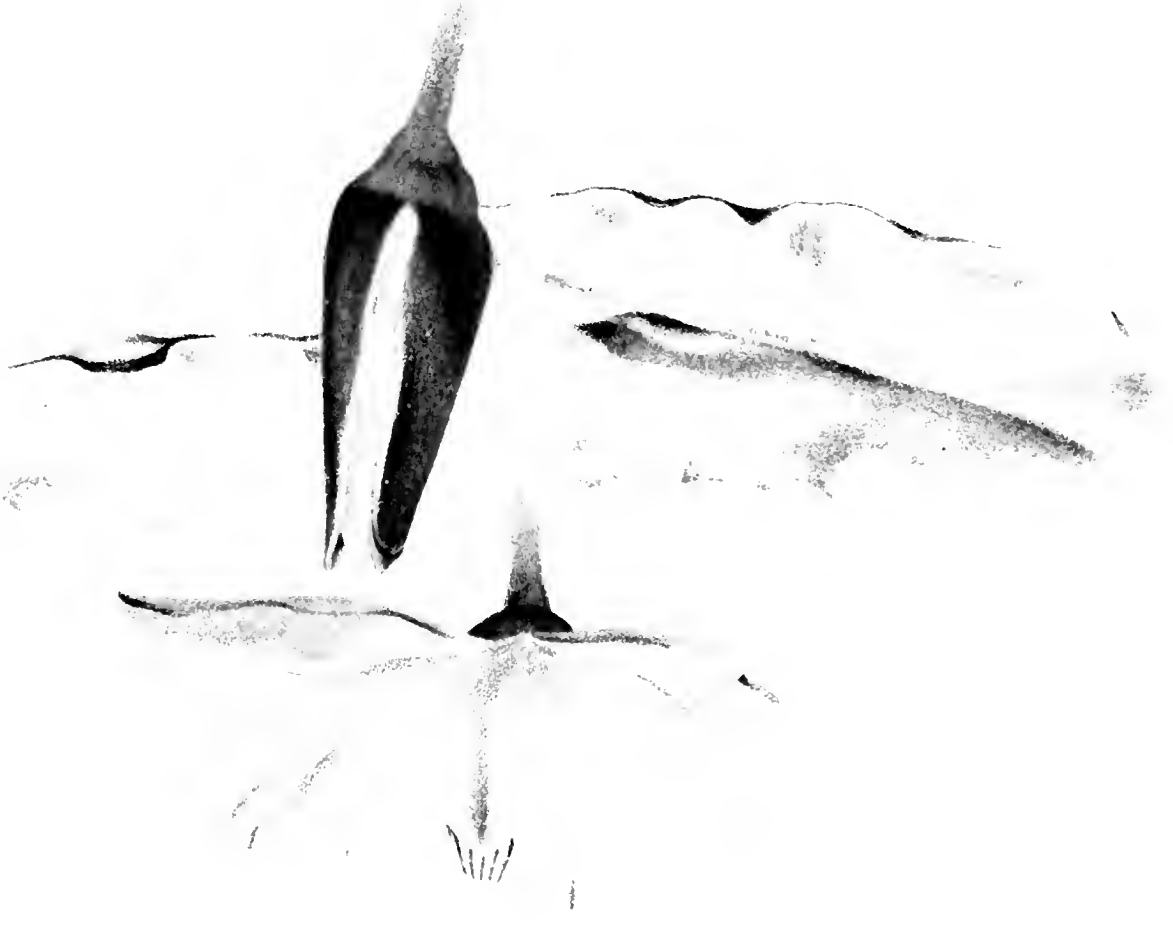
THE ZANZIBAR WATER LILY.

(NYMPHÆA ZANZIBARENSIS.*)

The accompanying coloured plate represents the flowers and foliage of one of the most beautiful of Water Lilies, for which we are indebted to the African traveller, Hildebrandt, who forwarded seeds of it from Zanzibar to Professor Caspary in 1874. For many years Prof. Caspary has paid much attention to Water Lilies, and has spared no pains to induce travellers and collectors to send home seeds of any Nymphæas with which they might happen to meet. In his garden N. zanzibarensis produced its flowers, for the first time in Europe, nearly ten years ago, but it was not until last year that the plant found its way into English collections by means of Kew, where it flowered for the first time in June, and although too small to produce full-sized flowers, yet those which it did produce were sufficient to justify the high encomiums bestowed on it by those who had seen it in Continental gardens. The annexed drawing was made from the Kew plant last June, when the flowers it produced were much smaller than those borne by the same plant later in the year. Prof. Caspary says the flowers of N. zanzibarensis are larger than he has seen them in N. gigantea, and as these are 9 inches in diameter, it will be apparent what a magnificent Water Lily we possess in this recent addition. Last year, when writing about Nymphæas (see Vol. XXIII., p. 335), I stated that, although I had not seen the flowers of N. zanzibarensis, it was probably a fine variety of the very variable N. stellata, forms of which are found plentifully in Southern Africa, as well as in various parts of India, and which are cultivated in gardens under different names. When the Kew plant flowered it was identified by Professor Oliver as a variety of N. stellata, so that for botanical purposes N. zanzibarensis must be considered as another addition to the already numerous forms of the common African species, although for the sake of brevity in garden names the present designation will be sufficient. Previous to the introduction of this new kind, the blue-flowered Nymphæas in cultivation were the typical N. stellata, along with its varieties cærulea, capensis, parviflora, scutifolia, cyanea, micrantha, and the rare madagascarensis, the flowers of which are of various shades of blue, and all of them more or less fragrant; also N. Daubenyana, a kind with pale blue flowers, supposed to be a hybrid; and N. gigantea, the large-flowered Australian species which under cultivation has hitherto proved unsatisfactory. In the whole of these the blue is always light, none of them approaching N. zanzibarensis in depth of colour, which in the last mentioned is deep violet, almost purple in fact, though the most accurate description for it is violet with a shade of purple, which on the lower petals, and especially on the sepals, is intensified until it becomes almost crimson.

The flowers expand in the forenoon and remain open until dusk, when they close until the following morning, each flower lasting about a fortnight before finally sinking below the water to ripen its seeds. Two and sometimes three flowers

* Drawn in the Royal Gardens, Kew, Nov. 14, 1883.



are opened at the same time, a character which, taken along with its habit of remaining open all day, should render this plant more popular even than many of the large red and white kinds whose habit of closing their flowers at mid-day is disappointing.

Being a native of the hot Zanzibar territory, N. zanzibarensis requires a tropical tank for its successful cultivation. Seeds ripen freely if the process of fertilisation is performed by hand, and these germinate readily if sown in pots of loam and placed in a warm tank. Being a large growing kind, it will be well to plant tubers of N. zanzibarensis in large, wide pots or pans, so that the roots will have plenty of room and sufficient food for the plant during the year, as unless really necessary, it is not advisable to repot Nymphæas after they have once started into active growth.

B.

SEASONABLE WORK.

FLOWER GARDEN.

Violas and other bedding plants.—Where spring bedding is not practised and the beds vacant, several kinds of hardy flowers may now be planted, each bed, as regards manure and digging or trenching, being given such treatment as the intended occupants demand to produce the best results. Violas, Pansies, Calceolarias, and Verbenas never thrive satisfactorily without abundance of manure and deep digging, but, given these, failure is all but impossible, on the other hand, it should be remembered that it is possible to have too much of a good thing; for instance, in rich soil many kinds of Pelargoniums, though they will grow like weeds, refuse to flower, and the same may be said of Ageratums, Heliotropes, Lantanas, and many others. Still, it will not be safe to follow this line of treatment too severely; there are always exceptions to rules; for example, fine foliaged Pelargoniums must have as liberal treatment as Violas and Calceolarias if they are to grow and colour in perfection. But to return to Violas: plant them out as early as possible in the richest soil, and no other spring or summer flower will be able to match them for free and continuous blooming, and few kinds equal them either for massing or edgings. The best all-the-year-round varieties are Bluebell, Tory (blue), Crown Jewel (blue), Princess Teck (light mauve), Snowflake (white), and Lutea (yellow). On the terrace at Hampton Court Palace one summer the blue varieties were used more effectively than we ever before saw them as a carpet or setting for the tall variegated Abutilon Thomsoni and Darwini. Several large oblong beds were so planted, and though there were most elaborate carpet beds, grand beds of Pelargoniums, Verbenas, &c., none were half so beautiful as these, and it should be added that the simplicity of the arrangement in no small measure enhanced the general effect. Had the beds in question been planted with an outer marginal edging of golden variegated Arabis, the arrangement would have been as near perfection as it is possible for any bedding arrangement to be. Once arrangements are completed, there are sundry other kinds of hardy bedders that should be planted at this early period, not only because the plants will be likely to do better, but also because much precious time will be saved when the busy season arrives. Among these are the variegated Arabis, Ajugas, Cerastiums, Golden Feather, variegated Thymes, variegated Lamiums, Lavender Cottons, Veronica incana, and Euonymus radicans. This last makes a striking and permanent edging, and is especially well suited for edgings to beds of Cannas and Castor-oils, or indeed for any fine-foliaged plants.

Annuals and biennials.—It is now time to sow many of these, and especially those intended to be used in the general bedding arrangements. The endless varieties of good kinds of Pelargonium have pushed to the rear many good old annuals that twenty years ago did excellent duty on the parterre; foremost amongst these may be named Sanvitalia procumbens, compact and dwarf, with light yellow flowers having a black disc; Saponaria calabrica, similar in habit of growth, but slightly taller; Brachycome iberidifolia, same habit as the last, but having bright blue flowers; Portulacas of several colours, but all of low dense growth, and alike suitable either for outer lines of beds or for massing in small beds; Silene pendula compacta, not unlike the Saponaria just named, but, owing to the habit of the plant being tufty, the effect produced by the two plants is very different; Tagetes signata pumila, bright yellow—in poor soil it is dwarf and keeps in flower for months. These are a few only of the many kinds of annuals that may be relied on for summer bedding, and which, if used in fair proportion to other kinds, will tend to obviate the charge of sameness often made against bedding arrangements. They should be sown now on a south aspect in the open garden. If lights can be placed over them till fairly well out of the ground, all the better; but after this the more they are exposed, the more robust will be their growth. If sown thinly, no transplanting will be needed till they can be placed in permanent positions. Asters, Stocks, Zinnias, Phloxes, Indian Pinks, and Everlastings should also now be sown in frames; and Wallflowers, Antirrhinums, Sweet Williams, Larkspurs, &c, in the open air. To guard against loss through slugs and birds whilst the plants are in the seedling state, when possible all the kinds should have the protection of frames or handlights; lacking such structures, sow the seeds on a plot of ground by themselves, and as soon as sown, sprinkle the ground thickly with wood ashes and soot, the best preventive against injury from slugs; and against injury from birds, net over the entire plot.

FLORAL DECORATIONS.

On a recent occasion, in order to provide an arrangement as a centre-piece for a dinner table of considerable size, a shapely, handsome plant of Geonoma gracilis, furnished with about seven leaves, the plant itself being nearly 3 feet high, including the pot, was selected. This Palm, having been grown in a 4½-inch sized pot, was well adapted for the purpose. It was turned out of the pot on to the centre of an oval meat dish, measuring 2 feet 3 inches in length, and made secure in its position with sand, filling up to the edges of the dish. After this we plunged six or seven small plants of Asplenium Veitchi that had been grown in 2½-inch pots around the base of the Geonoma. At the two ends we used two very small plants of Pandanus Veitchi nicely variegated and well developed; also four small growths of Pandanus graminifolius at the sides. As a base to rest on the cloth we secured small leaves of variegated Begonias and of Alocasia metallica and a few fronds of Nephrodium molle. In order to hide the sand we covered the surface with fresh green Moss. Having some spikes of Eucharis amazonica with the last flowers just expanded, we used four with five flowers in all, and stems from 1 foot to 15 inches in length, placing them around the centre plant, not too closely. To harmonise with these we had several stems with fresh foliage of Cyperus alternifolius, and some spikes of Narcissus (Paper-white and early Roman), and growths of the same cut off close to the soil. Around these we dotted some growths and good spikes of Lily of the Valley. A few spikes of Chinese Primula, chiefly white, completed the arrangement, which, when on the table, which was lighted with candles, had a very pleasing effect. Had the room been lighted with gas, it would not have looked nearly so well; the foliage of the Geonoma would then have cast a shade on the surroundings. Two small plants of Cocos Weddelliana were placed in two soup plates, and secured there with sand and green Moss, amongst which were dotted a few Tulip blooms and a base of large growing forms of Adiantums, with a few fronds of the Maiden-hair among the Tulips. Blossoms of Camellias in various colours were used in specimen glasses. No costly epergnes or valuable glass were used, yet the entire arrangement gave every satisfaction. Those of us who have much bouquet work to do ought to grow Staphylea colchica, for which purpose it appears to be a valuable plant. Choice cut Roses should be made the most of; individual flowers look well in specimen glasses, but should neither be set in a draughty place, nor where there is too much heat; in either case they will soon fade.

INDOOR PLANTS.

Bulbous plants, such as Hyacinths, Tulips, and Narcissi, as well as hardy shrubs used for flowering in pots, do not require much forcing after this time, as they naturally come into bloom under glass without much fire heat; where there is any deficiency of the ordinary spring-flowering greenhouse stock to keep up the requisite supply of bloom to follow the forced plants, a portion of bulbs and other hardy subjects may with advantage be kept back by giving them no more warmth than that afforded by greenhouse treatment. The indifferent usage which forced bulbs frequently receive after flowering makes them of little use subsequently; whereas, if fairly cared for, Tulips, Narcissi, Crocuses, and even Hyacinths, answer well for outdoor cultivation. With their foliage soft and tender, consequent on the forcing to which they have been subjected, they are often at once put out in the open air; whereas if turned out into a bed of prepared good soil in a frame and well attended to until their growth stands a chance of getting matured, they will do good service in after years planted where they are to remain.

Hardy shrubs.—These are also often badly used when they have done blooming under glass. Lilacs and Laurustinus, especially such of these as have been prepared for pot culture along with double Prunus, Ghent and the mollis varieties of Azalea, and Rhododendrons, should have a place in a pit or any spare structure where their growth can be fairly matured before being exposed to the open air. Deutzia gracilis should, if room can be found, be kept in warmth, such as that afforded by a vinery at work, until the wood is hard and the next year's flower-buds visible.

Camellias.—As these go out of flower they should, if affected with white or brown scale, at once be cleared from it, as it will increase apace under the warmer treatment to which the plants ought to be subjected whilst making their growth. I have found nothing better to assist them during the time when growth is being made than soot water, which not only has an invigorating effect and improves the size and colour of the leaves, but also banishes worms from the soil, should these be present. A little shade will now be beneficial to those that are making growth, and also to those that are in bloom, as the flowers will not last long if subjected to bright sunshine. In the case of examples that are turned out in beds as well as in pots or tubs, be careful that the whole of the soil is sufficiently moist, for Camellias more than most plants cannot endure drought at the root, particularly whilst their flowers are opening and their growth is being made.

Azaleas.—Such of these as have been forced to come in during the winter and have done blooming should immediately they are out of flower have the seed-pods picked off, as the production of seed exhausts the plants even more than the flowers. If they are not at once placed in a little heat, and kept growing until their bloom-buds are fully formed, the time of their flowering next season can be accelerated. The course here advised is different from that of keeping the plants after flowering for a time in an ordinary, dry, cool greenhouse temperature, and then placing them out-of-doors early in the summer with the season's shoots only partially matured. So managed they will bloom in a certain way, but the fact of Azaleas flowering at all under such treatment only shows their accommodating nature; the growth and bloom so produced are extremely meagre and

poor compared with that which is attainable under more liberal management. In all cases care should be taken that the plants before being started into growth are quite free from their worst enemy, thrips. Tobacco water is the safest and best remedy ont of the many we have tried for the destruction of these pests and their eggs. It is much better not to shift any plants that require potting until the young shoots have made some progress, as the roots of Azaleas do not begin to move nearly so early as the top growth. Plants required for late blooming, to come in say at the end of May and the following month, should now be moved to a north house, and kept as cool as possible without subjecting them to absolute frost.

Roses, such as are grown in conservatories, or in any structure along with other plants, require especial care at this season to see that they are free from aphides. Where planted out, if the soil needs manurial assistance, this should at once be given, as on this mainly depends the successional crop of bloom. Where Hybrid Perpetuals are used in quantity for forcing they should now be introduced to the Rose house in succession; these will give flowers at a time when the Tea varieties that have been earliest at work are beginning to fall off more or less, but even in the case of the latter it is surprising how they will keep yielding a succession of bloom if they are regularly supplied with manure water from the time when they are first started; without this the after growth comes too weak to bloom strongly.

Lilies.—Any of these that have been wintered in cellars and under plant stages should, immediately the shoots appear above the soil, be placed in a light position, or they will become drawn and weak, a condition that no after treatment can rectify. See that the soil is sufficiently moist, but not too much so. The different varieties of L. speciosum, L. auratum, and a few others as soon as they begin to grow do well in a cold pit where they can be kept near the glass. In this way they make strong sturdy growth, calculated to flower well. L. eximium, than which there is no more useful species, coming in as it does before the other kinds, should be grown by all who have a greenhouse. From this time forward it will bear a little warmth if its early flowering is desired. It is most serviceable when two or three good strong bulbs are grown together in a 7-inch or 8-inch pot.

ORCHIDS.

East India house.—In northern districts it may not be necessary to shade much in March, but in the south the cultivator must be on the alert, inasmuch as it is easy enough to get the plants injured this month. After a week, perhaps, of dull cold weather, the sun comes out quite hot towards the end of the month, and if the shading is not ready to be let down the sudden change is injurious. Of course all Orchids do not require shading alike; some of them rather like a little sunshine, but as a rule the occupants of the warmest house must not be exposed to too much sunshine, even at this season. The temperature ought not to fall too low. Indeed, it is important at this season, that the occupants of this house should experience no check of any kind. Not until this season have we been able to judge correctly of the extreme beauty of Angræcum citratum, grown in masses as it is in Messrs. Low's nursery at Clapton, or as isolated specimens with a dozen plants in a pan, some of them producing spikes half a yard in length. It is a great remove from this little plant to the gigantic A. eburneum; this species takes up considerable space, as it does not flower freely until the plant is of large size, but it is very handsome when in flower and distinct in its character. The Phalænopsids in the numerous and varied species and varieties are now flowering freely, and make an interesting group in the shady part of the house. The new and beautiful P. Stuartiana requires exactly the same treatment as P. Schilleriana. This species is now in full beauty, and proves itself to be free in growth and so distinct and varied in the spotting, that it will be a general favourite, as much so as P. amabilis, grandiflora, and Schilleriana. The numerous Cypripediums that prefer the temperature of this house must now be looked over; some of them may require fresh potting material on the surface; the roots seem to interlace with each other until they form quite a network, and if some fresh growing Sphagnum is encouraged to cover the surface they do all the better for it. C. Veitchi should be kept more shaded than some of the others. We have seen the leaves of this species injured by the sun acting upon them through the shading. Let the minimum temperature be 65°.

Mexican house.—We are anxious to secure all the sunlight we can for our Cattleyas, and it would be very exceptionable weather indeed that would cause us to shade this month. Those who advocate the system of not shading at all are as likely to make a mistake as those who shade too much. Cattleyas have been grown from small bits into immense specimens, flowering well every year under the old system of judicious shading and watering, for watering is quite as important as shading. Those who have been successful for years by a system which they have practised are not likely to be driven about by every new notion that is promulgated; but the young growers who have yet to learn from experience would do well to be cautious how they go to either extreme. Lælia majalis, L. autumnalis, Cattleya citrina, and others of this type will do with a considerable amount of sun, but to expose them to the full blaze of summer sun at noonday would be to court disaster. As to giving definite instructions how and when to water Cattleyas, that is extremely difficult. Large plants containing a mass of organic matter near the roots may not require it oftener than once in a month. Small plants in 3-inch or 4-inch pots may need water once a week or oftener. If the pots are packed full of roots water may be more freely applied. There will be many plants requiring repotting this month. The handsome Mormodes luxata eburnea is now being introduced in quantity. It is really a most beautiful and distinct Orchid, and its time to be repotted is now; indeed, all of them may be seen to, although most of them, with the exception of this, do best in a warmer house. All the Thunias should now be shaken out and repotted, placing them as near the glass as convenient. The long stems have but few roots attached to them, and they will scarcely stand upright in the fibrous peat and Sphagnum without the aid of sticks. Some persons grow their Calanthes in the Cattleya house, but they make the best and cleanest growths in a warmer house—65°. They will grow in peat, but will not do nearly so well as they do in a compost of two parts fibrous loam, one part peat, a little dry stable manure and sharp sand added to keep it open. A mistake is sometimes made by over-potting these bulbs; we find three large ones may be potted in a 6-inch pot, and as many smaller ones in a 5-inch. These also succeed best in a position near the glass. Some of the finest bulbs we ever saw were potted in shallow Orchid pans, and in a position where the leaves were almost touching the glass.

Cool house.—The occupants of this house are exceedingly sensitive to the sun, and even where the house is a lean-to facing north, the sun has considerable power now, and no delay must be made in getting the shading up. We find our plants of Masdevallias, Odontoglossums, &c, repotted a few months ago, are now rooting freely; they will have all the season before them now to make their growth without any check. If any plants require repotting, they should be seen to at once. The method of repotting the ordinary types of Odontoglossums, &c, has been described in previous numbers. It may be useful to state that Odontoglossums suffer by allowing the flowers to remain too long open on the plants. We have had strong spikes of Odontoglossums remain in full beauty on the plants for nearly three months, but this often causes the bulbs to shrink, and the plants are thereby injured; they are not likely to start so strongly for the next growth. The spikes had better be cut as soon as the bulbs show the least signs of shrinking. A word may also be said in favour of Nanodes Medusæ. We were greatly pleased with a fine plant of it suspended from the roof in the cool house in Mr. Sillem's garden at Lower Sydenham. It was in such a position that the large, singular-looking, dull red flowers could be seen between the eye and the sunlight. The plants are best potted in pans or baskets in the usual compost of well-drained peat and Sphagnum. They should be freely supplied with water all through the growing season, and as they have no pseudo-bulbs, but merely a leafy stem, they ought at no time to go through a drying process. Plants of Masdevallias that required the temperature of a cool Cattleya house during the winter may now be brought into this house and placed at the warmest end of it. A rather moist atmosphere may now be maintained. The house ought to be damped by sprinkling the paths the first thing after six in the morning, and if there is a prospect of a dry, sunny day, under and over the stages as well. The house will be dry again before noon, and unless the weather is very drying, no more moisture need be evaporated until it is time to sprinkle the house again in the afternoon. It is better to allow an hour or two of comparative dryness at mid-day; it is unreasonable to suppose that any plants can be benefited by the atmosphere in which they are growing being always kept at saturation point.

FRUIT.

Pines.—By this time the most forward Queens will have reached the flowering stage, and if well ripened plants were selected, the remainder of the first batch will be showing their fruit. So far mild weather has favoured the maintenance of steady temperatures, and we may now hope that brighter days will enable us to strengthen the plants and economise fire heat by running up to 85° or 90° after closing with atmospheric moisture. The latter may be produced by damping all available spaces and gently dewing the plants about the axils of the leaves in preference to overhead syringing, but care must be observed, as plants which are closely plunged in tan or leaves are often injured by having too much water at this critical stage. It will of course be necessary to examine them regularly and to keep them moderately supplied with weak liquid or guano water, otherwise they will suffer from the opposite extreme. Let the bottom heat range from 85° to 90°, maintain a steady night temperature of 70°, and stir the fires early every morning in order to admit of timely ventilation when the warmth of the house approaches 80°.

Succession plants.—If the strongest of these were selected early in February and plunged in a bottom heat of 85°, they will be making the growth which usually precedes the appearance of the fruit. Gradually raise the temperature to 70° at night and 10° higher by day, water carefully, and defer overhead syringing until the fruit is well above the foliage. If not already done, get the strongest successions shifted into their fruiting pots. Let the crocks, pots, and soil be dry and warm, ram the latter very firm with a blunt-pointed stick, plunge in a sweet bottom-heat of 85° to 90°, and withhold water from the roots until they begin to work in the new compost. It often happens that this department at this season contains a number of good plants in rather large pots which they have not filled with roots. These should be examined, and if crocks, roots, and soil are not quite satisfactory, shake out and repot in pure loam, using pots one or two sizes smaller. Plunge in a sharp bottom-heat and treat as spring suckers. Examine the first batch of suckers which were potted about the middle of the past month, and give them a little water when the roots reach the crocks; also dew them over with the syringe on fine days and close early with sun-heat to start them into growth. If the heat in the bed has not receded below 85°, but little fire-heat will be needed in mild weather, as it will not be wise to force an elongated growth before

the roots get well established in the new soil. Keep the young plants near the glass, ventilate on all favourable days, and cover up with mats at night.

Vines.—Practical Grape growers who have to keep Mrs. Pince, Black Alicante, and Lady Downes fresh, black, and plump until new Hamburghs are ready will not have to be reminded that the houses should now be closed and the buds fairly moving by the middle of the present month. Assuming that the roots have the run of external and internal borders resting upon ample drainage, the inside roots, previously watered with cold water, may now be mulched and copiously watered with diluted liquid at a temperature of 90°; and as well matured wood has a great deal to do with compact shows, perfect fertilisation, and finish, a little extra fire heat combined with early closing on fine days will enable the cultivator to steal a march upon the spring, and give more time to the colouring and finishing process, which should be complete by the month of September. When the buds begin to swell, a somewhat higher temperature than that recommended for early houses may be indulged in; indeed, to have Lady Downes thin skinned, full flavoured, and capable of keeping fresh and plump until May, the Vines should receive Muscat treatment until the Grapes begin to colour, when Hamburgh treatment will insure colour. Black Morocco and Gros Colmar, when properly managed and allowed a long growing season, are valuable to use from January up to March, but they should be ripe in September. Gros Colmar should hang for some time on the Vines after the leaves fall, and a few weeks in a warm Grape room will remove the earthy flavour which makes badly ripened examples uneatable. A promising late Grape, Mrs. Pearson, is well worthy of a place in every autumn and winter vinery. As a grower it is quite as free as its inferior relative, the Golden Queen. It shows an abundance of handsome bunches, which set well, and my experience justifies me in saying it will keep for a long time and improve in quality after it is ripe.

Early houses.—When all the Grapes are thinned and the berries begin to swell away freely, give the inside borders another liberal supply of warm diluted liquid, and maintain a healthy growing atmosphere by damping the walls and floors with the same. Let the night temperature range from 65° to 68°, with a chink of air when practicable, and ventilate freely through the early part of the day to maintain the colour and texture of the foliage. A rise of 10° by day when fire-heat is applied will be quite sufficient, but 85° for a short time after the house is closed with sun-heat will add greatly to the size of the berries without distressing the Vines. If any part of the trellis remains uncovered, tie down the laterals in preference to hard stopping, and let all, with the exception of the strongest, have full play when the stoning process sets in.

Pot Vines.—The above treatment applies to fruit-bearing canes now swelling off crops. If all has gone well fresh roots will now be abundant and capable of taking warm diluted liquid at every watering. Encourage laterals where space admits. Shake out and repot cutbacks when they have made 2 inches of growth. Place them over a bed of fermenting leaves in a close pit and train near the glass.

KITCHEN GARDEN.

Where the ground is not too wet more Peas may be sown. We like the round better than the wrinkled ones at this season. Pride of the Market is a thoroughly good Pea, but as yet scarcely cheap enough for the million; we are therefore sowing Telegraph, an excellent variety. Another sowing of Broad Beans may also be made; the giant class of Beans, of late so fashionable, we are not in favour of. We sow Early Mazagan and good old Green Windsor. Few vegetables have come to the front more of late than Broad Beans eaten when about the size of Peas. Our first spring Cucumber plants will be in their places on Monday. We grow the first lot at the top of a stage where we place about a peck of soil in hillocks under each light, and as the roots come out more soil is added. Always have some in the house warmed. We have not grown Cucumbers long in this way, but can recommend the plan. Last year they did really well, and doubtless they will do so this season. Tomatoes should be staked at once to lead them up to the roof of the house; the temperature should be kept at from 60° to 65° at night, and there should be a proportionate rise with sun heat in the daytime, giving air when the heat has risen from 70° to 75°, but screen the air through canvas if possible.

ORCHIDS.

ARRANGEMENT IN ORCHID HOUSES.

Since the use of large numbers of plants for house decoration has come so much into fashion, an ability to arrange them effectively has become part of the duties of gardeners. So far is this kind of decoration carried in some establishments, that one of the staff is told off for the work. In such places the halls, corridors, and landings have regularly much the appearance of a conservatory. As a natural consequence, this has brought about an improved taste as regards grouping and arranging plants and flowers with reference to both form and colour; so much so, that the well-trained eye and practised hand with suitable materials can carry out this kind of grouping in a way that is artistic and effective. The competitions in plant grouping which many of the horticultural societies now introduce to their shows have done a good deal towards spreading more correct ideas in regard to arrangements of this description, and equally so in the more effective distribution of the plants in greenhouses and conservatories than used to prevail. Healthy, well-grown plants are always attractive, but their appearance is proportionately enhanced when an assemblage composed of the many varied forms are grouped artistically. The marked difference that tasteful arrangement effects compared with hap-hazard jumbling together is easily seen in a greenhouse where the most has been made in arranging the plants as compared with another where there has been no apparent object beyond simply filling the space available without even a thought as to the positions most conducive to the well-being of the different kinds brought together. Where the ordinary materials for furnishing a conservatory or greenhouse consisting of hard and soft-wooded plants are grown, this latter essential can generally, by the exercise of a little foresight, be carried out so as to combine a due regard for the health of the plants and their effective appearance as a whole, giving the best positions to those of most consequence, and using the least valuable and such as are annually grown up from cuttings or seeds, with a view to their being discarded after flowering, in the worst places.

The increase that has taken place during recent times in the cultivation of plants remarkable for their handsome foliage or elegant habit has done much to favour more effective arrangement in general plant structures, as most plants of this character are less impatient of being located in positions where there is a deficiency of light, such as would be fatal to many flowering things, particularly those of an enduring nature. As will be easily understood, the arrangement of plants with a view to their collective effective appearance applies particularly to such as are brought together in conservatories or houses similarly devoted to their display after they have been grown on in other structures where the wants of each particular kind in the matter of near proximity to the glass and other requirements of a like nature could be considered. If an attempt at effective arrangement is made the first consideration in houses where plants in their early stages are being brought on, the plants so managed are not likely to be of a character to reflect much credit on the cultivator, and it is needless to say that the more valuable those subjected to this kind of mistaken treatment are, the more marked will be the consequences, such as in the case of Orchids, where general effect is made a prior consideration to that of the plants individually.

It might have been supposed that the cost of these plants, and the anxiety generally felt to insure their healthy growth, would in all cases have been sufficient to put considerations about effective arrangements out of the question, and in most cases where collections of Orchids exist such is the case, yet not always. A disposition to have the plants immediately under the eye, so that they may be easily seen, is sometimes allowed to have an influence highly mischievous in its consequences by keeping them much further from the glass than they should be, with the certain consequence that they never get more than half the light they require or otherwise would have. The result of a course of this kind is that the plants so treated never have the vigour or attain the size they would if treatment in accordance with their requirements was given. Another mistake that is being made by some who have collections of Orchids is that far too many are hung from the roof above those that stand on the stages below, keeping the light from the latter to an extent that destroys their chance of thriving as they should. This is just a case of gaining in one direction and losing in another. A few suspended plants can in this way be accommodated with a marked gain in effective appearance without any appreciable harm to those in the body of the house, but to over-do matters in this direction to the extent that is being done in some collections is certain to end in not getting beyond mediocrity with the plants so overshaded by those hung from the roof.

T. Baines.

PRUNING ORCHIDS.

"J. S. W." seems still anxious to convince Orchid growers that this practice is defensible in the face of condemnatory evidence to the contrary. In support of his views he describes the condition of Dendrobiums and other Orchids in his possession that have been subjected to the process, but if he would act on the suggestion I made when the subject was discussed before, of showing some of his pruned plants at any one of the leading exhibitions, such as at the Regent's Park or Manchester, then there would be a chance of seeing whether the pruning knife when applied to Orchids in his hands had any better results than in those of others who have tried it. It is not necessary that the plants should be in flower. Those who understand Orchid cultivation can gauge the result of the treatment as well by the growth as by the bloom. "J. S. W." says he has proved to his own satisfaction that certain Orchids will grow perfectly well without their back bulbs, and that some will grow when deprived of all their bulbs for several years in succession, and that it is for those who write confidently on the other side to explain the facts or to deny them. This last is just what Orchid growers collectively do, and, resting their opinions on their experience, will continue to do until "J. S. W." brings out plants that will prove his assertion to be correct. The facts which he claims are not yet proved; when they are, it will be time enough for those he calls upon to explain them to do so. A sight of the plants that have for several years in succession had all their bulbs shorn off would be most interesting. T. B.

Dendrobium Wardianum.—"G. B." (p. 178) describes a plant of D. Wardianum as the best Dr. Ward has ever seen, the flowers being nearly 3 inches across. Was not this a misprint for 5 inches? Surely no bloom of D. Wardianum measuring nearly 3 inches across, however well marked, would be considered other than a very ordinary flower. Even from my very modest collection I should cast away any plant bearing flowers less than 3 inches across. I consider 4 inches and upwards good if heavily tipped and the lip upwards of 1 inch across.—H. M. H.

Twin-flowered Cypripedium Argus.—The first instance of twin-flowers produced by this

Lady's Slipper that has come under our notice is a specimen sent to us by Mr. W. Sanderson, Talbot House, Edinburgh. The specimen, moreover, represents an uncommonly fine variety, the sepals being unusually profusely spotted, and the spots also extend to the dorsal or odd sepal. Mr. Sanderson also sends a flower of a variety of Phalænopsis Schilleriana, in which the colour is more intense than usual, particularly in the centre.

Indoor Garden.

5162.—AZALEAS FAILING TO FLOWER.

This may be attributed to several causes, such as the bloom buds being killed through the winter by the soil getting too dry, or the plants being too weak to set their buds in the autumn, or by being treated in a way that has prevented their setting bloom, even if strong enough. The fact of their now making young growth gives no clue to the failure, as at this season they will push growth, even if too weak, to flower, and if set with bloom buds that would come on later into flower they will now be making young shoots. There are few plants easier to manage than the present race of hybrid Azaleas if only a reasonable course of treatment is given them; the way they often are seen living on for many years with hard usage, yet each season producing a sheet of flowers, though small and poor in quality, goes to prove their tenacity of life and disposition to bloom whilst they have strength enough in them. The worst evil Azaleas suffer from is injury to their leaves by thrips, which have a greater liking for them than for most other plants, and which are frequently left to increase and live on the juices of the foliage until there is scarcely a healthy leaf on them, reducing their strength so as to preclude the possibility of their flowers coming more than half the size they should, and not unusually so enfeebling them as to prevent the bloom buds forming more than sparingly, or not at all. Red spider will also cause similar injury, but the plants are not so liable to its attacks as to thrips. A frequent cause of failure in their blooming is through the plants, after flowering late in spring, being turned out of doors whilst the young shoots are soft and not half matured, instead of being kept under glass so as to admit of the flower buds forming and getting plump before winter. Plants that have been brought on to flower by the aid of heat in March or April if afterwards for a time kept in a little warmth, or in a greenhouse, and later on turned out of doors, even before the buds have set, usually produce bloom enough, but so managed they have never the size or colour in the flowers that they will if kept indoors until the buds were large and plump before turning out, or still better not turned out at all. In the case of plants that are forced to bloom earlier in the season than the time mentioned, and necessarily are afterwards kept longer under glass before the season is far enough advanced to admit of their being turned out, the growth consequently gets further advanced before they are put in the open air, and therefore they suffer less through it; but even plants that bloom thus early should never be turned out until the buds are well set and as large as good sized Apple pips. Even with those that are earliest I should never advise their being put in the open air unless there was a prospect of their coming into bloom prematurely in autumn. In all cases after blooming, immediately the flowers have dropped the seed vessels should be picked off, as if allowed to stay on for only a few weeks the formation of seeds very much weakens the plants. To do them justice they should have a little more warmth than that of a greenhouse, with plenty of light, but a little shade when the sun is powerful, well supplied with water to the roots, syringed freely overhead every evening, and kept so far free from thrips and red spider that the foliage is in no way injured by them; if this occurs, many of the leaves will fall off prematurely in autumn, proportionately impairing the strength of the plants. I have gone thus far in pointing out the causes through which, oftener than not, failure in the case of these beautiful plants happens. Azaleas require much less pot room proportionate to their size than most hard-wooded subjects, but if the plants in question are really short of root room they should have a shift as soon as the roots are fairly moving, which most likely will be towards the beginning of May. If they do not require potting, they should have some assistance with manure, such as Clay's Fertiliser or Standen's, which should be given them three or four times during the summer, applying it each time at about the rate of a tablespoonful to a 7-inch or 8-inch pot, laying it on the surface, where it will wash down to the roots in watering. Even in the case of plants that are to be potted later on, an application at once such as advised will assist growth so as to enable them to set a crop of buds for another year. T. Baines.

TREATMENT OF SEEDS.

Have any of your readers ever remarked the effect which dry treatment has on newly sown seeds when they vegetate? In nine cases in ten, the first thing the cultivator does after sowing a pot of seeds is to water them thoroughly. Some even steep certain seeds in water previous to sowing, which may be advantageous in certain cases; but I am far from thinking that immediate soaking of newly-sown seeds is beneficial. I first noticed this in the case of Melon and Cucumber seeds, viz., that those seeds which were not watered for some days after sowing germinated most freely and more healthily. Those which were well watered when sown were weakest and palest in the foliage, and the difference was quite apparent to anyone. Since then I have carefully abstained from watering all seeds we are particular about until they have begun to swell and burst their scales. Several physiological explanations of this suggest themselves; but here I only state the fact that seeds are better not watered till some little time after being sown. I am speaking of seeds sown under glass; but I have often noticed the same thing in the case of outdoor seeds, particularly in that of Peas, Carrots, &c. Peas sown in friable, dry soil, and which experience a short spell of dry, sunny weather afterwards, come up strongly, and fewer seeds rot in the ground, as many are apt to do, especially those of the later and more tender Marrow kinds.

This may not appear to be a great matter; but I know that in the case of fine seeds, sown under glass, there are often great disappointments, and much depends on management. The seedsmen, or the quality of the seeds, are not so often to blame as people sometimes think. No cultivator of experience expects more than a liberal percentage of his seeds to grow, while some are always doubtful; but, unless the sowing is managed skilfully, many things may fail partially or altogether. Covering seeds too deeply is one of the most fertile causes of failure; many a failure is due to this, and the cause is never suspected. Big seeds of vigorous growing plants—like Broad Beans, for example—have almost as much power as Potatoes to push up through a heavy covering of soil; but, with exceptions of this kind, no seeds should be covered deeply, and small seeds should hardly be covered at all. It is necessary to surround them with sufficient compost to keep them always moist, but more than that is not needed. The seed should, in the first instance, be sown on a perfectly level and even surface, and then sprinkled over with a compost put through the finest of sieves. I am speaking of seeds like those of the Primula, Cineraria, Lobelia, Carnation, and Calceolaria. It does not matter so much what kind of compost the seeds have got under them, but that above them should always be fine and open, consisting in large part of sand and peat, or leaf-mould, which will be found suitable for covering any seeds. But, rather than put too great a depth of even this light compost over very small seeds, it is better to barely cover them out of sight, and place a sheet of newspaper over the pan, or box, till vegetation takes place. The only object of covering seeds seems to be to keep them moist, and this can be effected with a paper cover only, laid over the box. Begonia seed is often sown in this way, it being too fine to be covered.

Next to these matters comes watering. A pot or pan of fine seeds is soon cleared by a careless waterer or an awkward watering-pot. The rose of the watering-pot should be very fine, consisting of many holes, as small as they can be bored, so that it will just deliver the water in a gentle spray or mist, and not with sufficient force to dislodge the seeds or disturb the surface of the soil. Seed-pans should never be floated with water, or the likelihood is the seeds will all swim to one corner, and that many of them will be buried and never come up. The rules to be observed in the case of outdoor seeds—flower seeds and vegetables—are the same. Sow when the soil is in an open, friable state, and cover thinly, in proportion to the variety of seed. Peas will push through 3 inches or 4 inches of soil, but more will vegetate under less top-weight, especially in heavy soils. The nature of the soil should always receive attention. Seeds sown in light, sandy soil are safe under a depth that would kill them in a stiff soil; hence the rules laid down in calendars are often misleading in such matters. P. N.

CONSERVATORY AT BRYNGWYN, HEREFORD.

The annexed illustration represents a conservatory attached to Mr. J. Rankin's residence, at Bryngwyn. The exterior, as may be seen, has been designed so as to harmonise with the style of the mansion, and in this we consider the designer has been successful. The front and sides are constructed of stone, in which are placed plate-glass windows. The graceful outline of the curvilinear roof relieves to some extent the otherwise heavy appearance of the lower portion. Such a structure as this is quite different from the ordinary run of conservatories attached to residences, and which often do not assort well with them.

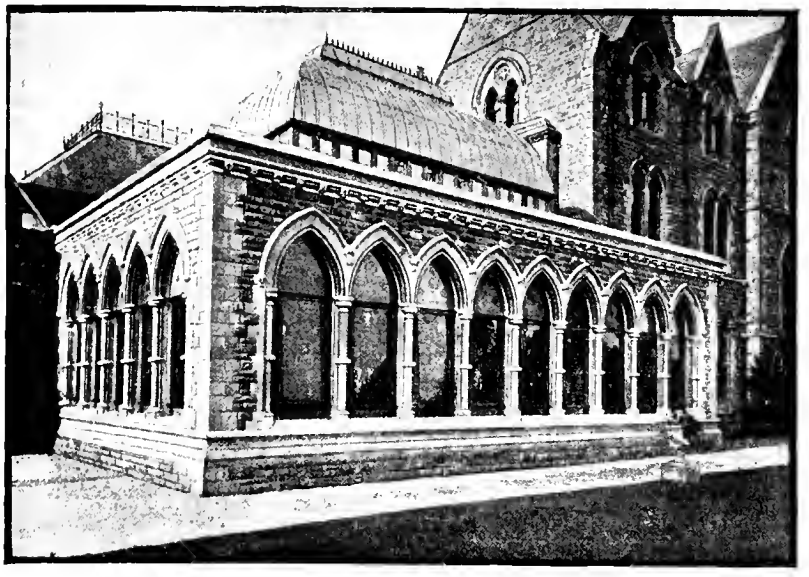
The following particulars descriptive of the interior of this conservatory have been furnished by the gardener, Mr. W. Nash. He says: "The garden entrance to this house is by a flight of steps at the east end. A walk, 4 feet 6 inches wide, passes all round the interior, leaving a space of 3 feet for a stage next the front. A cross path divides the centre into three beds, one of them double the size of the other two. The walks are paved with encaustic tiles, and are furnished with a dressed stone edging. The front staging consists of iron grating, which hides the hot-water pipes. It is 15 inches high from the floor, and on account of its being thus low it allows the plants on it to be seen better and the pots less than staging of the usual height. Access from the mansion is obtained by three entrances, viz., library, ball-room, and billiard-room. The centre beds are occupied by Palms, Norfolk Island Pines, Draccenas, and Tree Ferns. The latter have stems from 7 feet to 9 feet high, and consist of such kinds as Alsophila australis, A. excelsa, Dicksonia antarctica, Cyathea dealbata, and C. medularis. The latter is one of the best for a cool house: it makes fronds about 14 feet in length annually. Climbers of various kinds planted against the iron pillars that support the roof give the house a well-furnished and graceful appearance"—a fact fully confirmed by a photograph of the interior, which has also been sent to us.

The Lattice-leaf Plant (Onvirandra fenestralis).—I have a specimen of this with sixty-five leaves on it, and it measures 2 feet 6 inches across. It is growing in a house heated by a flue, in an average heat of from 60° to 70° in winter, and from 80° to 90° in summer. It is two years since it was potted; the soil I then used was a mixture of peat, loam, silver sand, and charcoal: then a layer of Sphagnum and a few little pieces of Derbyshire spar to keep the Sphagnum in its place. It is planted in a pan 10 inches across and 5 inches in depth; the pan is placed in a tub 2 feet 9 inches

across, inside measure, and the water is 1 foot in depth. I change the water three or four times a year, but I sprinkle the plant every day with a fine rose. It has flowered every season for these last four or five years. I grow Eucharis and Stephanotis in the same house—the latter trained on the roof.—E. Thornhill, *Heaton Mersey, Manchester.*

Gloxinia tubiflora.—I have sent a bulb which we think is Gloxinia tubiflora; it bears pure white flowers on spikes, after the style of a Foxglove, only very much smaller. I was told it was a cool greenhouse plant, but under that kind of treatment it has entirely failed. If wrongly named, what is it? and what is its treatment?—C. & Son.

*** If your plant is the old Gloxinia tubiflora—now placed in the genus Achimenes—your failing to flower it in a cool greenhouse is easily accounted for, stove treatment being necessary to the successful cultivation of this and almost the whole of the Gesneraceous family. "Pure white flowers borne on a spike after the style of a Foxglove" is a fitting description of G. tubiflora, but it applies almost equally well to many more plants of the same order, so that without seeing your plant it is impossible to suggest a name with certainty. G. tubiflora was introduced into this country from South Brazil about 40 years ago, with many more allied plants. Although a handsome stove plant, it has been eclipsed by the more popular kinds of Gloxinias, and is now a rare plant in gardens. When well grown the stems are about 2 feet in height, and bear a large number of pure white long-tubed flowers with a flat spreading limb, resembling the flowers of Nicotiana affinis more than any plant that occurs to me at the moment. The tuber is large and almost woody when well ripened, and the leaves are opposite, dark green, and covered with short hairs. As already stated, the cultural requirements of G. tubiflora are those of a soft-wooded stove plant. In the spring the tuber should be shaken out of the old soil, potted in a mixture of loam, leaf-mould, and sand, and placed in a warm, moist house. There growths will soon make their appearance, and if the soil is kept moist and the plant protected from bright sunlight, a good crop of bloom can hardly fail to appear towards midsummer. In winter the tubers require to be kept dry and warm. It may not be out of place to just refer here to the puzzling state of the nomenclature of Gesneraceous plants, that is, if one attempts to identify his plants under garden names with the recognised nomenclature of botanical works. The catalogues of Continental nurserymen, with whom these plants are great favourites, are crowded with a host of names which either do not exist in English works, or are applied to totally different plants. The Rosanowias, Kollikerias, Ligerias, Dicyrtas, and other Continental genera appear to be nothing more than what we know as Tydæas, Achimenes, and Gesneras. On referring, however, to botanical authorities, one finds that English names are as much at sea as the Continental ones, and that to find a Gesnera, for instance, we must look under some other genus in a standard botanical work. In the "Genera Plantarum" our garden Gloxinias are not the botanist's Gloxinia, but true Sinningias, the Gloxinias proper being long-stemmed Achimenes-like plants, of which the old G. maculata and G fimbriata are examples, as also are most of the Plectopomas. The Cyrtodeiras are now referred to Episcias, the Scheerias to Achimenes, and the Stenogastras to Sinningias. A severe critic might reasonably say that whilst cultivators are busy in their endeavours to improve and alter the characters of plants, botanists are equally busy with the names, so that in time both names and plants will be improved and altered out of all recognition.—B.



The Conservatory at Brynywyn, Herefordshire.

Freesia refracta alba.—Having noticed in your columns the statement that yellow is the predominating colour in this charming bulb in its original state, I should like to say that I once had a large basketful of blooms brought to me when I was stationed on the diamond fields. There were much more yellow than white, and they were picked close to one of the diamond mines. On the other hand, I have several bulbs now in bloom; on one there is no yellow, on the others very little indeed. Mr. Ware is endeavouring to bloom for me a small bulb which grows freely in the Free State. It produces a thick mass of white flowers, that are very sweet-scented. It is a two-leaved, small, round, white bulb, the whole only 2 inches high. I understand that it is unknown in England. I have also seed of a yellow Convolvulus, small, orange-yellow, with a white centre, and a very free bloomer. This did very well in a cool greenhouse with me last year. I found it growing wild in my garden at Bloemfontein. I shall be glad to send seeds of it to anyone who is interested in such flowers.—C. Miles, *Barley, Royston.*

Scolopendrium vulgare crispum.—Of the many forms of Hart's-tongue, this is one of the most ornamental, as well as one of the most satisfactory to grow. When thoroughly established and doing well it forms a bush of foliage a yard through, and then presents a very distinct and pleasing appearance. Some varieties of the Hart's-tongue are really more curious than beautiful, but crispum merits culture by its beauty alone, and as it grows freely in any free soil, it is a plant for every garden. Good loam suits it best, and the soil should be elevated a foot or so above the garden level, otherwise no special preparation is needed. But, like the common form, it will grow in ordinary garden soil, if not too heavy, adding some leaf soil or any decomposed garden refuse with a little thoroughly rotted manure. I find that the stronger growing hardy Ferns like good food, and that they enjoy when in full growth moderate applications of liquid manure as well as annual top-dressings of rotten manure.—T.

Fruit Garden.

POT CULTURE OF THE FIG TREE.

Many are fond of well-ripened Figs, but seldom is sufficient accommodation provided for their cultivation. Figs are easily grown, and, being vigorous growers, a whole house should, if possible, be set apart for them—one in which they can be planted out in a restricted border. The border ought not only to be restricted, but it ought also to be made up of ordinary loam, without any manure. In a rich border which would do well for Vines Figs make far too vigorous growth. What we require in Fig trees is short-jointed wood, on which the fruit is likely to set thickly, as it is easy enough to feed the trees by surface dressings when it is seen that they are not growing too vigorously. The system of growing them in pots may be practised in every garden where there are hothouses.

Fig trees may be propagated more readily than other fruit trees, either from single eyes or cuttings. Use 3-inch pots, and insert a cutting or an eye in the centre of each. Begin this work early in the season—February is as good a time as any. The pots should be plunged in a bottom-heat of 85° or 95°. If the cuttings are inserted in moderately moist soil, they will require no water until they have started into growth. Roots are freely emitted in the moist bottom-heat, and if a temperature of 55° can be kept up, the young plants will grow at a rapid rate. They should be repotted in 6-inch pots as soon as they are well rooted. I have found good turfy loam and pulverised bones to be the best soil in which to grow them. As the season advances the temperature may be increased, and, if the plants are well managed, fruitful trees in 12-inch pots can be produced in eight months from the time of putting in the cuttings.

Fig trees like a high temperature, and this is necessary for rapid growth; indeed, I have obtained good fruit in the autumn from trees struck from eyes the preceding spring. The trees were grown in a Pine house; the pots containing the trees were placed over the hot-water pipes, and they stood immediately over the evaporating troughs. It is a great advantage to be able to place the trees over the hot-water pipes. If there is no staying or trellis work over them, two bricks may be laid over the pipes with a space between them, and the pots should be set on the bricks. In this position they require a goodly supply of water. Indeed, it may be said that careful attention to this is of the very greatest importance in the culture of all fruit trees in pots.

Some, after reading the remarks which have just been made, may be inclined to say, How can the Fig be adapted to our means when it requires all this forcing high temperature to grow it? The Fig tree likes a high temperature—it luxuriates in it, but it is unnecessary. It can be grown well in a house where there is no artificial heat, but it will not grow so fast there, nor yield two crops in a season. In a heated house, Figs may be started into growth on the 1st of January, whereas in a house not heated they will not start for three months later; when they

do start, if the house can be shut up early in the afternoon they will grow with great vigour, and ripen their fruit in September. When the trees have grown to a good bearing size they should be repotted once a year, late in autumn. On turning the trees out of their pots, it will be found that they have made quite a hard ball of roots, from amongst which the drainage should be picked out, and the trees should be repotted in pots 2 inches or 3 inches wider, packing the potting material firmly round the old ball of roots. Let us suppose that the tree is almost as large as it is wanted, and that it is desirable to repot it in the same sized pot in which it had been previously growing; in that case, the ball of roots must be reduced to the extent of an inch or an inch and a half all round. The tree will not suffer in any appreciable degree from this vigorous disturbance of the roots, but will establish itself during the winter, and bear fruit freely the following season. Some growers would be afraid to treat their trees in this way annually, and would be content to administer some stimulant in the way of surface dressing. I greatly prefer repotting to placing any material on the surface. The top portion, in the early part of the season, contains no active roots, and it becomes saturated with moisture, while the roots underneath are perhaps suffering through want of it. I may add that, if it is intended to force the trees very early, some degree of caution is necessary. If the temperature is raised too high, many of the autumn-formed fruits will drop off. This is avoided by starting with a low temperature, say 45° at night, and increasing it as the trees show signs of growth. Varieties well adapted for pot culture are the White Marseilles, Bourjasotte Gris, Grosse Verte, Early Violet, and Brown Turkey. J. Douglas.

GRAPE CULTURE.

The kind of Grape generally grown by amateurs is the Black Hamburgh, and perhaps no other under indifferent culture constantly produces such crops of fairly good fruit, while there are few superior to it when well grown. At the same time I maintain that far too many Vines of it have been planted, not only in vineries connected with small gardens, but also in very many large gardens. For forcing, it is invaluable, though not much more so than Madresfield Court, but why grow so many for the main or only crop, as the case may be, seeing that they ripen at a time when other fruits are plentiful, and when nothing but the very best samples realise in the market more than from 1s. 6d. to 2s. per lb.? Better by far grow more of the valuable late-keeping Grapes, such as Muscat of Alexandria, Black Alicante, Lady Downes, and Gros Maroc. With the latter I have not had much experience, but if Mr. Coleman, after having grown it for a comparatively long time, considers it of easy culture and in every respect a desirable late sort, no stronger testimony in its favour can well be given. Mrs. Pince's Muscat, though a good late Grape when well grown, is scarcely to be recommended to amateurs. Neither is Gros Colmar, which requires very superior culture to bring it to perfection. Alnwick Seedling is a noble Grape, but it is a bad setter, and does not keep so well as any of the foregoing. The first mentioned four sorts are not so difficult to grow as some people imagine. They certainly require a longer season to ripen in, but in other respects, as I shall endeavour to show, their culture is simple enough With Grapes, as with other fruits, it is of the greatest importance that a prolonged supply be maintained rather than ruinous gluts, and those who have only one house to depend upon should select varieties that will ensure a succession. Therefore, in addition to the very late Grapes, I would grow one or two rather earlier sorts, such as Madresfield Court and Foster's Seedling, both of which are improved in quality if rather more heat than suits the Black Hamburgh be given them.

Changing varieties.—It is an easy and, as I have pointed out, a desirable matter to change established sorts, especially if they possess sufficient vigour, as in the case of the Black Hamburgh, to form suitable stocks for choicer kinds. This may be effected without the loss of a crop either by grafting or inarching, the former being performed when the sap is rising, and the latter at the same time or during the summer. When we proceeded to change the varieties in our own, as well as a neighbour's vinery, we tried four different methods, and were successful in each case. At pruning time a strong lateral was reserved near the bottom of each rod, and on these we tried grafting, bottle-grafting, and inarching the ripened wood as well as the growing shoots later on. Grafting is best performed when the stock has made some progress, the bud of the graft or scion being, however, still dormant. The scion consists of a single bud, with an inch of wood above and below it; a slice is cut away from the lower half and a notch made, both of which fit into a corresponding slice and notch made in the stock. It is advisable in all cases to have the wood of both stock and scion as nearly equal in size as possible, and that they be neatly fitted together. Ours were bound up tightly with raffia and covered with grafting wax, the bud only being uncovered, and this is supported and encouraged to push by the action of the leaves on the growth, which must always be reserved on the stock beyond the point of union. Bottle-grafting is a simple and more certain process than ordinary grafting. We find it is best performed just when the buds on the intended stock are bursting, the graft being still dormant. The graft and stock ought each to be about 1 foot long, and after being fitted together and marked, a clean slice should be cleverly cut out near the middle of each from 4 inches to 5 inches long, taking a thin piece of wood off with the bark—the two cuts to be placed together, securely bound and coated over with wax or not, according to the desire of the operator. We use that known as Lefort's Mastic, and this is kept in stock by most seedsmen. It is easily spread with a smooth flat piece of wood, but if at all stiff it should be warmed prior to use. The lower half of the graft in bottle-grafting is inserted in a suspended bottle of water, this serving to partially support the graft till such time as the union with the stock is complete, say when the shoot from the former is half-way up the house. Inarching is another simple and rarely failing method of changing the variety. Any nurseryman can supply a medium-sized pot Vine of the sort or sorts required, which may be joined to the established Vines in much the same manner and same time as recommended for bottle-grafting. The strongest bud nearest the graft beyond the point of union should be encouraged to grow, those beyond being rubbed out, while those below the union ought to be thinned out and kept rather closely stopped. The graft will be still supported by the parent pot Vine till the autumn, when it may be severed just below the union. Supposing there is another rod or Vine near to be inarched, or if there is any doubt about the success of the first attempt, a shoot should be encouraged to grow from near the base of the pot Vine, and this when of good size and strength can be inarched or united to another growing shoot of nearly the same size on the intended stock. In this case of inarching with growing wood all that is necessary is to cut slices to correspond from both stock and graft and to bind the two wounds neatly together. Those young Vines we intend to inarch on to strong old Vines are now being struck from eyes, and will be fit for the purpose about the middle of June. In all and every case supposing the shoot from the graft or new sort introduced is allowed to extend, the shoots on the stock being kept within bounds, strong fruiting rods of the full length of the roof ought to be obtained. These may then replace the old rods which, to prevent excessive bleeding, ought to be sawn off as soon as the crop is secured.

Time and methods of planting.—All the principal nurserymen supply Vines suitable for planting in any position, and the extraordinary number of these annually sold is evidence that the number of Grape growers is increasing. By far the greater number are bought by the proprietors of comparatively small gardens, as according to my experience gardeners in charge of larger places prefer to raise their own Vines from eyes or cuttings and to plant these when growing strongly, but then the borders are mostly wholly inside, or the Vines are planted inside, the roots having free excess to an outside border. I have successfully established young growing Vines in an outside border, but as a rule the change from a warm house to a cold border greatly checks root action, and this in its turn so affects the top growth, that the Vines do not always recover the same season. Besides, there is a difficulty in bringing the tender growth through the small openings generally made for this purpose. For planting in outside borders especially, I should therefore advise amateurs and others to procure medium-sized canes which will reach well into the house at once. They may be planted at any time from the fall of the leaf till the buds are bursting into leaf, and not a little depends upon this being properly done. To plant the balls of roots and soil intact or as turned out of the pots is about the worst proceeding possible, as the chances are the roots will not properly spread into the soil of the border, and even if they do the coiled-up state of the principal roots will always militate against the desirable free action of the sap. Any permanent Vines thus planted this season ought at once to be lifted and replanted, no matter how forward the growth may be. In order to separate the roots from the soil without their sustaining any injury, the balls should be carefully turned out of the pots and thoroughly soaked in tepid water, this rendering the separation an easy matter—any bruised or unhealthy roots to be cut away above the unsound part, this facilitating healing. As before advised, the border ought not to have been allowed to become saturated. In planting do not make deep holes for the roots, as these will strike downwards only too quickly, but the roots should be spread out to their full length in one or even two layers if need be, and each be carefully mixed with a little good and rather fine compost. Water to be given at once if the border is at all dry, and a mulching of strawy litter be given, which, however, in the early part of the year is recommended for a night covering, and may well be raked off during sunny days. The canes are usually taken through openings in the front wall directly under the sill and can best be done before the roots are covered. not staking them up till after they have broken evenly. If strong, say about 1¼ inches in circumference, and supposing they were planted in the autumn or not later than January, they might be shortened to where they reach the trellis, but later on they are certain to bleed if pruned and be much weakened thereby, consequently disbudding in this case is much the safest method of shortening to the desired length. What are generally sold as planting canes are seldom strong enough to be laid in or retained to the height of the trellis. Any below the size above given should either be pruned or disbudded to the lowest point where sufficient light will reach the young shoots to ensure the desired healthy leaf growth. Remarks on their subsequent treatment must be deferred, and I will only add that an ordinary greenhouse temperature should be maintained till the Vines have well bursted their buds. Later on it should be raised in order to encourage an early maturity. With regard to the distances apart, I should recommend that they be disposed not less than 4 feet apart, or one to each rafter. It is true they are often more thickly planted, but it is a bad practice all the same, especially if plants are to be grown underneath. In order to have Grapes without cropping, and thereby greatly weakening the permanent Vines, it is the general practice to plant other Vines midway between them. These are termed "supernumeraries," and are heavily cropped for one, or perhaps two seasons, and then cleared out.

Raising Vines from eyes.—Vines are very easily raised from eyes and cuttings selected from ripened growth, and may the same season be grown

into strong fruiting canes, or, if planted, will perfect hard and almost pithless rods of the length of the house. It is not yet too late to put them in, but January is the month preferred, when failures very rarely occur. An eye consists of a single bud with nearly an inch of wood above and below, with the ends cleanly cut and a thin slice taken off the under side. A cutting may consist of two or more buds—I might say any number up to a dozen; neither does it much matter if they be cut to a joint. The eyes or short cuttings may either be bedded in singly in small inverted turves or in 4-inch pots of good soil, the buds only of the former showing above the surface, and they should be surrounded with silver sand. If larger cuttings are preferred, 5-inch or still larger pots should be used. They may be stood on a bench in a moist growing heat, or, better still, be plunged in a mild hotbed, the top heat ranging about 60°—those in pots to be given a shift into 6-inch pots before becoming root-bound, and those in turves, which are preferable for planting, to have all protruding roots severed. The young Vines should be staked and kept tied up, and when about 3 feet high are fit for planting. The border being inside is not generally cold, especially if much fresh turf has been employed in its composition. Rather, however, than risk giving the roots a chill, I should advise that they be stood on the border for a few days prior to being finally planted, the temperature of the house being kept up to 60° by night and 65° or 70° by day. They must not be allowed to suffer from dryness at the roots, but a very moist atmosphere with a high temperature induces the formation of thin warty leaves, the growth of wood and roots being also injuriously affected thereby. White Grapes, notably the Muscat of Alexandria, ought to be planted at the sunniest end of the house, and if any are grown on the back walls these should be black varieties.

W. I. M.

STRAWBERRY CULTURE FOR PROFIT.

I DOUBT if the suggestions contained in the article on "Strawberry Culture in the Channel Islands" will prove of much value to anyone embarking in the growth of Strawberries for profit. The writer commences by saying that if Strawberry forcing is to pay, the fruit must be got in early, giving February and March as the proper time for having it ripe and supporting his argument by supposed returns from a given space, the minimum amount of fruit to be gathered from each plant being set at 4 ounces. All this looks fair enough on paper, but, as many have found to their cost, it is very misleading, for no account is taken of partial failures, which in the case of very early crops will sometimes, even with the best of skill, occur; neither is due weight given to the great outlay for firing which the forcing of fruit at that early time of the year entails. It is, indeed, the firing, as well as the uncertain returns for early fruit, which has caused nearly all market growers to give up getting their fruit in before April. Some years ago I only knew of one amongst the many London Strawberry growers who had ripe fruit in March, and he eventually gave up early forcing, and I question if the writer of the article in question would find a single Strawberry grower in Jersey who has ripe fruit before the middle of April. If the fruit always realised good prices, there would be found plenty of market growers to produce it early, but it is just the uncertainty in this respect which deters. Occasionally for a few days very early in the spring there will be a demand, but it often happens that if nothing is "moving" in London, very good Strawberries will not return more than 5s. per lb. to the grower. I have seen very fine Keen's Seedling sold in Covent Garden the first week in April at 3s. 6d. per lb, a price which cannot bring back expenses, and I should like to know who would grow fruit at this price in April when they can get more two months later. So far from the early crops of Strawberries paying best, it is the fruit grown in May on which the market grower relies, for he knows that if his fruit is fine he can get a fair price at that time, and he can pretty well make sure of having heavy crops, and a good crop at 5s. per lb. will, taking it year by year, pay better than a partial one at three times the price early in the year, the producing cost being so much less.

CHANNEL ISLAND STRAWBERRIES. — Large quantities of Strawberries are annually brought to the London markets from the Channel Islands, but nearly all come in "the season," as it is called in Covent Garden—viz., from the first week in May up to the middle of June. At that time the principal London growers have their houses and frames full of fruit, and I have seen in one market garden in the last week of May two tons of ripe fruit hanging, and which was being shaded to keep it back for a week or two in anticipation of brisk trade through the visit of some exalted foreign personage to the metropolis. That year good fruit realised 10s. per lb. the first week in June, but I should not like your readers to take that price as a normal one; it was a famine price, the demand being abnormally great, and the season so far advanced, that most of the best house fruit was gathered. The grower above alluded to must have made a large sum that season with his retarded fruit, but he was an old stager, and it was probably not the first time he had "bided his time." I do not know how the Jersey men grow their Strawberries, but the greater portion is, I believe, "pit fruit," as that is termed which is grown in frames, and of which so much comes from Kent from the middle of May to the middle of June. At one time this Jersey fruit used to be more remarkable for size than finish. I have seen samples of Sir Charles Napier which were enormous as to berry, but which did not fetch so much by 2s. per lb as smaller English-grown house fruit, but I believe the Channel Island men have improved of late in this respect.

HIGH PRICES.—I would warn all who may be thinking of attempting fruit culture for profit not to base their calculations on the high prices sometimes published. These are always fancy figures, and are due to exceptional merit or exceptional circumstances, and are no guide as to average returns. Thus I have seen Grapes fetch 12s. per lb. for two or three days and drop again all at once to 5s, and I have known Figs worth 16s. per doz. for one day, the average price being 8s.; I have also seen the time when a Melon could not be bought for 12s., the ordinary selling price being 4s. A stoppage in supply with exceptional demand will more than double the prices of perishable fruits, or, indeed, any others in a few hours. Those who wish to grow at a profit must make up their mind that they will have to face great competition, and that this means low prices at times, more especially when a depressed state of trade happens to supervene. Every year adds to the quantity of forced Strawberries grown, as, owing to the foreign importations of Melons and Pines, these fruits are scarcely worth growing, and the glass formerly used for them has much of it been given up to Strawberries; my impression, too, is that Strawberry growing is not, and never will be again, what it was, and those who can profitably use their glass in other ways would do well to do so. From France, from the Channel Islands, and from parts of England where this fruit was never at one time grown supplies come to the London markets, and the price of late house-grown fruit has been materially lowered by the introduction of kinds which, in favoured districts, come good and early. I should say that there is a difference of 2s. per lb. on fruit marketed from the middle of May to the middle of June.

CONDITION OF PLANTS FOR FORCING.—My experience allows me to endorse scarcely anything contained in the article at p. 246, but there is one item which deserves especial condemnation. The writer says that plants which are intended for early forcing should have ripened crowns by the last week in August. Now, I do not believe in any Strawberry plant having ripened crowns at that time, simply because during September Strawberry plants continue to increase both in size and substance; but it is seriously advised, or at least laid down as a part of the cultural routine, to lay the pots on their sides for six weeks in a shady place. Whoever heard of pot Strawberries being laid on their sides during September and part of October, just the time when they need all the exposure to sun and air they can get and plenty of water? It is in September and October that the crowns mature and the fruit germ forms. Maturity cannot be hastened by artificial means. It comes in the bracing atmosphere, cool nights, and clear days of autumn. As to

STAGES to be moved by means of cranks, this is a fancy affair, which no one growing for profit merely will be likely to adopt. Simple arrangements are generally the best, and the expense of fitting up stages so as to be movable at will by means of machinery would be more than market growers generally would care to incur. It is, however, certain that the fixing a stage for Strawberry forcing is by no means the easy matter that it might at first sight appear to be. The difficulty lies not in arranging it so that each plant comes near the glass, but in enabling the attendant to quickly and easily supervise each plant. Even when the lowermost portion of a stage is 6 feet or so from the glass, it is not remarkably easy to oversee the plants on the top shelves, and the grower must clamber up it every time he waters them; but where the stage comes within 2 feet of the roof watering in this way becomes an impossibility. We once erected a stage here which answered the purpose very well indeed in the following manner: Six inches from the back wall and some 18 inches from the glass we fixed some pieces of wood, which were cut to receive the end of a bearer, the other end of which rested on a plate, which was supported on posts about 6 feet from the front sashes, and which was about 2½ feet from the roof. Pieces of wood cut triangular fashion were nailed on so as to form a resting place for the shelves, but at intervals the two shelves were left out, allowing just enough space for a man to get up and look right and left over the stage. At each of these apertures were fixed tubs, which were connected one with the other by troughs, and which could thus be filled from one end of the house. With a small waterpot with a long spout, it was easy to reach all the plants, the two lowermost rows being attended to from the bottom In the front was a 4-foot stage, the plants being brought near the glass by means of shelves. The house is 100 feet long by 14 feet wide, and I have often watered it when every plant was dry and syringed it in an hour, not even needing a boy's help to hand up water. It will be seen that a little space was sacrificed, but this, as compared with the other advantages, was a trifling matter. Another form of stage I have seen was, perhaps, even more simple, being formed by fixing stout posts at regular intervals in the ground floor and nailing thereon some stout planks for shelves, space being allowed for getting up between each shelf, the watering being done from behind. I once saw nearly a dozen houses all fitted up in this manner and full of ripe Sir C. Napier. By means of supports fixed in the front edge of the shelves, strings were passed the whole length of them, and as the fruit trusses set their berries they were caught by the strings. The long serried rows of scarlet fruit, all in the very perfection of colour and size and glaze, formed a remarkable and charming contrast to the healthy green foliage and the whitewashed woodwork. Many hundreds of pounds were there, and the sight of those houses was worth half a day's journey. In the same establishment President is grown to a higher degree of perfection than I ever saw it. The plants were plunged in bottom-heat in frames and ripened about the last week in May. As to the respective merits of span-roof and lean-to houses for Strawberry forcing, span-roofs are only suitable for late crops, for plants which start almost naturally and which come along with assistance with the season. For all early crops a lean-to in a full south exposure is the only suitable structure, for we never get so much sun and light in January and February as is desirable, and the plants must be where they can get all that comes, and that is only on a stage near the glass.

J. C. B.

OUTSIDE V. INSIDE VINE ROOTS.

Without attempting to offer a decided opinion on the question as to whether Vine roots are more ready to extend outwards or inwards—the advantages on each side being equal—I may be permitted to mention a case from which one might derive arguments to support both views taken of this matter. Last season we planted a range of vineries, placing permanent Vines between the front rows of pipes and front wall, and supernumeraries inside the pipes about the same distance from them as the permanent Vines were on the other side. The latter were examined during the autumn in order to note what progress the roots had made. I found them matted against the front wall, every crevice being filled, and downwards towards the arches they had grown vigourously; but inwards, under the pipes—which were 8 inches above the surface of the soil—comparatively few roots had found their way. The supernumeraries, on the contrary, had taken the opposite course, and grown inwards towards the middle of the house. They were found in a mass under some boarding placed there to walk upon; comparatively few had gone under the pipes towards the front, though what were found there were healthy and strong. On those found matted under the boards we placed a layer of turf, over which was laid an inch or two of loose rich soil. An examination was made lately, and the turf and surface soil were full of fibry roots, and those which had grown to the front were in good condition. My experience has been that the roots of Vines planted inside have, in most cases, grown more rapidly to the front than to the back part of borders. I find that in a range of l'each houses the result has been that most of the roots have grown to the front. Inside borders are generally considered to be warmer than those outside. This may be so during winter, but while the summer sun has full power, the border outside is warmer than that inside under a leafy screen.

M. Temple.

VINE BORDERS WITHOUT SOIL.

In reply to "J. S. W." and "J. C. C." (pp. 49 and 124), allow me to say that the border alluded to was formed about fifteen years ago, and was an experiment made rather from necessity than choice. A slight difficulty having arisen which prevented me obtaining the most suitable loam in the neighbourhood for my purpose, I preferred a trial with these materials rather than use such loam as I knew would prove unsuitable. Having a large store of old brickbats, mortar rubbish, and plaster, also an old accumulation of bones from the kennels, which I had chopped and broken as small as possible, I then had only the charcoal to burn, and this was made from wood selected from a pile close at hand, and the compost was nearly ready for use. In respect to the brickbats, the soft burnt ones only were chosen, and these were broken into about 2-inch cubes, discarding the dust and smaller portions, as I wished the finer portions of the mixture to consist rather of lime-scraps and the finest portions of the bones and charcoal, so as to fill in the chinks as it were, and give, as "J. C. C." suggests, about one-third or rather more of comparatively fine materials. These four ingredients were mixed in precisely equal proportions, and when thrown together the heap appeared somewhat more porous and harsh than I had previously used for such a purpose. The house was originally intended for Melon growing, and is therefore small. The border is wholly inside, and runs the full length of the house, being 4 feet wide and 2 feet 6 inches deep. In filling in the border care was taken to prevent the fine portion sinking to the bottom by placing it in five layers, each of which was well trodden before the next one was added. In making a similar border now, I would reduce the quantity of bones to one-eighth, as I think it would even then contain sufficient lime, and be cheaper and preferable in other respects. In making this border, I had no doubt about its porosity, lasting, and other good qualities, but I had some slight doubt whether it contained, in the absence of loam or other soil, all the essential elements required for the production of good Grapes. Having a large and convenient supply of liquid manure, made from the stable yard, decaying vegetable heaps, and compost yards combined, I hoped, by a generous application of this liquid, to supply any deficiencies which the ingredients composing the border might lack, and the result has been very satisfactory. Black Hamburgh Vines struck from eyes the same year were planted in the spring season; they made good growth which ripened well, and they were allowed to carry two or three bunches each the following year, since which they have each year borne good average crops, which have ripened in May and June. They have not produced sensational bunches, but I see no reason why they should not if such were desired; my object has been, however, to produce a good crop of moderate sized bunches weighing from 1½ lbs. to 3 lbs.; this they have done every year without fail; they have also coloured well, and the flavour is invariably richer than that of those grown in ordinary borders. I do not know that I can say anything more about this experiment which may be of use, except that a good supply of water is given about once a fortnight during the period of growth. I may also say that when we examine the roots, we find a perfect network clasping every lump, and penetrating every chink and crevice throughout the border. I am in no way responsible for the remarks to which "J. S. W." makes objection. At the same time the writer's caution was, I think, a wise one. I have not increased these borders, simply because I prefer suitable loam when it can be had, but when this cannot be obtained, no one need have the least fear or hesitation in making a Vine border of such materials as those just referred to if mixed in the same proportions and made in the manner described. T. C.

VINE BORDERS AT WYNYARD PARK.

Allow me to state that the Vines in the three houses I instanced at Wynyard Park had their roots exactly as I described them—filling the inside borders like a bed of Couch, although they had full access to outside borders as well, and whether they were made by Mr. Jones or anyone else does not interfere in the least with the facts of the case, which furnished undeniable proof that "J. S. W.'s" assertions about the roots refusing to stay inside if they can get out are wrong. When "J. S. W." asked me to tell him where he could see and investigate Vines that took to the inside border as much as the outside, Mr. McIndoe, quite unsolicited, invited him to Hutton Hall, where he could see not a single border, but six houses in which the roots have for seven years had the chance of going into outside borders, made just like the inside ones in every way, but which they refuse to do to any appreciable extent. Mr. McIndoe is surprised that "J. S. W.," instead of visiting the garden in question, should put a string of irrelevant questions about the size of the outside borders and the reason for making them, all of which have nothing to do with the question at issue, which as put by me was simply this—when the roots of Vines leave an inside border and take to an outside one, they do so through not getting the treatment they want inside. "J. S. W." says I am wrong, resting his conclusions on his own admitted failure to keep them in when they can get out, and on others who have similarly failed. In support of my views I have my own experience, confirmed by that of others I have named, amongst whom are some of the most successful growers of the day. The subject is important in its bearing on Grape growing, for unless it could be shown that Vines can have too many roots, it is a clear gain to have them in healthy, active condition in both inside and outside borders. T. Baines.

5130.—**Strawberries**—I would not advise "G. H." to dig between his Strawberries, but if the beds are old a mulching of manure would prove beneficial. If the plants are young they will be better left alone for the present.—B., *Bristol.*

THE WYEDALE PLUM.

We believe this variety of Plum is but little known, but its excellence as a late ripening sort would render it valuable as an addition to any collection. It was, we are informed, introduced to cultivation from Yorkshire by Messrs. Rivers & Son. We have seen it growing in Mr. Lane's orchard at Great Berkhamstead, but for the following information we are indebted to Mr. Bunyard, of Maidstone. Of a diffuse style of growth, and with rather slender shoots, the Wyedale Plum is not unlike Rivers' Prolific in its habit, forming for the most part short-jointed wood with a few shoots, running out to a considerable length; it is not, however, to be regarded as a robust grower. The leaves are rather small and of thin texture. One of the great merits of this Plum is, that it is a good bearer, and another is that it ripens its fruit very late in the autumn—in October and November. Mr. Bunyard informs us that he has gathered fruit as late as November 9. The tree is a fair cropper when allowed to grow naturally, but when root-pruned and grown as a pyramid, it bears much more freely. It is also stated to be quite worthy of a north wall.

Fruit medium size, roundish oblong, very dark, dull reddish purple, with a thin bloom; stalk about half-an-inch long, set in a small, but deepish basin, from which a shallow indistinct suture extends to the apex where the fruit is slightly depressed; flesh yellowish or deep straw colour, transparent, veiny, parting freely from the stone; flavour somewhat austere when raw, but excellent when cooked with a slight smatch of roughness. For cooking indeed there are few Plums which are equal in quality to the Wyedale.—*Florist.*

GARDEN DESTROYERS.

DESTRUCTIVE BIRDS.

Mr. Dobbie writes thus in a recent issue of The Garden, "Now let us take the sparrow. Who can say a good word for him?" Well, I can; and though I could lay many an evil deed at his door, I can record facts which should at any rate secure him against the war of extermination so often recommended in his case. The way in which the sparrow first presented himself to my notice in the character of a friend was a few years ago under rather peculiar circumstances. Our Strawberries, both in the open ground and in pots, were infested with a small species of caterpillar, and in such formidable numbers did this plague prevail as to threaten the very existence of the plants. The grubs individually were so small as to render handpicking very tedious, and in despair we used to sweep over the foliage with a soft broom, the effect of which was to brush them on to the ground, from whence they again found their way to their feeding ground with appetites probably sharpened by the enforced fast. Only one portion of the plants escaped, and that was near some buildings where sparrows abounded, but I had no thought of them until one day, standing quietly amongst the pot plants which were being eaten, I saw an old cock sparrow hopping about amongst them, and, to my surprise, with his beak full of little caterpillars. To make my story short the sparrows were then enticed with bread crumbs to every caterpillar-infested spot in the garden, and they made short work of the enemy, and as they invariably flew away to the buildings alluded to they probably fed their young on the larvæ, and I have strong reason to believe that if they can get small caterpillars they take them in preference to anything else for that purpose. The following year we had

Another visitation, but the sparrows saved us all trouble, as they more quickly found out the infested plants. Such being the case, it can scarcely be wondered at that I should regard the advice to sweep the sparrow from the face of the land with mistrust. By the aid of sparrow clubs and other extraordinary measures it is probable that our gardens and fields might in time be freed from his at times too intrusive presence; but what has been the experience of the French and Germans in this matter? Simply

this, that the timber-boring and other caterpillars have made such havoc in their woods and forests through the indiscriminate destruction of small birds that they have in many places placed the sparrow, in common with known insectivorous birds, under the protection of a special law, and I have many a time seen little boxes nailed up on trees for them and the starling to nest in. When I saw this I was surprised, but witnessing afterwards the fearful havoc which unchecked insect pests can make in vegetation, I did not wonder that even the sparrow was protected. Owing to a discussion which took place in a contemporary several years ago, I have been at the pains of collecting some facts on the

GASTRONOMIC HABITS of the sparrow, and I have come to the conclusion that there is little he will not eat; failing one kind of food, he takes another; his appetite is as accommodating as it is voracious. Many gardeners whom I have questioned at once declare that they have never known sparrows to eat caterpillars, but I am bound to say comparatively few are aware of its predilection for animal food. I could give many corroborative instances as related to me, but I may not take too much space, and will, therefore, condense. An observant gardener is quite aware that sparrows eat grubs. He once saw a Willow tree which was covered with them cleared in a few days. A lady said she was standing in a garden near a Cabbage bed with the gardener's wife, and both were much amused at watching sparrows come down on the plants and carry away mouthfuls of grubs. A correspondent of *Gardening Illustrated* stated that his Peas were eaten, and thought it was by sparrows, but, getting up very early one morning, found the culprits were weevils. He concluded the birds were after them, and let them alone, with the result that the weevils quickly disappeared. The moral he drew from the above was that the sparrows are sometimes blamed for the work of other things. I will just mention that a correspondent stated last year in THE GARDEN that he saw some Rose trees cleared of green fly in a few hours by sparrows, and that Mr. Cannell, of Swanley, advised, as the easiest method of keeping specimen zonals free from caterpillar, the strewing of bread-crumbs around them to attract sparrows, and then I shall, I think, have done enough to prove my case and make good my plea of extenuating circumstances in favour of a bird of which, as was once said of an English sovereign, "Nobody says, God bless him." And let it not be said that I here attempt to excuse the bad deeds of the sparrow; they are so many, that I do not need to mention them. I merely place the above facts before your readers, and ask them to consider as favourably as the irritation which the destruction of seeds and other things occasions a bird which at times is a destroyer of insect plagues to no small extent. Before concluding, I would like to ask your readers what they consider is

THE PRINCIPAL FOOD of the sparrow during its breeding season. I shall be told, perhaps, young salads, Peas, and anything of a like description, but I know of places where sparrows abound and where they cannot get these things. I know of more than one farmhouse where no seeds are sown worth speaking of after April, and where they scarcely ever attack the garden crops. What, then, do they bring up their young on? for by the time the grain crops are sufficiently advanced the young birds are large enough to provide for themselves. Anyone who may note the habit of the sparrow during June and July will find that he passes much of his time amongst Oak and other trees, and I have sufficient respect for his astuteness to believe that he does not spend much time unprofitably. During the leafy season the trees are full of caterpillars, and these I am convinced are largely utilised by this voracious omnivorous bird, but on this point I am open to instruction, and should like to know the opinions of your readers thereon.

J. C. B.

Bullfinches and fruit buds.—We have game preserves on two sides of our garden, and are overrun with all kinds of birds. Bullfinches are plentiful, yet, strange to say, they never interfere to any marked extent with the fruit buds. This at one time was unaccountable, but I am now under the impression that their attention is diverted by a large Weeping Ash near our house. This is generally covered with seed pods, and the bullfinches are daily greedily hunting out the seeds, and when these are exhausted they find plenty of food elsewhere.—W. I.

PLANTS IN FLOWER.

Dentaria digitata.—This pretty Cruciferous is now enlivening many borders about London with its clusters of rosy purple flowers set amidst the tender green of the unfolding finger-cut leaves. It is a capital plant for the wood garden, as it is grateful for a little shade and shelter. Mr. Ware sends us nice specimens of it in bloom.

Primula Crousii plena.—One of the showiest plants at present in Messrs. Paul's Broxbourne nursery is this double Primrose. The blossoms are so double as to form perfect rosettes, and the colour, a rich plum-purple, renders them extremely attractive. It is tufted in growth and is an abundant flowerer.

Late Chrysanthemums.—Every day since August last we have had a supply of these lovely flowers, and still have plants that are producing blooms freely. These are of the late section and before they have done blooming the early flowering kinds will be ready to fill their places. Some of the latter are already showing their bloom buds—notably St. Mary.—J. JEFFREY, *Derry, Ross-carberry.*

Cattleya Trianæ alba.—Mr. Lee has now in flower the true form of this rare variety of Cattleya Trianæ; one sees now and then alba, but as a rule with the slight and faint rose tinge on the upper part of the lip. At Downside the plant we saw had not the slightest shade of rose in it, and the petals being very round, and the whole flower very large, Mr. Lee certainly possesses a variety of unusual excellence.—V.

Plants in February.—The list of plants given last week (p. 159) might have been longer. Think of my overlooking Rosemary and two kinds of Laurustinus and Polygala Chamæbuxus. How fallible is humanity! Rosemary is especially indignant, and desires to be recorded directly! Sweet Brier and Balm of Gilead beg to be included on the plea of sweetness. This warm wet day the garden reeks with Sweet Brier!—J. P.

Zephyranthes Treatiæ.—Those who know well the Atamasco would hardly recognise this new Zephyranthes as a distinct species. Such, however, botanists regard it. It has rather longer and narrower sepals than Z. Atamasco, and these recurve gracefully. They are pure white, while the narrow grassy foliage is a deep green. It is now finely in bloom in Mr. Ware's nursery at Tottenham in an unheated greenhouse.

The Apennine Anemone.—A gathering of this charming flower comes from Mr. Tallack, Prideaux Place, Padstow, together with other spring flowers, such as Polyanthuses, Crown Anemones, and Primroses. The lovely blue of Anemone apennina is most charming, and a hardy flower border loses a deal of beauty at this season if this Anemone be wanting.

Early flowering of Rhododendrons.—I cannot remember having seen Rhododendrons in flower out of doors as early as they were this year. I do not mean a stray bloom here and there, which is by no means uncommon, but many of our plants were in full bloom in January. I noticed the same thing at Fota Island, near Queenstown, a month ago, only there the light or rose-coloured varieties were the most forward, while all that have bloomed thus early with us have been of deep red or crimson shades, with one exception.—JOSIAH JEFFREY, *Derry, Co. Cork.*

Evergreen Barberries.—Among a numerous gathering of flowering shrubs from Mr. Stevens, Grasmere, Byfleet, are three evergreen Barberries which well deserve prominent notice as they are extremely handsome. The most remarkable is Berberis Aquifolium magnifica, a somewhat high-sounding name for a shrub. However, it possesses superlative beauty, inasmuch as it is more floriferous than the ordinary form, and has larger and brighter coloured flowers that emit a delicate perfume. The branch Mr. Stevens brings is some 4 feet in length, and from top to bottom is profusely hung with clusters of golden yellow flowers, which, associated with the handsome foliage of various shades of green, are most attractive. It is by far the best variety of this Barberry we have seen. Another one is named B. fascicularis hybrida. It also has dense clusters of yellow flowers amidst beautiful foliage. The very handsome B. Beali is also among the gathering, likewise the pretty B. Darwini, having long branches completely hung with deep orange-yellow blossoms. The other flowering shrubs include long shoots of Forsythia suspensa wreathed with yellow flowers, Lonicera fragrantissima, Daphne Mezereum, Andromeda floribunda, besides numerous kinds of Tree Ivies which, Mr. Stevens observes, are extremely ornamental in his garden at this season, the bushes being covered with clusters of berries.

Centropogon Lucyanus.—I send you a spray of this plant to show the length of time during which it continues in bloom when grown strongly in a much lower temperature than is often thought suitable for its well-being. Our plants have been in bloom since the middle of December last in a conservatory, the temperature of which is kept at from 40° to 45° at night, and from 50° to 55° by day. I know of no plant more accommodating, brighter, or better suited for affording winter blooms than this Centropogon.—J. CROOK, *Farnborough Grange.*

*** A very fine spray of this valuable winter-flowering plant.—ED.

Dendrobium Wardianum Lowi.—Under this name we have received from the Liverpool Horticultural Company one of the largest flowers of Dendrobium Wardianum that have come under our notice; it measures fully 4½ inches across the outspread petals, which are nearly 1¼ inches wide. The latter are white for two-thirds of their length, the rest being a bright rose-purple. The lip is proportionately large, being 1¼ inches across, of a bright yellow, blotched at the base with maroon, and tipped with rose-purple. If this is a permanent variety, it is certainly a very valuable one.

A white-spathed Snowdrop.—A remarkable form of the common Snowdrop has been sent to us by Mr. G. Murray, West Ashby House, Horncastle. The flowers themselves are quite normal, but the spathe-valves, instead of being green, are as white as the petals. Of the various forms of Galanthus nivalis that have come under our notice, we have never hitherto seen this one. As Mr. Murray states that there are several clumps of this particular form in the West Ashby House garden, we presume that its white spathed character is permanent.

Primula obconica.—This new Japanese Primrose is unquestionably a great acquisition, notwithstanding the fact that it cannot be ranked among the absolutely hardy class of garden plants. The large numbers of it sent to South Kensington the other day by Messrs. Veitch showed well what a deal of beauty the plant possesses when finely grown. It is, moreover, very distinct from any other of the numerous Primroses now in cultivation. The colour of the flowers—a soft pale mauve—is most pleasing, and the blossoms, being long-stalked, are suitable for cutting.

Sikkim Rhododendrons.—Among the most attractive exhibits at South Kensington on Tuesday last were two noble Himalayan Rhododendrons shown by Mr. J. H. Mangles, of Valewood, Haslemere, who has long made Rhododendrons a speciality. The species shown were R. grande and R. argenteum. The latter was represented by some magnificent cut trusses, while of R. grande there was a fine bushy plant some 5 feet high, carrying several heads of bloom, thus showing that these Rhododendrons can be flowered in a dwarf state in small conservatories. These two species are somewhat similar in general appearance, though they are abundantly distinct botanically. The leaves of both are large, a foot or more in length, and broadly lance shaped. The under leaf surfaces of R. argenteum are of silvery whiteness, while those of R. grande are of a tawny hue, and the tomentum is much looser. The flowers in both are borne in large trusses terminating the branches, and are generally encircled by a collar-like tuft of foliage which serves as a setting for the blossoms. These are over 2 inches in length, perfectly bell shaped with re-

curved rims. They are of wax-like whiteness with a blotch of deep crimson-purple at the base of the corolla. The flowers of R. argenteum appear to be much more transparent thao those of R. grande. It is gratifying to see that these noble plants are likely to become better known than hitherto, and Mr. Mangles will have done good work should he succeed in rendering them more popular and more generally cultivated. A fine truss of R. grande has been sent to us by Messrs. Dickson and Co. from their Pilrig Park Nursery, Edinburgh, in which are some grand specimens of Himalayan Rhododendrons.

Pinguicula lutea.—This rare little Butterwort from Florida, shown the other day by Mr. Robert Veitch, of Exeter, is a sweetly pretty plant, smaller than any of our native species, and furnished with bright canary-yellow blossoms produced on stalks some 2 in. or 3 in. high from a rosette-like tuft of fleshy leaves. There were also shown three other Butterworts by Messrs. Veitch, of Chelsea These were P. hirtifolia, probably the tiniest of all the Pinguiculas, with violet-purple blossoms; P. caudata, with large blossoms of a rich carmine; and P. caudata rosea, with rose-pink flowers, quite a distinct colour from that of the type.

Chiondoxa Luciliæ.—A great merit belonging to this is that very small bulbs bloom on one of our sunny loam mounds. At Oakwood there are several clumps, the older bulbs with seven flowers to the stem, while from the small bulbs planted thick, the single blue stars just above the ground are as beautiful. I wish the importers who have brought us the Chionodoxa in quantity would turn their attention to Scilla taurica. Our few bulbs of this have given beautiful flowers. Scilla bifolia, though a pretty spring flower, is not, I think, comparable with this in its magnified form.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

Varieties of Laurustinus.—Mr. Stevens brings from his garden at Byfleet two distinct and handsome varieties of the Laurustinus. One is Viburnum Tinus hirtum, the other pyramidalis, so called on account of the distinctly pyramidal growth of the plant, which Mr. Stevens says renders it so different from the rest of the forms of Laurustinus. The foliage and flowers of it, moreover, are larger than those of ordinary kinds. The variety hirtum may be at once recognised by the hairiness of the branches and leaf-stalks. It is, moreover, different from the common form in other respects, and the plant may be recognised among others at a glance.

French Anemones.—A most beautiful gathering of single and double Crown Anemones (A. coronaria) has been sent to us by MM. E. Forgeot & Cie, of Paris. The flowers are as fine as any we have ever seen, some measuring fully 3 inches across, and of a handsome cup-like form. The colours, which are very bright, vary from pure white to the most vivid scarlet and purple, while others are of a rich maroon-crimson. Many would prefer the double-flowered sorts on account of their showiness, but we prefer the singles, as they are so fine in form. Numerous as are the shades of colour represented, our correspondents state that other shades will be plentiful later in the season.

Schizostylis coccinea.—The pretty illustration of this in THE GARDEN the other day tempts me to say a few words in reference to this useful hardy plant. We have a large bed of it here; last year it was still larger, but through an extension of our hardy border some of the plants had to be cut away. I had them cut out in clumps with the spade, and these clumps were planted, without manure, between shrubs in a newly-planted shrubbery. The much greater vigour which these plants have shown over those left in the bed has taught me a lesson. Many of them reached 2 feet 6 inches in height, and were strong in proportion; while those left in the bed did not average more than 1 foot 6 inches. Besides the increase of growth, the flowers on the clumps have been much more perfect than those on plants in the bed, as the shrubs have sheltered them from cutting winds, of which we have had plenty, and from frost, of which, however, we have had but little. I have been cutting spikes of this plant occasionally ever since October, and there are still a few left. The shrubs among which they are planted range from 3 feet to 5 feet in height.—JOHN C. TALLACK, *Prideaux Place, Padstow.*

Double scarlet Anemones.—We have again received from Mr. Gilbert, of Dyke Bourne, specimens of his double Anemone fulgens, on which he prides himself, and justly so, for they are different from the ordinary forms of double Anemone fulgens, inasmuch as the central tufts of petals are much smaller than usual. These form a small scarlet rosette, set in a row of petals of the most brilliant scarlet. The difference in these two distinct sorts of double flowers may be explained in this way: Instead of the stamens being transformed into petals, as in the ordinary form, the carpels are petaloid in Mr. Gilbert's strain. They are as fine as any we have received this season from the Riviera Accompanying these were flowers of Primula cashmeriana, with stems a foot or more in height, Orange Phœnix Daffodils, and a beautiful white Primrose with yellow centre, almost identical with that called Harbinger.

Late Chrysanthemums.—I herewith send you blooms of four kinds of Chrysanthemums, viz., Elaine, Fair Maid of Guernsey, Jardin des Plantes, and White Globe, cut from plants that commenced to flower in October last. I may mention that I have been able to cut Chrysanthemums every week since the middle of October. I also send Neapolitan Violets gathered from a frame, from which I have been picking freely every two or three days for these three months past. The Czar has been flowering freely since September out in the open. A truss or two of scarlet Pelargoniums are likewise sent from plants which commenced to bloom in October and which have been very bright all through the past dull winter months.—WM. SLOGROVE, *Gatton.*

*** Uncommonly fine Chrysanthemums for this season of the year. The Violets and Pelargoniums are likewise excellent.—ED.

Iris stylosa.—This charming Iris came into bloom with us in the second week of November. We have been picking it in bunches all the winter, and it looks like flowering till the end of the month; thus for eighteen winter weeks we shall have had the enjoyment of this fine flower. But though the plant is now well known and grows willingly enough, there is a general complaint that it will not flower. Several friends from districts in the southern and midland counties have lately written to this effect: "I have Iris stylosa; it grows well, but will not flower." That was also my experience; but now, after cultivating and watching it for eleven years, I believe I know how to manage it. Unlike most things, human and otherwise, it thrives best under ill-treatment—it feeds on starvation and drinks drought! Grow it liberally, and it makes nothing but leaves; plant it in poor, dry soil, and even let a stronger-rooting plant overrun it, and it flowers profusely. It also flowers well in pots when pot-bound.—G. J., *Surrey.*

*** With this came some lovely specimens of this charming Iris with leaves 2 feet in length and fourteen flowers in various stages of expansion.—ED.

Toxicophlæa spectabilis.—In addition to the large specimens of this plant which were noted a week or two ago as being in flower at Kew, there are also several small plants about a foot high which are almost perfect balls of pure white, deliciously fragrant blossoms. These have been procured by striking large cuttings taken from old plants in summer, and growing them on in brisk heat, finally ripening them by exposure to bright sunlight and an intermediate temperature. In December they are brought into a stove where their flowers soon apppear in large bunches in the axils of almost every leaf. The usefulness of these small plants will readily suggest itself. The practice of striking large ripened cuttings of flowering plants might be extended to a large number of winter and spring flowering indoor plants, and especially might it be resorted to where old plants are too shabby or too large to use for the decoration of tables, &c., indoors, for which the demand is ever on the increase, and for which well-flowered small specimens are particularly useful. Toxicophlæa spectabilis is perhaps rather too slow a grower to recommend for cultivation for market, and yet it seems not impossible that if once some of our clever market growers were to bring this plant under the influence of their magic wands, much more might be made of its sweet and lasting flowers than is done at present.

Clerodendron fragrans.—Although generally cultivated in the greenhouse, and now and then to be met with in a sheltered position out-of-doors in the warmer parts of this country, C. fragrans may be used as a winter-flowering stove plant, a purpose for which it proves more valuable than when grown as I have just mentioned. The white, sweet-scented flowers, which are borne in a large thyrsus or head at the top of each shoot, may be used for indoor decoration, where their Almond-like smell would be found very agreeable. If cuttings are struck in the spring and grown on in an intermediate house or frame, they will make nice specimens by the autumn, when they should be rested for a little while and then placed in the stove to flower. Root-cuttings will be found an easy means of propagating this Clerodendron, as they are in the case of all the shrubby Clerodendrons, of which the tropical C. Kæmpferi and C. splendens, both scarlet-flowered species, and the hardy C. fœtidum are the best known kinds. A plant of C. fragrans has been flowering for some weeks in the Victoria house at Kew. Another species, C. speciosum, which belongs to the climbing section of the genus, is also in flower at Kew; and as this plant is not well known it may be well to direct attention to the bright scarlet colour of its flowers, which, along with the brownish-coloured calyx, are very attractive at this season of the year. In habit and foliar character this species resembles the white-flowered C. Thomsonianum, of which C. Balfourianum is a synonym.

QUESTIONS.

5168.—**Mice *v.* Peas and Beans.**—Will some of your correspondents kindly tell me what is the best way to prevent mice from eating newly sown Peas and Beans?—E. F. T.

5169.—**Masonic Acacia.**—An old F. M. would esteem it a favour if the botanical name of the Acacia sometimes used in masonic ceremonies could be given in your columns. Perhaps some of our correspondents will kindly answer this query.

5170.—**Pounded oyster shells.**—Are these mixed with soil good for Chrysanthemums? If so, what quantity should be put to a bushel of good prepared mould? Perhaps some of your correspondents will kindly answer this question.—NOVICE.

5171.—**Azaleas.**—My Azaleas are making their new growth of foliage, but the flower-buds appear to be drying up. I have been careful about watering, and have endeavoured to keep the atmosphere sufficiently moist. The temperature has ranged from 45° to 55°, and sometimes higher on sunny days. Can any of your readers explain the reason of this failure?—W. J. T.

5172.—**Seedling Amaryllis.**—Will some of your readers kindly give me a detailed account of the best way to raise Amaryllis from seed? I have heard that in England they manage to flower them in two years or under from the time they are sown. I am sure there are a number of readers of THE GARDEN in America to whom the information I ask for would be very acceptable.—G. C.

5173.—**Camellia buds dead in the centre.**—I find on cutting my Camellia buds open that they are dead in the centre, and I shall be greatly obliged if anyone can tell me the cause. My house is a lean-to with a north aspect. The back wall is about 10 feet high, with a 2½-foot sash on the top, that I use for ventilating; therefore the house gets some sun The Camellias have been planted about seven years, and most of them are young trees. The border is about 2 feet 6 inches in depth, and consists of rather light turfy loam. The Camellias have grown vigorously—so much so, that I have had to lift several of them in order to give the others room; they have also flowered fairly well, except last year and this. They began to open their flowers early in November, and were very fine, but lately they only push their centres out and then fall off. I think I have given them plenty of water, but I have not given them anything in the form of manure yet, as they are so strong. The water I use is well water, but I generally allow it to remain in an open tank for twenty-four hours before I use it. The old double white is the worst amongst them. What can have gone wrong?—C. M.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 11.

ALTHOUGH the display on this occasion did not equal that at the last meeting, the conservatory was rendered very gay by a large gathering of spring flowers, consisting chiefly of Chinese Primulas, Cinerarias, Cyclamens, and Primroses.

The following plants were awarded first-class certificates :—

RHODODENDRON PRINCESS BEATRICE.—A new seedling variety of the Javanese race. The flowers are large, perfect in outline, of thick texture, and of a most delicate shade of salmon-pink. The trusses, moreover, are massive, and the habit of growth vigorous. Shown by the raisers, Messrs. Veitch, Chelsea.

CATTLEYA TRIANÆ SPLENDIDISSIMA.—A truly splendid variety, one of the finest we have ever seen, and, moreover, one of the most distinct. The flowers are not remarkable for large size, but they are of admirable form. The broad sepals are pure white, while the wide labellum is of a gorgeous carmine-purple, beautifully frilled at the margins. Exhibited by Mr. B. S. Williams, Upper Holloway.

DENDROBIUM FINDLEYANUM GIGANTEUM.—A variety of this superb and scarce Dendrobe, bearing flowers fully a third larger than ordinary. The sepals are white, suffused with a delicate tinge of pink. The broad and shallow labellum is clear white, with a deep orange-yellow blotch in the centre. Shown by Mr. Salter, gardener to Mr. Southgate, Selborne, Streatham.

BROWALLIA JAMESONI.—This beautiful old plant has been reintroduced under the name of Streptosolen. It is a plant of tall growth and gives off numerous slender branches, which are pendulous and terminated by clusters of bright orange-red flowers, each about the size of a shilling. As a warm conservatory plant it is most valuable, as it flowers in winter and early spring. Exhibited by Messrs. Cannell & Sons, Swanley.

BEGONIA CARRIEREI.—A new hybrid variety, a cross between the well-known B. semperflorens and B. Schmidti. It combines the peculiar characters of these species in a remarkable degree. The flowers are nearly as large as those of B. semflorens, pure white and produced much more plentifully. The foliage is of that bright cheerful green so much admired in B. semperflorens. The plants shown by Messrs. Cannell were perfect specimens about 1½ feet high and as much through, though grown only in small pots.

ROSE GRACE DARLING.—A lovely Hybrid Tea variety, one of the finest of all the pedigree Roses that have been raised by Mr. Bennett, of Shepperton, who showed it on this occasion. The flowers are large and very full, with beautifully reflexed petals as in La France. The colour is a pleasing salmon-pink, similar to that of the variety Madame Lambard. The plants shown appeared to be vigorous and very free flowering.

CYCLAMEN PRINCESS IDA.—A new seedling variety, perfection as regards size of flower, breadth and substance of petal, and habit of growth. The colour is a delicate pink, deepening towards the mouth of the corolla to a deep carmine. Shown by Mr. Edmonds, Hillingdon.

PRIMROSE PRINCESS OF WALES.—A variety remarkable for the enormous size of its flowers, which measure fully 2½ inches across. They are of a perfectly circular outline, while the colour is a brilliant magenta, relieved by a golden centre and spots of white at the divisions of the petals. Shown by Mr. A. Waterer, Knap Hill Nurseries, Woking.

AZALEA MRS. ALFRED HEAVER.—A very profuse flowering variety, the blossoms being semidouble and pure white, an admirable variety for early forcing. Shown by Mr. Todman, Bushey Down, Tooting.

AMARYLLIS NE PLUS ULTRA.—A magnificent variety, with flowers fully 8 inches across, with broad overlapping petals of thick texture. The colour is a glowing scarlet. Messrs. Veitch.

CINERARIA CHALLENGER.—Flowers very large (2 inches across), with thick textured overlapping florets, forming quite a circular outline. The colour is a deep velvety purple. Shown by the raiser, Mr. James Woodside, Farnham Royal.

AZALEA LITTLE BEAUTY.—A variety midway between A. amœna and A. indica as regards the size of the flowers, which are produced most abundantly. The colour is a delicate rosy purple, rendering it highly attractive. Shown by Messrs. Veitch, but raised by Mr. Hovey, Boston, U.S.A.

AMARYLLIS GENERAL GRAHAM.—Flower about 6 inches across, perfect in form, and of unusual substance; the colour is a deep velvety crimson-red. One of the finest yet raised by Messrs. Veitch, who exhibited it.

CINERARIA POLLIE CHARMING.—Flowers large and perfectly circular; florets broad, overlapping, and thick-textured. The colour is a vivid magenta, with a conspicuous white centre. Mr. James.

VIOLA WELLSIANA.—A very fine single-flowered Violet in the way of odoratissima, but distinct from it or any other Violet. The colour is peculiarly rich and bright, and the perfume delicious. The large number of plants exhibited showed the remarkable floriferousness of the variety. Shown by Mr. Wells, Fern Hill, Windsor Forest.

PRIMROSE JAMES DOUGLAS.—A variety of the common Primrose, remarkable for the perfectly circular outline of the flowers, which are as large as a crown-piece. The colour is a sulphur-yellow, with a deeper yellow eye. Mr A. Waterer.

CINERARIA ROYAL STANDARD.—Another of Mr. James' superb strain. Its flowers are as large and fine as the others described above; the colour is a brilliant magenta with a dark centre.

THE COLOURED PRIMROSES from the Knap Hill Nursery, Woking, comprised one of the chief attractions of the show. They were even finer than on the last occasion and more numerous, there being some 150 plants shown in the group. The colours of these were so rich and varied as to be quite indescribable, while as regards the size of the flowers, their perfect shape, and floriferousness, we doubt if they could be equalled. Mr. Waterer certainly possesses a very fine strain, which is of great value to the open-air garden. A small collection of extremely choice varieties was contributed by Mr. R. Dean, of Ealing, so well known as a Primrose raiser. He showed about a dozen sorts, most of which were new, and all were of the highest quality. Those we singled out as the most distinct were named Blue Beard, which is of quite a new colour, a sort of bluish purple, very rich and showy. White Queen was admired by everyone, on account of the purity of the white flowers, which only had a pale yellow centre to mar their chaste purity. Conqueror, Lord Wolseley, Brilliant, and Royal Purple are of much the same class of colour—a deep red, only differing as regards the shade. Cloth of Gold is a very rich yellow, and paler in tone was one named Buttercup, also pretty. All these possessed flowers that are considered first-rate according to the present ideas of what good Primroses should be.

CYCLAMENS were again shown in large numbers by the well-known grower, Mr. H. B. Smith, of Ealing Dean. We have so often alluded to the high quality of Mr. Smith's Cyclamens, that we need only say that they were as fine on this occasion as ever, and well merited the silver medal awarded to the exhibitor. Mr. Clay's gardener (Mr. Wiggins) exhibited a few new Cyclamens, three named Formosa, Miranda, and Firefly being particularly noteworthy. The same exhibitor also contributed three Cinerarias named Cyclone, Ophelia, and Charm, all of which represented very fine varieties. An extensive group of a new Primula named Queen Victoria was shown by Mr. Odell, Hillingdon. The colour is a brilliant carmine-crimson, and the sort is altogether as fine as any of a like colour. A bronze medal was awarded.

THE CINERARIAS from the well-known raiser, Mr. James, Woodside, Farnham Royal, were the centre of attraction, and certainly they formed a very fine group, far finer than we had hitherto seen Mr. James exhibit, and it is difficult to imagine in what way such a superb strain can be further improved, for the flowers are the ideal of what a first-rate Cineraria should be. Mr. James' strain is characterised by large flowers, thick textured overlapping florets, forming a perfectly circular outline of rich and varied colours. About eighty plants were shown, a dozen or so of which were named from which the three certificated varieties were selected. Messrs. Cannell also showed a choice group of named Cinerarias, which included such superb sorts as March Past (certificated last season), Best Blue, Mr. Cullingford, Burgundy, Wonderful, President Garfield, Miss Cooper, and Dr. Masters. A group of admirably grown double and single Primulas constituted the other part of Messrs. Cannell's display. Two new Abutilons named Scarlet Gem and Brilliant, both first-rate varieties, were shown by Mr. Stevens, St John's Nursery, Putney, who is paying some attention to this class of plants.

HARDY PLANTS contributed somewhat largely to the display. Messrs. Barr showed a large number of blooms of their new early sulphur Daffodil (Narcissus pallidus præcox), certificated at the last meeting. It was even finer than when shown last, some of the flowers being almost as large as those of the Great Daffodil (N. maximus). In direct contrast to the soft colour of the Daffodils was that of a large gathering of Anemone fulgens flowers (both single and double), also shown by Messrs. Barr, to whom a bronze medal was awarded. A similar award was accorded to Messrs. Collins & Gabriel, Waterloo Road, for an extensive array of Tenby Daffodils (Narcissus obvallaris) and Anemone fulgens, which together made a most attractive show. Messrs. Paul sent from their Broxbourne Nursery a fine potful of Iris reticulata, admirably grown and flowered; also Bulbocodium vernum and the blue Primrose (Scott Wilson), of a deeper blue than we had hitherto seen it. Messrs. Carter showed some excellent examples of alpine plants, including Saxifraga sancta, a small yellow-flowered species; S. oppositifolia, and a very fine plant of Soldanella montana, to which the committee awarded a cultural commendation.

ORCHIDS were not numerous. The most remarkable exhibit was Baron Schroeder's unique specimen of the fine Odontoglossum Pescatorei Veitchianum, which has the flowers transversely barred with plum-purple. This year, the second time the plant has been shown, it bore a branching spike with no fewer than twenty-eight fully developed flowers upon it—a fine sight. Mr. Ballantine, the gardener, was deservedly awarded a medal as an acknowledgment of his skill in Orchid cultivation. A few plants came from Mr. Smee's garden at The Grange, Wallington, including a very fine specimen of Lælia superbiens bearing three flower-spikes, for which the gardener, Mr. Cummins, was awarded a cultural commendation. Other Orchids from the same garden included Saccolabium illustre, Dendrobium luteolum, and a scarce little Coelogyne named sparsa. A finely flowered plant of the rare Orchis Robertiana, a terrestrial species, was exhibited by Mr. Douglas, Great Gearies, Ilford. The flowers are of curious shape and of a pale purple, produced in a dense erect spike. Mr. G. F. Wilson brought from his garden at Weybridge Heath a spike of an uncommonly fine form of Odontoglossum crispum and a specimen of the orange-red Ada aurantiaca.

Messrs. Veitch contributed some admirably flowered plants of the Colchic Staphylea, a beautiful shrub, reminding one of Deutzia gracilis. It is one of the prettiest of all shrubs for forcing into flower early, as the pure white drooping racemes harmonise so finely with the tender green foliage. Messrs. Veitch also showed Freesia Leichtlini, which has flowers of a deeper yellow than F. refracta, Pinguicula caudata and its variety rosea, Primula obconica, a very fine Tree Carnation named Lady Middleton, with very large rose pink flowers, and two seedling Amaryllises, both very fine, particularly that named William

Goldring, which has a fine bold flower of perfect shape and of a deep scarlet-crimson colour.

Fruit and vegetables.—The most important exhibits among these were two fine collections of Apples in excellent preservation. One of these was from Messrs. Veitch's nursery at Fulham; the other was shown by Mr. Burnett, gardener at The Deepdene, Dorking. The latter collection comprised an excellent assortment of varieties suitable for late keeping, the most noteworthy of which were Sturmer Pippin, Wellington, Norfolk Beaufin, Colville Blanche, Shepherd's Seedling, Cox's Orange Pippin, Court Pendu Plat, Margil, Dutch Mignonne, Boston Russet, Claygate Pearmain, Braddick's Nonpareil, Essex Spice, Lamb Abbey Pearmain, and Mannington Pearmain. Messrs. Veitch's collection, numbering some eighty dishes, was awarded a bronze medal on account of its excellence. As it represented the majority of the best late Apples, we append a list of the most noteworthy, including some mid-season sorts that had been stored well: Dumelow's Seedling, Norfolk Beaufin, The Sandringham (new), Flower of Kent, King of the Pippins, Rymer, Newtown Pippin, Annie Elizabeth, Lord Derby, Betty Geeson, Wooling's Favourite, Calville Blanche, Mère de Ménage, Duck's-bill, Northern Greening, Dutch Mignonne, Old Nonpareil, Scarlet Nonpareil, Rhode Island Greening, Winter Majetin, Boston Russet, Cox's Red-leaf Russet, Graham's Apple, Wadhurst Pippin, Besspool, Lemon Pippin, Alfriston, Stamford Pippin, Lord Raglan, Winter Hawthornden, Yorkshire Greening, Ribston Pearmain, Gloria Mundi, Cockle Pippin, and Court Pendu Plat. Among other exhibits Mr. Gilbert, of Burghley, sent a new Savoy named Gilbert's Universal. It is in the way of the Chou de Burghley. The committee desire to see it again. Mr. Gilbert also exhibited a fine dish of an Onion named Bedfordshire Champion, a large flat-bulbed sort, which the committee considered very good. A seedling Apple was sent by Mr. Allan, from Gunton Park, Norwich. The committee did not consider it superior to others in cultivation. The flavour of the fruit, however, was somewhat impaired by the packing material.

Scientific Committee. — *Introduction of French Mushroom spawn.*—A communication was read from Rev. Mr. Berkeley on this subject, brought before the committee at the last meeting, in which he observed on the great uncertainty in the development of Agarics generally, the mycelium sometimes lying dormant for a year and then springing up vigorously. Agaricus arvensis and Marasmius Oreades thus failed to grow at Chiswick; spawn from the Swan River likewise failed, the reason being that it is impossible to guard against minute differences of atmospheric and cosmical conditions, the failure being due to no fault of the cultivator.

Coryneum Beijerinckii.— Mr. Plowright sent twigs, with illustrations, with gummy exudations, proved by Prof. Oudemans to be due to the fungus in Holland.

Canker.—He also sent specimens caused by Nectria ditissima on Hawthorn. The canker on Apple appears to be of a different cause, which did not appear to be capable of discovery.

Pelliarpiphylla.— Mr. G. Murray exhibited a specimen of this plant growing with Moss and species of Jungermannia, on which it had acquired an abnormal habit of growing erect.

Knot in Red Currant.—Dr. Masters showed a specimen of this received from Mr. Webster, of Gordon Castle. It was suggested that it was due to Phytoptus, which has been thought to cause the black knot in the Birch. Mr. Maclachlan questioned this hypothesis; Miss Ormerod appears to think it due to it.

Cones of Abies Fortunei.—Cones and foliage of this remarkable Fir, which is intermediate between Abies and Picea, were shown by Dr. Masters. It was grown at Pallanza (Lago Maggiore), but is a native of China. The cork is remarkable as being exceedingly light, and apparently without the thin layers (periderm) so conspicuous in Pinus maritima. He also showed specimens of the cones and foliage of the Servian Spruce.

Phalænopsis Stuartiana.—Mr. O'Brien exhibited a specimen in which every petal had produced a small ridge down the centre, indicating in a small degree the protuberance on the labellum.

Hyacinths grown in the dark.—Mr. A. H. Smee exhibited specimens of purple and red Hyacinths, planted last October and sunk in pits, but covered by drain pipes and buried in Cocoa-nut matting. The leaves were of a pale green, but the colour scarcely paler than usual, showing the independence of colour upon light.

Monstrosities.—He also showed a two spathed Anthurium; a Lælia anceps with anomalous petals, partly misplaced, and with none at all; a seedling Cyclamen with contorted and misplaced petals.

Apples preserved in dried sand.—Sir J. D. Hooker exhibited Apples of two kinds, Duke of Devonshire and Court Pendu Plat, received from the Earl of Ducie. Professor Church remarked that he had preserved Apples for two years in charcoal.

Prevention of the Potato disease.—A communication from Mr. Plowright on this subject was read, in which were detailed experiments showing the advantages of high moulding and in bending the stems to one side, though this latter process should not be done in the latter half of July, as it lessened the weight of the produce if done when in flower or at a time when the foliage was in full vigour. To prevent "after-sickness"—that is, impregnation of the tubers during or after being raised, they should not be dug up till a week after the foliage is quite dead. The paper concluded with a description of a method of disinfecting seed tubers by heating them at a temperature from 100° to 120° F., which killed all mycelium and spores, but left the germinating powers of the Potatoes uninjured. It is proposed to carry out experiments on Mr. Jensen's system at the Royal Horticultural Society's gardens at Chiswick.

Plants exhibited.—Mr. Loder brought the following, which were referred to Kew for identification, many of them being unnamed, from the garden of the late Rev. Harpur Crewe: Fritillaria sp., Galanthus virescens, Tulipa altaica (?), the earliest species to flower; a Narcissus sp., Ornithogalum sp., forming dense mass of flowers 10 inches across; Narcissus obvallaris, Anemone patens, grown from seed from Colorado; Crocus versicolor, a curious nearly colourless Iris with semi-scarious petals; Fritillaria tenella, Narcissus citrinus, and a green-shaped Ophrys. Tulipa Kaufmanni, sent by Mr. Elwes. It is a new species from Turkestan, with light crimson petals in one specimen; the three inner ones were white, but yellowish at the base. Epidendrum rhizophorum was sent by Mr. Boscawen, with particulars of its growth; it is a species requiring the very brightest sun; Azara microphylla was also sent by the same exhibitor.

Lecture.—The Rev. George Henslow first called attention to the basket of Violets exhibited. He remarked upon the general infertility of the Violet until the summer, when it bore numerous inconspicuous buds which never opened, but were very prolific. They would be readily found under the foliage. Primroses.—Among those shown by Mr. Dean was the first example of a Hose-in-hose Primrose, this peculiarity being hitherto only in the Polyanthus. It is due to the calyx being converted into a corolla. The Cinerarias exhibited came in for some remarks, especially upon the enormous size of their blossoms, some being nearly 3½ inches in diameter. The three species of Pinguicula shown, the lecturer took for remarks on the insectivorous habits of plants, and observed that although such plants are peculiarly constructed for the purpose, yet in every seed when it germinates the same process of digestion is carried out to enable the embryo to grow at the expense of the food held in reserve. A Hyacinth grown in the dark by Mr. Smee had its blossoms of proper purple tint, this being due, not to direct light, but to the reserve material stored up in the bulb. This, of course, depends upon the foliage, and the green colour of the last only upon the light. The lecturer observed that alpine plants, such as Soldanella and Saxifraga oppositifolia exhibited, as also the deep blue Gentians of the Alps, appear to become more intense in colour the higher they grow. M. Best proved the same thing to occur the higher the latitude, and thence deduced the result that the foliage is enhanced by the longer amount of sunshine; and this, then, indirectly enhances the flowers.

OBITUARY.

We régret to have to announce the death, on February 4, of Dr. Engelmann, who for many years had resided at St. Louis, Missouri. He was born at Frankfort-on-the-Maine in 1810, graduated in that city, but soon took up his residence in the United States. His speciality was Conifers, on which he was a leading authority, and to which his communications principally related. Accompanied by Prof. Sargent, Dr. Parry, and Mr. Skinner, he visited those forests from whence fifty years previously Douglas had sent so many fine Conifers and other plants to this country. On this expedition Engelmann was enabled to study their distribution and modifications. His account of this journey is well worth attention, and is of special interest to all interested in the arborescent vegetation of Oregon and California. For some years his health has been far from good; he took cold in January, and on the 4th of February he succumbed to the effect of it on the lungs. Thus closed the life of an indefatigable labourer in the field of science.

Begonia manicata.—We find this species extremely useful for furnishing flower baskets, and also for the decoration of the conservatory, where its large, graceful panicles of light pink flowers are very effective and last a long time in perfection. It is a native of Brazil, and grows freely in any light soil and in an ordinary stove.—F. G.

What are the usual recognised hours of commencing and leaving work for a gardener?—Amateur Gardener.

*** From six o'clock in the morning till six o'clock at night, with two hours for meals and rest. In winter, during daylight, half-an-hour being allowed for breakfast and an hour for dinner.—Ed.

Naming plants.—*Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.*

Names of plants.—*S. Milward.*—Spring Snowflake (Leucojum vernum); not a Snowdrop.—*W. Forrester.*—1, Begonia smaragdina; 2, Franciscea confertiflora; 3, Acacia verticillata; 4, Acacia Drummondi.—*J. S. S.*—Saxifraga oppositifolia.—*G. F.*—The Euphorbia is peculiar, but we have met with a similar instance before.—*A. F.*—Coccoloba platyclada.—*F. T. R. K.*—Not the Sulphur Daffodil (Narcissus pallidus præcox). It is the Scotch form (scoticus) of the common wild Daffodil.—*J. Crook.*—2, Alonsoa incisa. Please send others again, as they arrived withered.—*W. Shepherd.*—1, Selaginella Wildenovi; 2, Asplenium Belangeri; 3, Polystichum capense; 4, Polypodium Billardieri.—*H. S. W.*—Colchicum crociflorum.—*J. W. W.*—Name of bulb next week.—*A. B. C.*—1, Odontoglossum cirrhosum; 2, Imantophyllum miniatum.

FAWCETT TO FLORA.

[*The Postmaster-General has been compelled to issue a proclamation urging precaution in the sending of flowers through the post.*]

In the Spring the Liberal Party tries to do its level best,
In the Spring the wanton Tory makes himself a public pest;
In the Spring a heavier pressure comes upon my hard-worked host;
In the Spring the Public fancies sending flowers through the Post;
So I say, my blooming Flora—and I mean it not as *argot*—
On that pretty practice I would not place a complete embargo;
But I really must impress upon your votaries, Goddess fair,
The necessity of caution, the propriety of care.
Primroses when pressed go pappy, Violets when squeezed get damp,
The Narcissus juice exudeth under pressure of the stamp.
Water is extremely grateful to the buds in gardens nodding,
But the Post is discommoded by damp Moss and soaking wadding;
Floral tricklings pulp epistles, and obliterate addresses,
Covent Garden in a post-bag makes the rastliest of messes.
Therefore, Madam, I entreat you, I implore you, as a friend,
Urge your votaries who floral tributes through the Post *must* send,
Just to pack them tightly, neatly, safe from leakage, fracture loss,
With the maximum of caution and the minimum of Moss
—*Punch.*

No 644. SATURDAY, March 22, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TEA ROSES.

ROSES are what may be termed everybody's flowers, all classes being well agreed as to their beauty and excellence; and it is encouraging to Rose growers to know that they are annually becoming still more highly esteemed. From America we hear that Roses are more extensively cultivated than any other flower, especially Tea Roses, the numbers of which grown and sold in the markets being simply marvellous. English growers, too, like the Americans, may safely invest in larger quantities of this favourite flower. Many gardeners now, well aware of the usefulness of Tea Roses, are either providing a separate house for them, or setting apart one that has been taken up with subjects less valuable. Where this can be done the planting-out system is best, as they produce larger quantities of buds than when grown in pots; but a few Roses can be grown with satisfaction in the smallest garden and in pots where it is not practicable to have them planted out. To many in charge of these perhaps a few remarks as to their propagation and growth may prove acceptable.

PROPAGATION.—In the first place, if no Tea Roses are in the possession of anyone desirous of taking up their culture, a few plants of good sorts should be obtained from a nurseryman and grown on as fast as possible, so as to induce them to form plenty of flowering shoots. After they have bloomed, as many of these flowering shoots as can be obtained should be taken off with a heel, as well as weak growths not strong enough to flower, and be made into cuttings, shortening them to the fourth or fifth joints, and inserting them singly and firmly in the centre of 3-inch pots filled with fine, loamy, sandy soil. They should be placed in a propagating frame or under bell-glasses on a bed of fermenting material, but neither should be very hot, as this tends to promote top growth before root action has commenced; they require to be shaded from the sun by means of sheets of paper. Any time from now till June and onwards will do if a warm place can be provided for them and if cuttings can be had. Formerly we struck our cuttings in boxes or pots filled to half their depth with soil and kept them air-tight by using squares of glass to fit over the box or pot respectively, but this we have found does not answer so well as the single pot system. By the latter method the cuttings receive no check when potted on, but the case is different when they have to be taken out of a box to be placed in pots. Cuttings of this description will root in from ten to fourteen days, after which they must be removed to more airy quarters; a shelf in a warm, moist house will suit them well for a time. They must not be kept in these small pots long enough to become root-bound, but should be shifted into others two or three sizes larger, otherwise they will be checked, and thereby become a prey to red spider As soon as they are partially re-established they should be removed to a cold pit and kept close for a few days, so as to gradually inure them to the cooler treatment in view, after which they must be given air rather freely. This will make them strong and cause them to throw up sucker growths from the base. As growth advances and the pots become filled with roots they should be again shifted into larger pots; 8-inch and 9-inch pots will be large enough for them the first year, using soil for this and the previous pottings consisting of two parts turfy loam and one each of well-rotted manure and sand, adding crushed bones in the proportion of a 6-inch potful to each barrowful of soil and pressing firmly. Frequent syringing will be found to be beneficial in favourable weather, and the frames may be closed for an hour or so in the afternoons of fine days, which will tend to encourage free growth, opening them later on to dry the leaves before night. Shading need not be resorted to except the weather be very hot, when some thin shading material had better be drawn over the lights rather than shading permanently, the latter not being favourable to the thorough ripening of the wood which is necessary in order to flower them satisfactorily. At the end of September the plants should be removed to a greenhouse and kept rather cool and dry by giving a little air on all favourable occasions, and if a little heat can be turned on by means of hot-water pipes during the daytime through long spells of dull weather, so much the better, as this acts as a partial preventive to the attacks of mildew. Roses are well-known lovers of good and liberal diet in the way of fertilisers, and there are many that are recommended for them. Clay's and Standen's are very good, these predominating among the patent forms, but I prefer farmyard liquid manure to any of them; it is also inexpensive, a consideration not to be overlooked. Soot and guano are both good stimulants; these are most convenient in the form of paste, kept in large garden saucers or flower-pots; in this way they can easily be taken from one house to another and take up but little space. There need be no fear of over luxuriant growth with Roses on their own roots, as the stronger they grow the more and finer will be the flowers that follow during the spring months.

SECOND SEASON'S TREATMENT.—About the end of March these plants should be transferred to 12-inch pots, a size in which they may remain two years, using soil of the same description as before, and allowing them to remain in the greenhouse as long as possible, or until the space is required for other plants, when they may be set on a bed of ashes outdoors, which we prefer to plunging the pots. Here they remain until the autumn, when they should be again returned to the greenhouse and treated as before. All bloom buds should be kept picked off during summer, thus reserving their strength for the winter or spring blooming, as the case may be. If large flowers are desired in spring the buds should be removed until late in winter, and the same holds good with regard to the young plants when grown on. The only pruning necessary is simply cutting away all weakly growing wood, so as to encourage strong flowering shoots produced in abundance from all parts of the main stems. It is best to raise some young plants annually, as by doing this old plants that become exhausted or unsightly can be thrown away, the younger ones taking their places.

MILDEW is apt to attack Roses at all seasons. As a remedy for this we sprinkle flowers of sulphur over the upper and under sides of the affected leaves, but in dull weather we find that this does not act so well as lime. This is prepared by placing a lump or two of quicklime into a bucket or potful of water, allowing it to slake and settle, and when nearly clear syringing the water over the plants attacked. Care must be taken not to stir the sediment, and in order to avoid this the vessel used must not be moved about, nor the water taken from too near the bottom, or the result will be that the plants will be coated with lime. Mildew and also green fly may be kept in check by means of a decoction of soft soap and Quassia chips. This is prepared by boiling 2 pounds of each in a gallon of water for about an hour, the decoction being strained off and stored in a flower-pot with the drainage hole corked up. Used as a preventive, a small quantity only need be mixed with the water for syringing; but where the plants are much infested at least one half-pint must be added to 3 gallons of soft water at each syringing. Fumigating is the simplest method of clearing a Rose house from green fly, and should any be infested with red spider, a by no means uncommon occurrence, thoroughly coat all the under sides of the leaves with sulphur.

THE BEST VARIETIES. — Teas being grown principally for furnishing fragrant cut blooms, it is not advisable to grow a great variety; the wiser plan is to select a few of the most serviceable sorts. Niphetos—a nearly pure white variety, and particularly fine in the bud state—is, perhaps, the most valuable of all, and I am informed by a leading nurseryman that the demand for it much exceeds the supply. It succeeds best on its own roots and cuttings of it strike readily. Etoile de Lyon, a nearly new sort, is undoubtedly the greatest acquisition of late years It grows freely, the blooms being large and full and of nearly the same shade of yellow as Maréchal Niel. Being perpetual flowering, it is really of greater value than the Maréchal. Perle de Lyon will only be grown by me till such time as Etoile de Lyon is abundant. It is, perhaps, of a rather richer yellow, but it does not grow and bloom so satisfactorily. Catherine Mermet—a flesh-coloured Rose—as far as habit and size of blooms are concerned, is the finest of all the Teas. Devoniensis, producing creamy-white blooms, is also very serviceable; and Alba rosea (synonym, Madame Brady), white with rose centre, is a very free-blooming sort, but when nearly expanded the blooms are not serviceable. Marie Van Houtte, yellowish white, is valuable, and so also is Souvenir d'un Ami, colour salmon-shaded rose. This is one of the most vigorous Roses we have, but the blooms should be cut before they have fully expanded. For cutting in the bud state, Safrano, apricot-yellow, and Amazone, deep lemon-yellow, are recommended. Louis Richard, which we have only recently tried, gives every satisfaction, and we have already cut numbers of its large coppery-rose blooms.

W. I. M.

Helleborus niger maximus or altifolius.—While agreeing with what Mr. Allan says respecting the extreme usefulness of this grand Hellebore, I do not think any of your readers who may be fortunate enough to possess the true variety will need to follow his advice (p. 184) in order to get it into bloom by or before Christmas-tide. With us it commences to bloom early in November, and is in perfection by the first week in December; this has been the case for these past four years, and some of the finest of those I sent to the Royal Horticultural Society's meeting on December 11 last year were past their best and had lost much of their original purity of colour. Certainly most flowers are earlier in this county (Cornwall) than in many other parts of the British Isles, but I do not think we can claim to be three weeks or more earlier than Norfolk, especially in the case of autumn or early winter flowers. Undoubtedly all that Mr. Allan writes may be safely applied to the typical H. niger, which is later than maximus, and from its dwarfer habit much more liable to get splashed with dirt during heavy rains. I think most authorities will agree with me that the principal blooming season of maximus is November and the early part of December, though if the plants are strong, they are very persistent and throw up occasional blooms till late in spring. The blooms sent with this were gathered this morning (March 14) from the same plant that produced those just referred to. Here you have, I think, a very striking instance of the remarkable diversity of colour in flowers of different ages and positions from the same plant. The highest coloured blooms were growing on the outside of the plant, and had pushed their way above the foliage. The green and white ones were under the foliage in a sheltered position.—JOHN C. TALLACK, *Prideaux Place, Padstow.*

*** Very fair blooms for so late in the season.—ED.

Rhododendron fulgens.—It may interest some of the readers of THE GARDEN to hear that on the rockwork in the York Nurseries there is at present a fine specimen of this Rhododendron in flower. The individual blossoms are 1¼ inches long and 1½ inches across; they are borne in a compact cluster; the colour is a bright crimson-scarlet. Last year was, I believe, the first time in which this plant flowered in the York Nurseries. For many years it was grown in the open nursery beds in company with other Rhododendrons, but with little or no success. It was

then removed to a hot and exposed position on the rockwork, thinking this might induce it to set its flower-buds, but without avail. The position was evidently too hot and dry for the full development of the plant; in fact, it showed signs of dying. It was then removed and replanted in a somewhat sheltered position, and wedged tightly between two rocks, but where there was abundance of earth behind into which it could root; although the position is sheltered, it is, nevertheless, exposed to the mid-day sun. Here it has grown quietly on for several years, without, however, rewarding us with a flower until last year, when it bore two trusses; this year it has seven fine trusses, and is a striking object. I begin to think that the right way in the case of the Sikkim Rhododendrons is to plant them in rather heavy, damp loam instead of in peat, as is usual with most other species. This, however, is only a surmise, and it would be interesting to hear what other growers of these handsome shrubs have to say in reference to this matter. Since the foregoing was written I have discovered that there is another species flowering in the York Nurseries, viz., R. æruginosum. It closely resembles in general habit R. fulgens; the leaves, however, are more pointed and the blossoms larger, being upwards of 2 inches long and the same in diameter. The colour is delicate pink, lighter towards the base of the flower, and beautifully spotted with crimson internally, which is slightly seen through the texture of the corolla on the upper portion of the flower.—R. POTTER.

PLANTS IN FLOWER.

Twin-flowered Leucojum vernum.—I send you a flower of this plant which was gathered from a root taken at about a mile from here (Dorsetshire), which is now said to be the last remaining native habitat of the plant in England, and where it is, through the greed of collectors, rapidly being exterminated.—J. M.

*** The specimen sent here two flowers from one spathe, and is exactly identical with the biflorous variety of the Snowflake called Leucojum carpathicum.—ED.

Azalea obtusa.—It is a common remark that in seeking for new plants we overlook the old. A striking example of this is this old Azalea, which, among the hundreds of other varieties now grown, is still unsurpassed in its way. The flowers are small and of a brilliant red, inclined to orange. It is a most profuse flowerer, and bushes of it that now adorn the conservatory at the Royal Exotic Nursery, Chelsea, are the admiration of everyone.

Spiræa Thunbergi.—Of this neat little bush Mr. Stevens has brought a handful of sprays profusely laden with its tiny white blossoms. Those who have forced this shrub this year are scarcely at all more forward than those who have waited for its flowering in the open air. It is one of the prettiest of small growing deciduous shrubs. From the Byfleet garden also come the double wild Plum-wreaths of double white blossoms and flower-laden twigs of the deepest form of the Flowering Currant (Ribes sanguineum).

Spring flowers.—A gathering of beautiful bulbous plant flowers reaches us from Messrs. Mahood's nurseries at Putney. Amongst them are the now popular Chionodoxa, Iris reticulata, Dog's-tooth Violet, Triteleia uniflora, Scilla sibirica, and Grape Hyacinths, thus affording further evidence of the attention now being paid to hardy plants. It is to be hoped that raisers of them will grow only the choicest, for which there is always a good demand.

Anemone fulgens.—We have been favoured this season with numerous gatherings of scarlet Anemones from the sunny Riviera and other favoured localities, but we had not had any good blooms of English growth until Mr. G. F. Wilson sent us one of his. It was single and had eight petals an inch or so across and measured in diameter fully 1¼ inches. The colour, an intense glowing scarlet, shone at the base as if varnished. This may be an isolated example, but if the whole crop is as fine as this was, Mr. Wilson has need to be satisfied with his Anemone culture. Accompanying this Anemone was a spike of Primula cashmeriana—a dense globular head of deep mauve-tinted flowers fully 3 inches across. These Himalayan Primroses we have seen growing at Oakwood by the hundred; nowhere else have we seen them so fine. If we recollect rightly, the situation is partially shaded, and the soil of a deep loamy character with a moist and cool subsoil.

Polyanthus Narcissi.—Some uncommonly fine flower-spikes of varieties of Narcissus Tazetta have reached us from Messrs. Hubert and Manger, Guernsey. A spike of a form similar to Grand Monarque carries no fewer than fifteen flowers; another, of Paper-white, has fourteen blooms; and a third bears a similar number. These remind us of the superb specimens which Mr. Dorrien-Smith brought to London a fortnight since from the Scilly Isles. The Polyanthus Narcissus evidently finds a congenial home in the Channel Islands.

Magnolia stellata.—This Magnolia recently alluded to in THE GARDEN as a fit subject for flowering in a greenhouse in early spring is just now in bloom in the temperate house at Kew, and very pretty it is, and its flowers are, moreover, agreeably scented. Like those of the Yulan (M. conspicua), they are produced before the leaves expand; they are about 3 inches in diameter and are composed of over a dozen narrow petals, which after a day or two droop to such an extent that the centre of the flower is fully exposed. Though hardy, this Magnolia is well worth the protection of a cool house in spring.

Corbularia citrina.—This is one of the latest additions to the now long list of garden Narcissi. It is a variety of N. Bulbocodium (Corbularia), and is certainly one of the most beautiful, particularly when seen at its best. The flowers are as large as those of the variety Corbularia conspicua, and the wide-mouthed trumpet is of a delicate citron-yellow, while the exterior of the flower is striped with green on a yellow ground. Mr. Wilson, who evidently seems to be most successful with it, sends us an extremely fine bloom, measuring fully 1¾ inches across the trumpet. He grows it, we believe, in a warm, sunny spot at Oakwood.

Primroses.—The mild winter which we have had and, as yet, genial spring have brought forward Primroses and other spring flowers much earlier than usual, even in inland districts. A large and beautiful gathering of coloured Primroses has been sent to us by Mr. Caudwell, from his nurseries at Wantage—finer this year, we think, than ever. The diversity of colour, too, amongst them is remarkable. A few of the named sorts are particularly fine; Jupiter is a deep velvety maroon, with a yellow centre; Golden Queen, a rich deep yellow, with an orange centre; and King of the Crimsons, a glowing reddish crimson. Some of the unnamed sorts, too, are remarkable for size and richness of colour.

Clianthus puniceus is at the present time a very showy rafter plant in No. 4 greenhouse at Kew, where it is profusely laden with drooping bunches of its bright crimson, curiously shaped flowers. It is a plant of easy culture, but if trained in hot, dry spots near the glass it is somewhat liable to be attacked by red spider. Climbers are as a rule a much-neglected class of plants, yet, when the roof of a house is furnished with a good selection of them, there is generally something to attract attention at all seasons of the year. The bright golden-flowered Hibbertia dentata has been in bloom in this house throughout the winter and is still very showy, while in summer some of the small-flowered slender-growing varieties of Fuchsia show their adaptability for furnishing roofs.

Open-air Camellias.—It is seldom we receive flowers from Camellias planted out of doors in the neighbourhood of London, but such we have received this week from Mr. G. F. Wilson, who sends us some really fine blooms from a bush over 10 feet in height growing in the wood in his Wisley garden. Its broad healthy foliage indicates that the plant must be in excellent health and if many flowers are open at one time it must produce a grand effect. The situation is sheltered and it grows in a deep rich soil. The blooms of open-air Camellias often get tarnished by the weather, but in this case they were without spot or blemish.

Empress Poppy Anemones.—Under this name Messrs. Carter, of High Holborn, send us a bunch of remarkably fine blooms of Anemone coronaria, bowl-like in shape and as much as 3 inches and 4 inches across. The colours, too, are marvellously rich and varied. Besides the ordinary white, scarlet, and purple sorts, there are some intermediate shades almost indescribable. Such beauty as these flowers possess makes them indispensable to the spring garden.

Narcissus princeps.—When well grown, this Daffodil is one of the very finest of all the Pseudo-narcissus race. The largest bloom of it that we have seen is one sent to us by Mr. G. F. Wilson from his garden at Oakwood, Wisley; this is larger than any Daffodil we have seen, not even excepting N. maximus. Mr. Wilson's flower measured between 3 inches and 4 inches in length, and the trumpet has a widely-expanding mouth and a recurved lobed rim. The deep rich yellow of the trumpet and the pale primrose tint of the petals render this Daffodil extremely handsome. This princeps variety is largely grown in Holland, but not nearly so much in this country as one would think such a fine Daffodil would be. There must be something peculiar in the conditions under which Mr. Wilson has managed to obtain such gigantic blooms, or he must have had some uncommonly vigorous bulbs. Perhaps he will kindly tell us how and in what situation his plants are grown.

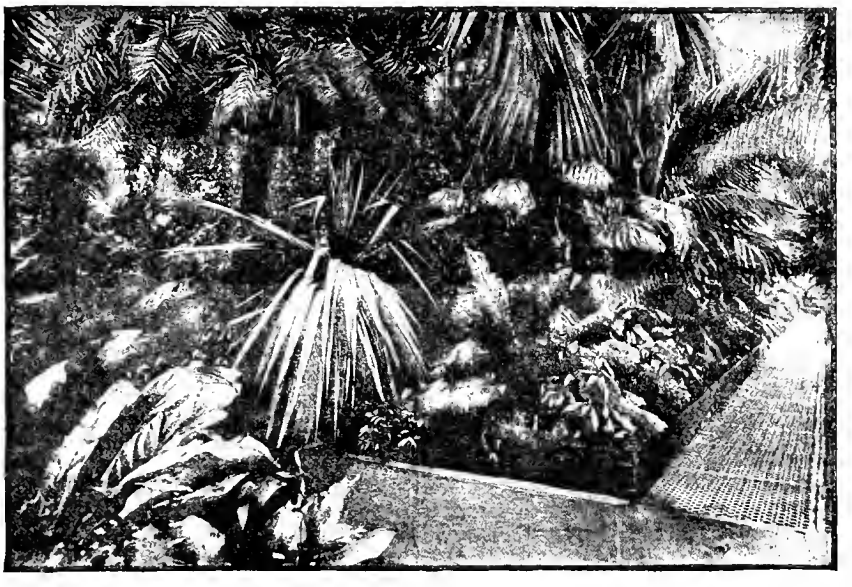
Epimedium pinnatum.—All the Barrenworts are pretty, and this is undoubtedly the finest of the species, which number about a dozen or so in gardens. It is an evergreen perennial, perfectly hardy, and requires no special treatment, a partially shaded spot and a peaty soil being all that it requires in order to enable it to fully develop itself. Just now it is most attractive, its beautiful chrome-yellow flowers being produced in dense spikes amidst the leaves, with which they form a beautiful contrast. The old foliage, which at the present time is shaded with vinous-purple like that of the Mahonia, is excellent for cutting to mix with flowers in vases, in which it lasts long in good condition. Mr. Stevens briogs us some fine specimens of this Barrenwort from his garden at Byfleet, together with several other showy hardy plants, notably the Spring Vetch (Orobus vernus), the white Lungwort (Pulmonaria saccharata alba), double-flowered Periwinkles (Vinca major violacea), and the bulbous Fumitory (Fumaria bulbosa), all desirable spring flowers.

Irises and other spring flowers.—Since I wrote to you some weeks ago on Iris reticulata it has been blooming freely all over my garden, and I find it very difficult to distinguish between reticulata and Krelagei. Certainly, seed saved from I. reticulata has produced with me the deep red-purple blooms of the typical Krelagei, and my seedlings have ranged from rich clear blue to deep reddish purple. One of the finest and latest bloomers now (March 18) in bloom is a very large deep red one. These Irises have been blooming for two months, and have been delightful. But how lovely the Iris now succeeding them—I. persica! How exquisitely delicate the colour, and how sweet the perfume! I know of no more charming herald of spring. I have had great enjoyment this spring from seedling Erythroniums. They bloom with the greatest freedom, and these pretty flowers, with Scilla taurica and Chionodoxa Luciliæ, have shown a complete contempt for the proximity of a great city. When I think of the acres of bare ground in thousands of gardens which might at this moment be teeming with lovely flowers, I cannot help writing of my flowers for the benefit of others. Not everyone can have a spring garden like the lovely one at Belvoir, but everyone could do something in these early spring days.—H. STUART WORTLEY.

Indoor Garden.

THE PALM STOVE AT KEW.

If to reproduce under artificial conditions the picturesque, yet wild, luxuriance of tropical vegetation be considered to be a great achievement, the present appearance of the Palm stove at Kew may be looked upon in that light. Difficulties inseparable from cultivation interfere with arrangements of this kind, but, notwithstanding these drawbacks, the picture presented just now in the Palm house at Kew is such as might be met with in tropical lands; indeed, it may not unreasonably be said that, in the variety of form and number of species crowded into its comparatively small space, the Kew Palm stove surpasses what would be met with in a wild state in anything like the same area. Amongst the large number of princely Palms, whose straight columnar stems and magnificent heads of foliage tower up one above the other until they touch the glass, we find natives of almost every portion of the tropical world; here an Australian Caryota of Titanic dimensions; there a tall-stemmed, graceful-leaved Seaforthia, also from Australia; others, too, consist of a Date Palm from India, a fan-leaved Thrinax from South America, another beautiful Caryota from Ceylon, straight smooth-stemmed Livistonas from the Mascarene Islands, the noble Stevensonia grandifiora, a beautiful specimen of the Wax Palm, Ceroxylon andicola and many other rare and handsome Palms, all of which are here represented by gigantic specimens. Our illustration shows the stem only of a magnificent tree of Sabal umbraculifera, the giant Fan Palm of the West Indies, whose enormous leaves and large bunches of Grape-like fruit are a source of astonishment to visitors. The Screw Pines are equally large and noble, towering up to the roof and spreading their strong arms out in all directions. For Palms and Pandani, Kew has long been famous, the collections of these plants being unrivalled in Europe. Bamboos, whose straight shining stems shoot up to a height of 60 feet in one year, and spread out over their shorter brethren a rich canopy of pale green rustling foliage, are as much at home as they would be in the Land of the Sun. The Bananas, whose noble leaves and large bunches of fruit are always attractive, are here arranged amongst the rest with fine effect. Beneath the shade of these giants of the Tropics, Anthuriums and other Aroids, Ferns, stemless Palms, and a host of other plants luxuriate, whilst in summer the effect of colour is added by planting Caladiums, Marantas, Cannas, Dichorisandras, and similar plants possessing handsome foliar or floral characters. Philodendrons, creeping Ficuses, and many other climbers cling round the stems of the Palms, and stretch across from one to the other in the most natural manner. In another portion of the house is arranged the unique collection of Cycads, of the beauty and grandeur of which it is difficult to convey an idea. Our sketch, taken from a photograph, shows the arrangement of the undergrowth, with here and there a glimpse of a portion of some of the larger plants. We may add that, owing to the rearrangement of some of the large plants and the removal of some of the head growth, many charming views may also now be obtained from the gallery. B.



View in the Palm House at the Royal Gardens, Kew.

DESIRABLE BASKET PLANTS.

Allow me to add a few more desirable basket plants to those given in The Garden (p. 167). In a warm house the different Epiphyllums do well in baskets, and when grown in this way their beauty is shown off to greater advantage than when grafted on a long naked stem, the practice generally followed with regard to these plants. Epiphyllums are well adapted for large baskets, and as they strike root readily, if pieces of them are inserted around the sides of the basket, they will grow away as freely as if rooted before they were planted there. Another point to be considered is that Epiphyllums do not readily suffer from want of water; indeed, they flower better if ripened off a little towards the end of the summer, a circumstance which fits them for use in situations where other plants would not succeed. Another beautiful class of flowering plants are the different species of Æschynanthus, all of which do well in hanging baskets if liberally supplied with water. They do best in a mixture of peat and Sphagnum, and in small rather than large baskets. There are several kinds, but we grow only Æ. Lobbianus and grandiflorus, two distinct kinds that require a stove temperature. Æschynanthuses are better suited for growing by themselves than in mixed baskets, but a few good plants for the last named purpose may be found in the shape of some of the Philodendrons, such as melanochrysum, Lindeni, Carderi, &c., whose richly coloured foliage is seen to advantage when grown in this way. As the Æschynanthuses soon attain a good length, in planting them it will be well to bring the shoots round the outside of the basket, and peg them in position, when if the atmosphere be congenial, roots will be produced at intervals all along the stem, and they will enter the compost with which the basket is filled. After this, the plant may be allowed to grow at will, when the drooping shoots are very pretty. The variegated Panicum is a common plant, but none the less desirable on that account for use in hanging baskets, as well as for furnishing the edges of stages and similar places. This Panicum is much brighter coloured when hung up in the light than when shaded. Coccocypselum discolor is a soft creeping perennial, with insignificant flowers, but these are succeeded by dark blue berries, that remain on throughout the winter and are very ornamental. Pellionia Daveauana bears pretty dark mottled foliage, and does well as a basket plant. The more shaded it is, the brighter are the markings of the foliage.

For baskets in greenhouses Ficus repens and radicans are both suitable, drooping as they do for some distance down in a pleasing and irregular manner. Stenotaphrum glabrum variegatum is a little-known plant, but for hanging baskets a very desirable one. It is a sort of Grass, with long, creeping stems, which root at every node, and is there furnished with a tuft of leaves, some of which are variegated with white. When established it will hang down for a considerable length in the form of thong-like shoots, furnished every 2 inches or 3 inches apart with tufts of foliage. Both the green and tricolor forms of Saxifraga sarmentosa make pretty greenhouse basket plants. Asparagus decumbens is also, for the greater part of the year, an object of beauty; but it is deciduous, and must, therefore, not be reckoned on during the winter. Convolvulus mauritanicus has long trailing shoots and mauve-coloured flowers, which are attractive during summer.

Strictly hardy subjects for baskets are not numerous—that is to say, those that are attractive at all seasons. Having to fill a number for suspending under a portico in an exposed position, I principally employed with good effect the different varieties of Ivy, associating with them in some cases for the sake of variety Veitch's Virginian Creeper and some of the Periwinkles. The baskets were lined with Moss, and when planted the Ivies were secured by pegs to their outside in such a way that after the plants had grown a little the whole formed a globular mass of Ivy. They were then allowed to grow at will, when some of the shoots festooned the supports, while others hung straight downwards, thus forming an attractive and by no means formal series of suspended baskets. They have one great advantage, inasmuch as little trouble need be expended on them, provided they are well supplied with water, and baskets filled in this way will last for years. By mixing the different varieties of Ivy with other plants, pretty and distinct arrangements can be formed. The larger Periwinkle is a good basket plant, and one that succeeds well when grown alone. I once saw some large masses of the common Polypody that had entirely taken possession of a basket in which they had been planted, and were then in a very thriving condition. The blue-flowered Campannla garganica is well suited for suspended pots or baskets during the summer. H. P.

Camellias.—Only those who have a house of well-established Camellias to cut from can thoroughly appreciate their usefulness. We commence cutting, as a rule, about the first week in December, and from that time until the end of May there is an abundance of bloom; indeed, it is no exaggeration to say that the three or four dozen cut every other day are scarcely missed. The structure devoted to them is 70 feet long and 20 feet wide, the height to the apex of the roof being 18 feet; a walk round the house and a large division in the centre reduce the actual dimensions of the bed in which they are growing to 35 feet by 12 feet. They were planted, as near as I can gather, close upon seventy years ago. They reach the glass at the top, and several of the stems are over 2 feet in circumference. The bed is a per

fect mass of roots. It would be difficult to take up the smallest portion of soil without tearing away a quantity of fibre; consequently it is no easy matter to get accurately at the depth of the bed. The original soil seems to have been a good fibrous loam. We have moved this a little during the last three seasons some time in June, and then top-dressed heavily with cow manure. As soon as the pruning is over, the garden engine is set to work and used vigorously all through the growing season, the bed at all times receiving copious supplies of clean water. We are obliged at times to be a little careful to avoid scalding the foliage, so close is it to the glass Notwithstanding this, a leaf is occasionally caught. A little air given early is, however, a great preventive.—E. B. C.

Browallia elata.—This is an excellent subject for pot cultivation, and easy to manage, as it is of a hardier constitution than either Balsams or Celosias; if raised in gentle heat, and nursed therein for a time, it will stand in the ordinary temperature of a greenhouse and flower profusely. The blooms, though not large, are of a rich blue, and these, being borne on slender sprigs, come in admirably for cutting and working up in bouquets.—D.

Marguerites.—I directed attention last autumn to the value of these for the winter decoration of the conservatory, and suggested the advisability of taking up large plants from the open ground at that time for the purpose. Our plants, taken up in the beginning of October, were large bushes 3 feet in diameter and nearly the same in height, and considerable care was necessary in their removal, potting, and subsequent attention for a few days under a north wall until they were shifted to the conservatory. The healthy foliage, well down to the edge of the pot, has held good to the present time (March 14), and, despite frequent cutting for vase work, several of the plants have five and six dozen expanded blooms on them. They make a capital dense background for smaller flowering plants or as centres for groups, and are of great service through the winter months, when the stock of Azaleas, Camellias, and other plants of a similar character are somewhat limited. Rooted cuttings of the Marguerites should at once be potted off and grown along somewhat quickly with a view to planting out as soon as the weather permits. We find them to do best on a well-worked border thoroughly exposed on all sides to sun and air.—E. B. C.

SHORT NOTES.—INDOOR.

5170.—**Pounded oyster shells.**—These are excellent to mix with the soil for Chrysanthemums. A 7-inch potful would be enough for a bushel of mould. The pounded shells ought to be used in addition to the usual quantity of decayed stable manure.—J. Douglas

5115.—**White scale on Palms.** Dissolve one bottle of Fowler's insecticide in two quarts of hot or boiling water, or for Palms, Acacias, or Pines safely in one quart. With a half-wet sponge do not attempt to sponge in the ordinary way but simply wet with mixture the whole surface of the foliage, both sides, and also stems, and in a few days syringe heavily. This I consider still the most safe and effectual insecticide for all purposes.—E. B.

Azalea amœna.—This azalea is valuable for forcing into flower early in the year, and useful in a cut state, but it is its permanent association with other hardy Azaleas and Rhododendrons to which I wish to direct attention. With us it grows and flowers in the most luxuriant manner, and being evergreen it is the more valuable, affording, as it does, greater variety. Soil in which Rhododendrons will grow will also suit this Azalea.—J. C. C.

5161.—**Lilium giganteum.**—I may inform "P. D. D." that if he wishes to have flowering plants of this Lily every year he must have two sets of plants, one in preparation while the other has reached the flowering stage. The same bulbs never flower a second time, but they produce offsets freely. If the strongest of these are secured every year and grown on liberally, there should be no difficulty in keeping up a stock of flowering plants.—J. C. C.

Coil boilers. I have had one of the 4-coiled pipe boilers in use seven or eight years, and have there ore proved its efficiency. It is easy to manage; the fire can be kept going for weeks by looking to it twice in twenty four hours; indeed, I have had the fire going twenty-four hours without any attention when the weather is not severe, but by stoking once each day I can maintain a steady heat all night or day. Mine is a 4-coil 2-inch pipe boiler; it heats about 500 feet of 4-inch and 4 4-inch pipe, and does it well.—C. Geneveb, *Derby Road, Woodford, Essex.*

Eucharis candida.—I am glad to be able to confirm the statement in last week's issue as to the free-blooming qualities of this most graceful member of a charming family. Last November I had a potful of E. candida in bloom, and as all the bulbs then flowered, and one of them is again producing a spike a month or so after being repotted, it proves that the Eucharis does not follow the rule of other bulbs, such as Narcissi, and produce bloom but once a year. I shall mark the bulbs of E. amazonica as they flower, and hope to be able to report favourably on their productive powers also.—J. T. Poë, *Riverston.*

Schizanthus papilionaceus.—This is well deserving of special notice, as the flowers which it produces are of the most varied description, closely resembling, in form and markings, some of the handsomest of our butterflies with their wings outstretched. As the seeds of this Schizanthus are small, they should be sown on the surface of finely-sifted soil, and be only very slightly buried, and then covered by placing a pane of glass over the top of the pot, which ought then to be placed in gentle moist heat, where the seed will soon germinate. To have good specimens it is necessary to have three plants in a 7-inch pot, as they are rather spare and thin in their growth, but branch freely if they get plenty of light, Schizanthuses require but little heat.—S. D.

Pine Barren Beauty (Pyxidanthera barbulata).—It is so seldom that this pretty pigmy evergreen shrub is seen, particularly at exhibitions, that the fact that it was shown on Tuesday at South Kensington is worthy of notice. It came from Mr. Robert Veitch's nursery at Exeter having, we believe, been imported direct from its native haunts in the Pine barrens of New Jersey. It is a tiny creeping moss-like plant with evergreen leaves like those of some Saxifrages. The flowers, which are stalkless, are about half an inch across, white and starlike, and studded profusely over the whole plant. Unfortunately, this pretty alpine plant possesses the reputation for being what is termed a "miffy" grower, few succeeding in growing it well. Generally, however, this may be attributed to placing it on an exposed part of the rock garden which may suit the majority of alpines, but not this. We have seen it thriving admirably in low, but not wet, spots of the rock garden in partial shade and in a sandy peat soil. Such a gem among alpines as this is well worthy a little extra attention in the way of cultivation.—W. G.

Eucharis amazonica.—As "J. S. W." still doubts the possibility of flowering this Eucharis more than once during the same year, I can truthfully assert that it is possible to bloom it more than once within a period of three months, which I proved through an accident as follows. At a place which we will call W —— this Eucharis was in great request both in a cut state and as decorative flowering plants. For the latter purpose we had it in 6-inch pots, five bulbs being in each; these were grown in a rich open compost on a bottom heat of 80°, and in an atmospheric temperature of from 70° to 75° and on the resting system. The five bulbs in one of these pots produced a spike of bloom each and were in due time taken into the house where, by counterbalance the change of temperature, they received very little water; in fact they were kept too dry, being arranged in a group of plants in a rather dark place. When the last blooms faded the pot was taken back to its former quarters in the hope of inducing the bulbs to make a few leaves, as those that were still hanging to them did not look too bright. Instead, however, of producing leaves each bulb sent up another flower-spike, the flowers on which were expanded within ten weeks from the time when it came into bloom on the former occasion, and, as will be supposed, this did not add to the health or appearance of the plants. The blooms, too, were without substance, small and unlike those which I saw at Wortley Hall the following November; sufficient proof was, however, furnished that this Eucharis can be flowered more than once during the same year. To see this Eucharis at its best it must be grown in strong bottom heat, and must receive periodical rests, either in a cool house or by keeping it on the side of dryness for a time.—J. R. D. P.

Lath blinds for shading.—Whoever should take in hand the manufacture of the *claies*, or lath blinds, so much used in France, with a view of producing them at a sufficiently cheap rate to allow of their becoming really popular in this country, would confer a benefit upon all who have to grow plants under glass. We have cheap glass and cheap wood, but we have no system of shading which is at the same time cheap, durable, and manageable. It seems strange that whilst we have made such rapid and good progress in the art of building and heating, we should in a matter almost equally important have remained so long nearly stationary. As regards blinds, the clumsy and often unmanageable roller blind, and which is so difficult of application to large houses, is almost all the English grower thinks of employing in lieu of permanent shading. For a long time past Continental plant growers have recognised the many advantages which attend the use of lath blinds, and it is probable that if we are to obtain them at a cheap enough rate to allow of their extensive employment, we shall have to look to foreign manufacturers to supply them. It is possible—as in the case of cloches, which are now so reasonable in price as to place them within the reach of all—an increased demand for a cheap article may stimulate manufacturers to produce it.—J. C. B.

Balsams.—These are almost indispensable in summer, when, if well grown, they make a grand display and fill up a void that few other plants can do. To have them in bloom early and keep up a long continued succession it is necessary to make two or three sowings. The first should be made now, but as the plants are liable to draw when raised while the days are short, it is important that they be placed, immediately after the seeds germinate, on a shelf well up to the light, and in a house where the temperature ranges between 60° and 80°, a degree of heat which Balsams enjoy. As soon as they begin to show the rough leaf, the plants should be potted singly in 3-inch pots, and in doing this it is a good plan to sink the stem an inch or so in the soil, and keep on dropping it at each potting, till at the final shift the lower branches are brought on a level with the rim of the pot. This makes the plants dwarf and bushy, and benefits them in other ways, as they root out round the buried stems, and the great quantity of feeders there formed adds to their strength. Balsams require rich soil, and if the manure to be used be well decayed the proportions used may be equal to that of the loam. Although the position just mentioned is most suitable for the plants now, by-and-by, as the season becomes more advanced, they may be grown in perfection in a pit or frame, plunged in fermenting material, the moist heat from which is highly congenial to them, and just meets their requirements.—S. D.

THE COTTON PLANT.

(GOSSYPIUM HERBACEUM.)

This, although interesting chiefly because of its yielding a vegetable product of great commercial value, deserves cultivation for its large yellow Hibiscus-like flowers and the wool-ball-like capsules which succeed them. A well-grown specimen of it could not fail to prove attractive. Its cultural requirements are extremely simple, and the seeds are easily obtained. At Kew plants of it may be seen in the economic houses, but these fail to give any idea of the beauty of a really well-grown specimen, such, for instance, as that exhibited in a dry state in the museum, and which appears to have been grown in the United States. Liberal treatment and a warm, moist house would no doubt produce perfect Cotton Plants in about six months from the time of sowing. In the Southern United States, now the great cotton-growing region of the world, the seeds are sown in March or April much as we sow Turnip seed. They germinate in a week or ten days, and in about

a fortnight after germinating the seedlings are thinned out. In from three to four months from sowing the plants are in bloom, and as the flowers fall the capsules rapidly swell and continue to form and develop until frost nips them. The cotton pods are picked as they ripen, otherwise they would hang on the plants a long time. There is no reason why handsome pot specimens of the Cotton Plant should not be grown in this country by following the main lines adopted for its cultivation on a gigantic scale in America. The flowers are exceedingly beautiful, but, like those of many of the plants of the Malva family, they last only about a day. Being produced, however, very freely, their fugacious character would not rob the plants of their beauty; and as each flower is followed by a ball of white fleece, which will remain on the plant as long as it is allowed to do so, it will be seen how handsome a well-managed Cotton Plant must be. The use of cotton for clothing and other purposes is almost pre-historic. Herodotus found it so used in India 2000 years

The Cotton Plant (Gossypium herbaceum).

ago. He says, "Certain wild trees bear wool instead of fruit, that in beauty and quality exceeds that of sheep, and the Indians make clothing from these trees." As an instance of the development of the cotton industry in this country, it may be mentioned that whereas in 1800 the cotton imports did not exceed 500,000 cwt., in 1882 they amounted to 15,794,000 cwt. In India the species generally cultivated is G. herbaceum, whilst in the United States G. barbadense is preferred. B.

ORCHIDS.

ST. ALBANS ORCHID NURSERIES.

Who, a few years ago, would have predicted the enormous Orchid trade that now exists in this country, and who would have thought that the demand for Orchids would have given rise to such vast establishments for cultivating them as one now finds at St. Albans. It has often been remarked that one of the chief mysteries in connection with gardening now-a-days is the destination of the thousands, and we might say tens of thousands, of Orchids which find their way into this country every year. A fair estimate of the enormous extent to which Orchid importing is carried on may be derived from the principal auction rooms for their sale in London, but in order to obtain an adequate idea of the present magnitude of this industry the depots of the Orchid importers must be visited. At these places only can one derive a correct idea of how the perpetual influx of material which supplies the Orchid sale rooms is maintained. Moreover, anyone inspecting these establishments cannot fail to pick up many "hints" in connection with Orchid growing.

The largest Orchid-importing establishment in this country is undoubtedly that of Messrs. Sander and Co., of St. Albans, which we visited a few days since. About a year ago, when seeing this nursery for the first time, we were amazed at the enormous quantities of Orchids there and the capacious structures built for their accommodation. Since then, however, the place has been almost doubled in extent, and when completed will unquestionably be the most extensive Orchid nursery in existence. Special interest, too, attaches to this nursery, inasmuch as the houses have all been erected on a carefully studied plan, founded on a wide experience of the requirements of the particular classes of Orchids intended to be grown in them. The houses erected for cool Orchids vary considerably in details of construction from those in which the Brazilian and East Indian kinds are grown; and as many of the details are quite original, those who contemplate the erection of Orchid houses would do well to see for themselves the style of Orchid house building here carried out. As we gave a somewhat detailed account of the most noteworthy features of the houses erected at the time of our last visit, it is needless to again advert to them, but the new houses well deserve attention.

These new houses are six in number, thus making in all twelve houses already erected at this nursery, and as they average some 300 feet in length their total length would extend nearly two-thirds of a mile. All the houses run nearly due north and south, which Mr. Sanders considers to be the best position for Orchid houses. The first-built houses have their north ends opening into a capacious potting and packing shed, while the new structures open into a glazed corridor; therefore a visitor, once in the nursery, can go throughout the whole of the houses without once going into the open air. The corridor is placed against a high north wall, thereby effectually sheltering the houses from cold winds in winter.

The new house intended exclusively for Vandas is a grand structure, about 300 feet in length by 31 feet in width, and of proportionate height; it is provided with an abundant provision for heating and ventilating. In its construction, the aim was to obtain the maximum of light compatible with efficient strength; therefore the rafters are stout and the panes of glass large. The woodwork of this and of the other new houses consists entirely of pitch pine, and instead of being painted in the usual way, it receives two coats of oil and one of varnish. This plan, Mr. Sanders thinks, will render it quite as durable as the usual coats of paint, and will obviate the troublesome periodical invasion of painters. Moreover, the appearance of the varnished rafters is much better than that of painted ones. The interior of this house will be fitted with stages, so as to lift the plants up as near as can be done to the light. The other new houses erected are on a similar scale and pattern, but the house intended expressly for Phalænopsids varies considerably from the Vanda house in details. A novel idea, carried out in this house, is in having a capacious tank, about 18 inches in depth, in the middle. This is constructed of brick, cemented inside and hermetically sealed, so that the water it contains may be in connection with that in the boiler, and consequently be but slightly lower in temperature. The object in having this water-heated tank is to maintain an even temperature in the house, which Mr. Sanders considers so important in Phalænopsis culture. Rows of 6-inch hot-water pipes run throughout the length of the house on either side and traverse the tanks of rain water used for watering the plants; these will of course give off an imperceptible evaporation. This house, too, is ventilated on a novel plan. It consists of shafts sunk in the outside walls at intervals of a few feet apart; these shafts extend to the ground line, where the air enters the house by an opening effected by the removal of a brick in the wall, the air thus set at liberty passing over four rows of heated pipes before it comes into contact with the plants.

Flowering Orchids.—Now that the flower-tide of Orchids is almost at its height, the houses here, as may be imagined, present a most beautiful appearance, particularly those occupied by Cattleyas and Odontoglossums. The magnificent Cattleya house, about 250 feet by 30 feet, was indescribably gay with C. Trianæ in endless varieties and the pretty C. Percivaliana. This house is admirably arranged for displaying to advantage an array of flowering plants. Along the top of the central stage is an elevated pathway with headway under the ridge sufficient for visitors to walk comfortably. On either side of this pathway the stages slope right and left, one side being occupied by Percival's Cattleya, the other by Triana's, and the visitor can overlook the whole. Of both of these Cattleyas there was a most extensive and beautiful display of flowers a few days ago. There must have been several hundreds of flowers open, the whole forming one of the finest exhibitions of Orchids we have ever seen, and in order to lend more grace to the otherwise stiff growth of the Cattleyas there was a good sprinkling of Maiden-hair Ferns among the plants which much enhanced the effect.

Seeing that this nursery is the birthplace, so to speak, of Percival's Cattleya, one may suppose that it would be represented here in the highest perfection, and so it is. Although we have seen numbers of varieties of it good, bad, and of average merit, we had no conception of its extreme beauty until we saw it here flowering by the thousand face to face with the gorgeous Triana's Cattleya. In such an extensive gathering there were, of course, many varieties—some as inferior as any we have seen, but there was a large preponderance of fine varieties, and some were of superlative merit, and one in particular we regarded as the very finest we had seen, the flowers being remarkable for size—as large as those of a Trianæ—and exquisitely coloured. The lip was the most remarkable feature, as it was so broad, shallow, beautifully frilled, and of an intensely deep colour. The majority of the plants here are large, and some are enormous masses, which have developed a large number of plump bulbs since they were imported. One could see here the remarkable floriferousness of this Cattleya. On one plant there were no fewer than eighteen expanded flowers, and another in an 8½-inch pot had seven flowering bulbs! It is evident that the disparaging remarks that have been levelled against this pretty new Cattleya have not been prejudicial to the sale of it, for it is here in perpetual demand.

Cattleya Trianæ is another great speciality here, having been imported on an enormous scale. As in the case of Percivaliana, there were hundreds of expanded flowers of this Cattleya, and in such variety! Every conceivable variation of shade, size, and form that is possible to find in the species could here be seen. Judging by the paucity of inferior varieties, we should think that the collector of this particular importation struck the right vein for good forms, for all, or nearly all, of the flowers opened seemed to partake of the round-lipped, stout-substanced flowers so much sought after by *connoisseurs*. Running through the whole of the collection, we could single out some half-a-dozen varieties which would rival the finest named forms, not even excepting such as Russelliana, Backhousiana, Dodgsoni, and others; in fact, the chief of this firm does not consider he possesses a really first-rate Trianæ unless it is equal, or even superior to Russelliana, which is generally regarded as the type of a Trianæ of the highest merit. Among the half-a-dozen forms we considered the finest in the collection was one having large and admirable flowers, with broad, pure white sepals, and short-necked labellum, with rounded lobe, possessing the most intense colour we have ever seen in a Cattleya. This splendid form was more like the finest Mendeli than a Trianæ. It was, we learn, not allowed to remain at St. Albans after it expanded its flowers, having been secured by a well-known Cattleya fancier a day or so after we saw it. There were numerous other noteworthy varieties, but they were not named; besides, it would be impossible to describe them intelligibly. This new house seems admirably adapted for Cattleya culture, it being light and arranged so that a humid atmosphere can be maintained just when the plants require it. One need only see the plants themselves in order to prove this. Some enormous imported masses

have developed bulbs larger even than those made in their native haunts. If this were not the case, there would not be such an array of bloom. Very seldom can a Cattleya Trianæ be seen carrying three spikes of bloom and four blooms each spike. But such an instance occurred in this nursery and we believe the plant may now be seen in bloom.

Other Cattleyas which are imported and grown here on a similarly large scale are C. amethystoglossa, which also contributed to the display of flowering Orchids. Then there is C. Mossiæ by the thousand, also C. gigas and its allies, imperialis and Sanderiana; the latter, by the way, is cultivated here admirably in the warm end of the Cattleya house; and as some one was enquiring in The Garden a short time since with respect to its treatment, we might mention that here it is grown cool in summer and warm in winter. This, Mr. Sanders assured us, is the way to manage it; therefore an Odontoglossum house ought to be its quarters in summer and the East Indian house in winter. The new Gaskelliana, also a Sanderian importation, is thought highly of here. In growth it resembles Warneri, while the flowers are in the way of those of Mendeli.

Besides Cattleyas, the neighbouring genus Lælia is grandly represented here, particularly by L. elegans, of which there are without doubt the finest masses that have ever been brought to this country. Some of these masses bear as many as 100, and one cannot have fewer than 200 bulbs. A new form of L. anceps, not the new white Williamsiana, which also originated here, is said to be finer than any yet introduced. The stock of this priceless plant receives a deal of attention, and its flowering is looked forward to with much interest. L. purpurata and other common Lælias are of course grown in similarly large quantities.

The Odontoglossums are the one great feature of the establishment; house after house is filled with nothing but O. crispum and Pescatorei, the two principal species, and of these there are no fewer than 100,000 plants. Imagine the varieties that must be perpetually cropping up amongst this astounding number. At the present time the housefuls of established masses are beset with thickets of flower-spikes, which in a short time will reveal a paradise of Orchid loveliness. One house, containing about 25,000 plants, nearly all showing flower, will in itself be well worth the visit to see. Already there are numbers of plants of O. crispum, O. Pescatorei, and a host of hybrids in bloom. These hybrids comprise an exceedingly valuable collection, on which the firm justly prides itself. It is the outcome of the thousands of imported plants that have flowered here during the last few years. To describe them would be impossible, and it is almost as impossible to reconcile them to the multitudinous names which have been given to this debatable class of hybrid Orchids. Most of them are extremely lovely in colour, and they possess a great diversity of form and habit of growth. A good many come under the category of crispum hybrids; others have more affinity with gloriosum: while others may be relegated to the Halli and luteo-purpureum classes. There was a wonderfully fine Halli leucoglossum in full beauty when we were there; also an excellent baphicanthum, and a Pescatorei remarkable for the large rich blotches on the lip and petals. Among the pure Alexandræ or crispum type there were some superb varieties—indeed, scarcely an inferior form could be seen throughout the whole of the houses. One had enormous flowers, measuring fully 4½ inches across. Another was the exact counterpart of the form of O. crispum which the late Serjeant Cox so highly prized; the flowers are much above the average size, the petals very broad and much fringed, pure white with a few bold blotches. Anyone desirous of seeing Odontoglossums grown on a wholesale scale can do so here, indeed. In some of the houses the imported plants are planted out on shelves of peaty soil until they are established; they are then lifted and potted to make room for fresh consignments. These houses, containing as they do some 30,000 plants each, have an imposing effect.

Other Odontoglossums that are imported here largely are O. citrosmum and varieties, of which there was a large importation just arrived in excellent condition; O. Œrstedi, the pretty little alpine Orchid, which everyone admires when in bloom; O. vexillarium, O. Roezli, O. Edwardi, one of the most valuable of Orchids lately introduced; O. madrense, a species of which there has been far too little in the country hitherto; and O. Pescatorei Lehmanni, one of the most distinct varieties of all, best described as having the bulb of Pescatorei and the flower of O. crispum. O. Rossi majus was a great attraction. A row of suspended panfuls extending nearly the whole length of the house was completely covered with flowers, some of which represented the finest forms we have seen, several being identical with the rubescens variety. Before leaving the Odontoglossum houses we ought to mention a somewhat novel labour-saving contrivance which Mr. Sanders has lately introduced in the cool houses, where an abundance of atmospheric moisture is required. This consists of a length of half-inch gas piping, which is fixed beneath the middle stages and connected with the main water supply pipes. At intervals of a few feet in this pipe holes are made, so that on the water being turned on by means of taps, a spray is distributed, not only on the beds beneath the stages, but on the paths and walls. It is a capital idea, and one that would be well worth introduction into private gardens, as it saves so much labour in syringing. The original nursery in the town is now set apart almost entirely for the general collection of Orchids, which, as may be imagined, is a singularly rich one, seeing that the firm has during the last few years scoured almost every part of the Tropics for new Orchids. Space, however, forbids us going further in transcribing the notes we took here, and therefore must be content to remark that we saw some imported consignments of new Orchids, new species of Vandas, Aerides, and the like, which, it is said, will astonish the Orchid world presently. One sees at this nursery the large collection of Masdevallias rich in species and varieties, including what is said to be a yellow M. Harryana! Can it really be so? Odontoglossum vexillarium and other species requiring a warmer temperature than the others are here also, and among the flowering plants we saw the new O. Hrubyanum, which may best be described as a pure white O. cirrhosum, from which, however, it differs in having a more attenuated labellum. It is, we consider, a gain to even the already long list of Odontoglossums. A good many Cypripeds were in bloom, among them being the golden form of C. villosum named aureum. The flowering of the new C. Robelini is anticipated anxiously, it having been so largely imported by this firm. It is said to be a very fine plant midway between C. lævigatum and Stonei. This old nursery, though very small compared with the new one close by St. Albans Station, is crammed full with Orchids as it possibly can be, and it would astonish not a few Orchid growers if they saw how healthy the plants are when grown, as they are, almost on top of each other. The rule here seems to be small pots and abundance of moisture during active growth, a cool temperature, and plenty of light and ventilation.

Phajus tuberculosus.—It is remarked in The Garden (p. 178) that it would be interesting to know the way in which we have grown this Phajus. I therefore send you the following particulars: Our plants have been grown on the north-west side of a span-roofed house, close to the glass, in a temperature from 65° to 70°. We keep the sun from them as much as possible. They are potted in equal parts of peat and Moss, with plenty of crocks and charcoal as drainage. When making their growth, they require an abundance of water at the roots. We find it necessary to frequently sponge the plants, as red spider, thrips, and green fly are particularly fond of them. Last year from three plants we had three spikes, on which eighteen flowers opened. This year from the same plants we have had five spikes, which gave us twenty-four flowers in all.—R. Billiald, *Laurie Park, Lower Sydenham.*

ORCHIDS AT PRIORWOOD, MELROSE.

Having occasion to be in Melrose lately, I took the opportunity of seeing Mr. Alexander Curle's collection of Orchids, which, under Mr Sharp's careful treatment look well and healthy. Mr. Curle prefers a selection to a collection. The Vandas form a striking feature arranged as they are down the centre of the middle bed in the warm house. Vanda tricolor, Dalkeith variety, nearly 5 feet high; V. suavis, Chatsworth variety, and others are all well represented; round these in the centre bed are arranged Dendrobes, Cattleyas, &c.; and inside stages Aerides, Saccolabiums, and others, the whole making up a fine houseful. A variety of Cattleya speciosissima in flower when I was there was very striking; the sepals and petals were of the ordinary colour, but the lip is a rich crimson-purple with a fimbriated margin of same colour as that of the sepals and petals, the purple running right up the throat with a dash of primrose-yellow on each side Dendrobium fimbriatum bore six of its beautiful golden clusters. Cattleya Trianæ alba had a fine large flower, and C. amethystoglossa was also good. What astonished me was the excellent way in which Dendrobium Jamesianum and its companion, D. infundibulum, were growing along with Aerides and Saccolabiums. These, generally considered to be cool-house Dendrobes, had bulbs over 3 feet long and stout in proportion, and Mr. Sharp told me they flowered splendidly last year. Cattleya Mossiæ, with seventeen flower-sheaths, will be fine shortly; the Cattleya labiata Percivaliana lately figured from Messrs Ireland & Thomson's nursery, and which Mr. Curle has just added to his collection, was over, but had been in great beauty. Vanda Sanderiana, though small, was rooting well. Dendrobium Wardianum, with growths fully 5 feet in height, had been also well flowered, but was past; Dendrobium Ainsworthi showed well for bloom. In the cool houses the Masdevallias, such as M. Shuttleworthi, M. bella, M. Chimeræ, &c., were growing freely, their foliage being fresh and clean looking. Odontoglossum Halli xanthoglossum, with over thirty flowers on the spike, was a striking plant; O. blandum was also well flowered. Mr. Curle's garden adjoins the far-famed Melrose Abbey, and lies at the foot of the Eildon Hills. The old Pear and Apple trees, no doubt planted by the monks, still continue to bear fruit, although they look very gnarled and stunted. The view from the garden, looking towards the ruined abbey, is very interesting.

D. A. C.

Anemones as annuals.—Judging from my experience of A. coronaria, I have no doubt whatever that the best way is to treat it as an annual; the first year after sowing our plants were full of flower all through the autumn and winter; the second season, too, we had flowers, but they were not fit to compare with those of the first year either as regards quantity or quality. This being so, I intend in future to make a fresh sowing every spring, and I would advise others to do the same; it is surprising what a number of blooms may be thus got, and at a time when flowers are scarce. The way to get a good strain is to keep on saving seed from all the best sorts, choosing the most distinct and brightest or clearest in colour, as many have a dull and ineffective appearance, and these should be weeded out when discovered. To grow Anemones well, they must be sown on a warm sunny border, and have light rich soil, in which they germinate freely. A good preparation for them is to dig in a heavy dressing of leaf-mould or old hotbed manure, and, having raked the ground level and smooth, shallow drills should be drawn a foot or so apart, the seed scattered thinly therein, and then covered with fine soil; soon after this the plants will be up,

and ought then to be thinned out, so as to leave them 6 inches or 8 inches asunder. In some gardens slugs are very troublesome, and quickly eat off any tender seedlings; to prevent this, a sprinkling of soot and lime mixed should be scattered over the bed early in the morning, when the depredators will be caught and destroyed at their work. Hand-picking is also a good way of getting rid of slugs, which are always out of their hiding-places immediately after rain or heavy dews during the night, and they may likewise be trapped by laying leaves of Broccoli or Cabbage about places which they frequent.—S. D.

Trees and Shrubs.

THE WEEPING NORWAY SPRUCE.

No cultivated conifer has produced a larger number of sports or seedling forms than the common Spruce. Indeed, in any nursery where Spruce is grown to any extent a considerable number of forms—varying a great deal in habit, size, and colour of leaves, and in general vigour, &c.—might easily be selected. Few more striking contrasts exist between extreme forms of the same species than is afforded by such curious combinations as the ordinary Norway Spruce, which, under favourable conditions, becomes a huge forest tree, and the variety Clanbrasiliana, which in half a century probably would still be a compact round-headed bush little more than a couple of feet in height. The variety pygmæa—a diminutive pyramidal bush, with short twigs thickly clothed with tiny leaves—is remarkably unlike that bearing the name of monstrosa, a singularly grotesque form with long thickened branches almost destitute of laterals and densely clothed with dark green foliage. The Golden Spruce is, except in the colour of the young growths, quite like the type. The common Weeping Spruce (var. pendula) has somewhat pendulous shoots, and is generally of a darker green, the leaves, too, being longer than those of the type. The best of all the weeping forms is inverta, which is a much more decided "weeper" than the plant represented in accompanying illustration. According to "The Fir Tribe" (Messrs. R. Smith & Co.), var. inverta is "the most elegant weeping form extant of the Norway Spruce, having branches as pendent as the spray of the Kilmarnock Willow, while its leading shoot, drooping when young, gradually stiffens after the manner of the Deodar. It is of free growth, and under ordinarily favourable circumstances appears calculated to attain a height of from 50 feet to 80 feet, and to produce a very effective feature in the landscape, especially when planted *en masse*." I am indebted to Mr. Richard Smith Carrington, the senior partner in the firm of R. Smith & Co., for the following account of the origin of the variety inverta: "It must be a quarter of a century (I think more) since I first noticed it in a plantation not far from Kinlet House, Shropshire, then the seat of Mr. W. Lacon Childe. I was much struck with the peculiarity of its growth, and had several photos taken of it, but unfortunately cannot now put my hand on one. The character of the variety has always been maintained in all the plants I have seen. I have no idea whether the original tree is in existence; no notice had been taken of it before I called the attention to it of Mr. Pearson, then the gardener there." Specimens of inverta and of the other varieties incidentally mentioned in these notes are to be seen in the pinetum at Kew.

Royal Gardens, Kew. G. Nicholson.

The Weeping Norway Spruce.

The Burning Bush.—In the west of England Rhus Cotinus is known as the Burning Bush; it has gained this character on account of the fiery appearance which the fading leaves have in autumn. Few low-growing shrubs are more striking than this in the month of October, when the fading colour is a dull tone of vermilion-red. In August it puts forth its flowery plumes, which are equally attractive and singular as the fading leaves. Not the least of its valuable properties is that it will thrive in almost any soil or situation, and I have never known the severest winters to injure it.—J. C. C.

SELECT FLOWERING TREES.

There are great numbers of fine flowering trees that, as a rule, do well in this country, and, when suitably planted, add greatly to the attractiveness of gardens, parks or woods, as the case may be. One of the first to open its blossoms in spring is the Yulan (Magnolia conspicua), whose large pure white flowers are so attractive, even before the expansion of the leaves, and while most other subjects are still at rest. So early does this Magnolia expand, that the blooms are frequently cut off by sharp frosts, though, on the other hand, they often escape. It is of moderately rapid growth, forming, when allowed to grow naturally, a medium-sized tree of a bluntly conical habit. M. Soulangeana is a few days later in opening its blossoms, which are much like those of the preceding, but suffused with purple on the outside; moreover, the tree is not so vigorous in growth. M. obovata, or purpurea, is still later in flowering than the last-named, but would more properly come under the definition of a shrub than a tree. The large growing North American Magnolias are grand flowering trees; but, unfortunately, they do not always thrive in this country, especially the huge-leaved M. auriculata and macrophylla. These prefer a cool, rather moist, but still well-drained soil, rather than one hot and sandy. M. Umbrella, or tripetala, is not nearly so particular as the two last-named kinds, and is in all respects a very desirable flowering tree. It is rather pyramidal in habit, and blooms freely about midsummer. Its large leaves are disposed in a ray-like manner around the points of the shoots, which are tipped with white flowers. M. acuminata and cordata flower freely enough, but their blooms are not very attractive. A desirable small tree for a damp spot is M. glauca, seldom seen more than 10 feet or 12 feet high, but of tree-like habit. The flowers are creamy white and very fragrant. They commence to open about midsummer, but a succession is generally kept up for some time. The evergreen M. grandiflora produces its great white blossoms during summer, but, unfortunately, it is rather tender, except in the milder parts of England.

The Order Rosaceæ contributes largely to the list of flowering trees, the earliest to expand being the Almond and its varieties, all of which are beautiful, the deep-coloured kind especially so. Succeeding the Almonds are the different-coloured Peaches, all of which are very showy, and, like the last named, generally grafted standard high. There are a great number of varieties, but the best—red, white, and rose—are sanguinea, alba, and rosæflora. The Plums (Prunus) include several in the way of the common Sloe, one of the best in this class being P. divaricata, a large shrub or small tree, profusely laden in spring with white blossoms. Under the head of Prunus are often included some of the Cerasuses, the best of which are the double-blossomed Cherry, one of the handsomest of spring-flowering trees, while the common single Cherry is, when in bloom, highly ornamental. The Bird Cherry (Cerasus Padus) is a small tree, bearing in spring long racemes of pure white flowers, but, though highly ornamental when in bloom, its beauty is of short duration, as the blossoms soon drop. The American form of the Bird Cherry (C. virginiaca) is also an attractive tree, in general characters much like the European kind. The Portugal Laurel (C. lusitanica) is handsome in flower, but though it attains a good size, its habit is that of a bush rather than a tree. The Thorns constitute a large class, the most part of them being low trees, which vary a good deal in their season of flowering. The first to expand is the Glastonbury, a variety of the common Hawthorn, chiefly remarkable for its early blooming habit. There are numerous other varieties, some very showy trees, especially Paul's double crimson, single crimson, double pink, double white, Gumperi, white and red, besides the common kind. The Cockspur Thorn (Cratægus Crus-galli) and its varieties are desirable low trees, furnished with beautiful deep green glossy foliage and large clusters of pure white flowers, which are among the last to expand. Another that flowers about the same time is the Tansy-leaved Thorn (C. tanacetifolia), a somewhat upright habited tree that bears clusters of white flowers, succeeded by large yellow fruit. The American Cratægus (C. coccinea) is a fine vigorous growing Thorn, but not so showy, as far as the flowers are concerned, as some of the others. Nearly allied to the Thorns is Mespilus Smithi or grandiflora, a medium-sized tree with the general aspect of a Cratægus, but the flowers are solitary, nearly 2 inches in diameter and pure white. This Mespilus does not flower till nearly all the Thorns are over. A well-known class of flowering trees are the Apples and Pears, those whose chief recommendation is their edible fruit being handsome when in bloom, but to them may also be added others principally planted only for the beauty of their flowers. These include the American Crab Apple (Pyrus coronaria), whose handsome pink-tinged blossoms are among the last to expand in that section. The finest of all is, however, the Chinese Pyrus spectabilis, another of the Crab section, with large rose-coloured blossoms, deep red when in the bud stage. This last should on no account be omitted, nor should the smaller-growing P. Malus floribunda. This is most effective when grafted at a little height from the ground, as then its blossoms are shown off to better advantage. In the bud state they are deep crimson, but when expanded they are much paler.

The next on my list belongs to quite a different class, viz., the Mountain Ash or Sorbus section: it is Pyrus Hosti, a tree which bears large, densely packed heads of small, rose-colonred flowers. Though this tree will grow to a height of a dozen feet or more, its habit is that of a bush rather than a tree. The White Beam (P. Aria) and the Mountain Ash (P. Aucuparia) are both handsome

trees, rendered additionally so in spring, when studded with clusters of whitish flowers, and in autumn, when laden with showy fruit. The Amelanchiers are pretty, white-flowering, low-growing trees, very suitable for lawns of moderate size, or wherever space is limited. A couple of good distinct kinds are the European A. vulgaris and the American A. canadensis; they both flower in a general way about April, but the European sort is mostly a few days earlier than the other. The Horse Chestnut is well known as one of the most showy of flowering trees, but as to its double-flowered variety, I may say that, as far as my experience goes, it is somewhat disappointing. The red-flowered Horse Chestnut (Æsculus rubicunda) is also widely known, and very handsome, even regarded from a foliage point of view, but far more so when bearing its numerous spikes of dark red flowers. They are later in expanding than those of the common Horse Chestnut, and the tree is also less in size. The Pavias somewhat resemble the preceding, but are distinguished from them by bearing smooth instead of prickly fruit. Pavia flava is a middle-sized tree, with rather dull, yellowish-coloured flowers, by no means showy; but P. rubra, which is altogether less in stature, has far more ornamental blossoms. This Pavia, as its name implies, bears red flowers, but the colour varies to a certain extent in the different varieties, one of the brightest with which I am acquainted being Whitleyi. Like their allies, the Horse Chestnuts, these Pavias or Buckeyes, as they are called in America, prefer a good soil i nnot too dry a position, rather than one very hot and sandy. The Tulip tree (Liriodendron Tulipifera) as a rule needs to attain a large size before it flowers freely, but when in that stage it is very attractive; it blooms well on in the summer when most others are over. Its flowers are terminal, of a yellowish colour, and, as well as the foliage, very distinct from other trees.

Several of the Leguminosæ reach the dimensions of trees, prominent among them being the Laburnum. Seedlings of this tree vary a good deal in depth of hue and profusion of flowering; therefore some are much superior to others. The common False Acacia (Robinia Pseud-acacia) is a distinct and handsome tree, especially about the end of May, which is usually its season of flowering. The blossoms are white, and borne in pendulous racemes frequently in such numbers that the whole tree wears a whitish tint. The variety Bessoniana is superior to the common kind, and equally free flowering. The Rose Acacia (R. hispida) is a comparatively low-growing kind, seldom more than 12 ft. or 15 ft. high, but tree-like in habit. Both leaves and flowers are larger than those of the common Acacia, the blooms being borne in loose racemes and of a deep rose colour. This kind is very handsome when in bloom, and, as a rule, the flowering season extends over a considerable time. It generally blossoms freely about June, then after a time a second crop is often produced, thus carrying its blooming season well into September, or even October. A strict autumn flowerer is Sophora japonica, whose cream-coloured blossoms are borne in great numbers, and well shown off by its handsome dark green foliage. The Judas tree (Cercis Siliquastrum) is a low tree, the foliage of which is of a pretty shade of pale green, and the flowers, which are purplish, are borne freely in spring. It is a really beautiful flowering tree, and admirable in form when old. The Yellow Wood of America (Cladrastis tinctoria), or Virgilia lutea, as it is often called, is a distinct small-growing tree with large pinnate leaves and pendulous racemes of white flowers. For places of limited extent it is very desirable, for it forms a low tree of a graceful and pleasing habit, and it usually flowers about the end of June or the beginning of July.

Paulownia imperialis is a free growing tree with ample foliage, and upright spikes of flowers, arranged somewhat like those of the Horse Chestnut, but the individual blooms resemble more those of the Foxglove; in colour they are purplish. The Paulownia flowers about May, but unfortunately it is not often seen in good condition, as the blooms are frequently cut off by frost. Catalpa syringæfolia is in general characters much like the Paulownia, but it flowers about August, and, instead of being purple, the blooms are more cream coloured. Kœlreuteria paniculata is a distinct low-growing tree with handsome pinnate leaves and spreading panicles of yellow flowers borne towards the end of the summer. The common Elder (Sambucus nigra) is by no means to be despised as an ornamental tree; when covered with its large clusters of cream-coloured flowers, it is very attractive, and by no means less so when the blossoms are succeeded by its blackish berries. In the latter stage the smaller growing S. racemosa with scarlet fruit greatly surpasses it. The curious Stag's-horn Sumach (Rhus typhina) is so dissimilar from most other shrubs and small trees as to at once attract attention. It is generally seen with a clear stem and an irregular shaped head of branches. The leaves are pinnate, and as much as a yard in length, while the flowers are borne towards the end of the summer in a dense spike on the ends of the branches; in colour they are a sort of brownish crimson with a velvety texture. The Snowdrop Tree (Halesia tetraptera) forms an upright stem, whence branches are produced at pretty regular intervals. The flowers are much like those of the Snowdrop, and hang from the under sides of the branchlets; but, unfortunately, their beauty is somewhat short-lived, as they speedily fall; when at its best, however, a flowering specimen of this tree is very attractive. It blooms generally about the beginning of May. Another pretty flowering tree in beauty about the same time is the flowering Ash (Fraxinus Ornus); it bears plume-like panicles of whitish blossoms, and blooms freely when no more than 15 feet high. The Fringe Tree (Chionanthus virginica) is mostly seen in the shape of a bush, which in general characters is a good deal like a Lilac; yet if kept to a single stem it forms quite a tree, and a distinct one, too, especially when in bloom. The flowers are borne about midsummer, in open racemes on the upper sides of the shoots, and from the narrow strap-shaped petals, which give to a cluster of blossoms the appearance of a bunch of fringe, the name is derived. It requires a cool and moist rather than a hot and dry situation.

The different kinds of Arbutus are perhaps the only representatives of the order Ericaceæ that come under the head of trees, though some of the Rhododendrons nearly approach them if trained to a single stem. The Arbutus is valuable, from the fact of its flowering continuously throughout the winter if the weather is mild, in addition to which the fruits are also highly ornamental. Besides the common white flowered kind, there is a variety (rubra) in which the flowers are reddish; but in depth of colouring individuals vary. A. Andrachne is a vigorous growing kind, the outer bark of which peels off in a curious manner, giving to the trunk and principal branches a mahogany-like appearance. It is rather more tender than the first-named, but both are liable to injury during severe winters. In inverse order, as regards season of flowering, stands Acer rubrum, for it is about the first deciduous tree to expand its blossoms, and though they are but small, their bright red colour, the profusion in which they are borne, and the fact of the shoots being still leafless, all tend to direct attention to it; besides which it is a handsome tree, the autumn tints of the foliage of which are very bright.—*Field.*

SHORT NOTES.—TREES AND SHRUBS.

Æsculus sinensis.—M. Lavallée recently showed specimens of this tree before the Central Horticultural Society of France, from China and from Japan. The tree is hardier than the common Horse Chestnut, and begins to unfold its buds about a month later. The young leaves have a rusty brown colour.

Berberis Darwini and Ribes sanguineum are just now in fine flower. Some of them are well-furnished bushes 8 feet and 10 feet high, and have a grand appearance. The beautiful deep golden yellow flowers of the Berberis are extremely rich and effective. Both deserve to be extensively planted in parks and pleasure grounds.—J. Muir, *Margam, S. Wales.*

MARCH NOTES FROM MUNSTEAD.

When a garden is so well stocked with hardy plants as that at Munstead is, there is always sufficient material at any season of the year to interest one excepting, perhaps, in the depth of winter. At no time, however, is it so enjoyable and interesting as early in spring when every plant is awakening, as it were, from a seemingly lifeless rest. The Munstead garden, lying as it does high and dry on the Surrey hills above Godalming, is earlier than low-lying localities, and the light sandy soil further tends to induce earliness in spring flowers. Consequently, the garden fairly teems with a wealth of early flowers of all kinds, and every day brings fresh ones to maintain the display until the tide of summer bloom sets in. What charms the visitor most is the delightful floral combinations which Miss Jekyll manages to make. Nothing in the whole garden we thought so beautiful as a partially shaded corner where, from a carpet of bright purple Hepaticas, rose some stately bushes of the Alexandrian Laurel (Ruscus racemosas), the bright green leafage of which harmonised beautifully with the bright colours of the Hepaticas. Further on, beneath the shade of a Pine, were gatherings of Hepaticas of other colours, but these, too, were planted so that the predominating tints harmonised with each other. Indeed, it is this carrying out of colour-harmony everywhere upon which the beauty of the Munstead garden so much depends, and it is admirably exemplified in a new

Primrose garden which has been made in an adjoining wood. This Primrose plot was in the height of beauty when we saw it, and beautiful indeed it was. It occupies an irregularly formed area scooped out of the heath a few feet, an irregular mound being left in the centre and sloping banks around the outskirts. These banks are carpeted with Primroses, chiefly seedlings raised in the garden, and a very fine "strain" they appeared to be, particularly the yellows and whites, which seem to be Miss Jekyll's favourite colours. Here, as in other parts where colour harmony is concerned, distinct shades are kept in separate groups, and so blended as to lead imperceptibly one into the other. For instance, whites and bright reds are kept away from each other, and warm yellows intervene. Miss Jekyll's plan in improving her strain is to select seeds from the finest plants of the best varieties, and in order to be good, in her estimation, the colour must be decided and the flower bold and with plenty of substance, as it is termed. Primroses are succeeded by Auriculas, for which this garden seems made, and, judging by the health and strength of the plants, the Auricula beds here will be a sight worth seeing this season, more particularly as the plants are arranged so as to produce colour harmony. Mice have been troublesome among the Primroses this year, but Miss Jekyll has a capital plan of catching them by means of a sunken pan of water over which is placed a roller carrying a tempting morsel of cheese; to obtain this the mouse steps on the roller which turns and so precipitates it into the water. It is a capital garden trap and the heap of mice by the side of it is proof sufficient that the plan works well. Leaving the Primrose garden, we come to the

Alpine garden, which is formed in a clearing on the heath. It is quite an unconventional rock garden, yet a thoroughly natural one. Huge boulders of sandstone are sunk in the ground, their surfaces only being visible. Around these, colonies of alpines were planted only a year or so ago, and already they have grown into strong tufts, hugging the margins of the stones, a circumstance which shows that they are thoroughly at home in such a position. The brightest plants amongst them were the Saxifrages, particularly S. oppositifolia, of which there were numerous cushion-like tufts completely studded with blossoms. There were two or three varieties. Besides the ordinary form and the white, there was the major, and also a strikingly pretty kind from the York Nurseries. The flowers of this vary from pale rose-pink to deep purplish pink, according to age. The plant, moreover, forms dense cushion-like tufts completely covered with

bloom. In beautiful harmony with this Saxifrage was a colony near it of Erica carnea, producing dense tufts of nothing but blossoms. It is an indispensable rock garden plant for early spring flowering. It likes a light soil and an open situation. A stretch of Draba aizoides and another similar species gave a yellow glow to this alpine plot assisted by the pigmy Daffodil (Narcissus nanus). Amongst blues there were Scilla bifolia and taurica springing out of a green carpet of Arenaria. In the sunken alpine garden, which is set apart for plants that like more shelter, there was the lovely Apennine Anemone in company with its variety blanda. Primula rosea was just unfolding its ruby-tinged buds and a fine double Wallflower called the Double Rocket gave colour to this part of the grounds, the dense spikes of flowers being bright yellow, numerous and showy. Anemone fulgens, double and single, and Geum aureum were among other noteworthy flowering plants.

Bulbous plants made, however, the brightest show, and to name the whole number of them here would make a long list. All the best of the Snowdrops, Vernal Squills (Scilla), and the earliest Daffodils were in full beauty, besides the lovely Netted Iris, which, on a raised rocky bank on a level with the eye, formed a charming picture. Scilla taurica was here, as at Captain Nelson's garden at Godalming, the best of all the Squills, and no other Daffodil was so lovely as Parr's new pallidus præcox, the soft yellow of which is so pleasing. A strong tuft of Chionodoxa Luciliæ in a border at the foot of a warm wall was charming, and scarcely less so was the new C. sardensis, which we regard as a valuable addition to hardy bulbs. It may be best described as having flowers similar in form to those of C. Luciliæ, but rather smaller and without the white centre. Besides the Narcissi mentioned there were various others in bloom, notably the Scotch form of our English Daffodil. This has a bolder flower than ours; the petals spread more widely, and the trumpet has a decidedly recurved rim. A host of other Daffodils, too, were fast expanding their blooms, and in warm spots Tazettas have been open for same time. Against the wall of the greenhouse were some fine plants of the Algerian Iris (I. stylosa) growing in a bed of Alstrœmerias, the roots of which entirely filled the border. In such a position this lovely winter and spring flowering Iris succeeds admirably and flowers profusely. One of the plants had no fewer than twelve expanded flowers on it the day on which we saw it. It is evident that to grow and flower this Iris successfully it must not be too richly provided for, otherwise it produces foliage instead of flowers. It would not be a difficult matter to make out a list of a hundred or more kinds of plants now in flower at Munstead, but the foregoing comprise those that are most noteworthy.

Sweet Peas in a cut state.—Few flowers are more generally appreciated than Sweet Peas, which are now being sown in gardens both large and small. I get frequent queries put to me as to their culture; but really there is no difficulty in getting them to grow and bloom profusely. The point is to get them to keep on doing so for a long period, and if the following plan be followed they will do so. Select a good deep soil in the kitchen garden, and take out a trench as if for Celery; dig in a quantity of rotten manure at the bottom and then fill in the soil nearly level with the surface; scatter the seeds thinly, and cover them with about one inch of soil. The young plants will soon appear, when some coal ashes should be scattered over them to preserve them from slugs. Put stout branched sticks on each side of the row, and if cold winds prevail, a few evergreen branches will prove a great protection, but they must be removed before the plants get drawn. The latter will grow rapidly in April and May, and by the end of that month will be coming into flower; then is the time to apply a good coating of rotten manure at least 2 feet wide on each side of the row, and if dry weather prevails give copious supplies of water and liquid manure at intervals of a fortnight. Keep the fully expanded blooms gathered before they fade, as if allowed to seed they soon check the formation of successional blooms. For cutting, a good mixed packet of seed will produce nearly all colours, but if desired they can all be obtained separately. Anyone with limited space will find this plan better than sowing several times during the season.—James Groom, *Gosport*.

Fruit Garden.

REGRAFTING FRUIT TREES.

The best season for performing this operation is close at hand, and those who contemplate renovating any of their existing trees in this way should now make the necessary preparation. Grafts intended for use in spring should be cut off before any movement of the sap is perceptible, for if the buds get excited before the shoots are cut off the grafts will probably fail, no matter how carefully the grafting may be done. Buds, like seeds, will keep long if dormant, but if excited into growth, even if ever so slightly, and then checked, they perish. Another matter of importance is to get the stocks headed down during winter a little above where they are intended to be grafted, then when the time comes for grafting take a sharp small-toothed saw and cut off the end just where a clean barked piece of wood, free from knots or spurs, occurs. Grafting clay should be prepared beforehand; it is not always obtainable good enough to use alone, but a clayey loam mixed with cow manure, moistened with water and beaten up until it is as soft as putty, is one of the best coverings that can be devised for grafts. I need not here enter into the merits of the various kinds of grafting; all are good if well performed and the stock and scion in good condition, but for fruit trees I like whip-grafting, which if done with small shoots soon heals and firmly unites. I may remark that grafts when cut off the tree should not be tied in bundles, as the centre ones frequently suffer from not being in contact with the soil. The best plan is to cut a trench, lay the grafts in, and place the label at the end of the row; a shaded position, such as the north side of a wall, is best for them. J. G.

Hants.

PLUMS AS DWARF BUSHES.

The Plum is such a valuable culinary fruit, that, even in gardens of the most limited extent, room should be found for a few dwarf bushes, as under no other circumstances are fruits produced in such quantities compared with the space occupied. Tall standards are all very well for orchards, but standards are entirely out of place in small gardens, or, in fact, in gardens of any kind, as, except in orchards in which Grass is grown for grazing, there is nothing to be said in favour of mounting the heads of trees on long stems; on the contrary, the closer they are kept to the ground, the better for all purposes. A row of bushes planted about 8 feet apart, and kept closely spurred after they have attained the desired size, will be found to yield abundance of not only culinary fruits, but also fruits for preserving. Plums are amongst the most useful of fruits for that purpose, and also for dessert, but from being sent to market in a half ripe condition they have been thought to be unwholesome.

The best form of bush for general use is that usually adopted for Red Currants, viz., young maiden trees cut down to about 1 foot high; they then push out five or six branches, which form the framework of the future bush; the centre is kept thin of wood so as to let light and air play freely amongst the branches, and if kept closely spurred, trees of this class soon become as full of fruit buds as a Currant bush. If kept down to 5 feet high, they may be readily covered with fish nets, tiffany, or any other mode of protection either against frost when in bloom, or birds, wasps, &c., when ripe. Young maiden or one-year-old trees may be bought cheaply at any of the great fruit tree nurseries, or even two-year-old bushes, and there can be no question that this in the end is the most natura form of tree. Training not only adds to the expense, but in many cases militates against the purpose for which fruit trees are grown, viz, the production of fruit, and although perfectly proportioned pyramids may be looked on by some as more ornamental than spreading bushes, I feel sure that the latter will yield the best returns in the way of fruit, and must eventually become the most popular.

Varieties.—The following kinds will give a long succession both for dessert and culinary purposes, and the green fruits of both classes can be thinned out when overcrowded and utilised in the kitchen; some sorts set their fruit in bunches, and need thinning in order to ensure the remainder becoming good specimens of their respective kinds. *Dessert sorts.*—Rivers' Early Prolific, Early Orleans, Green Gage, Reine Claude de Bavay, Coe's Golden Drop, Grand Duke, McLaughlin's Gage, Jefferson's, and Transparent Gage. *Culinary sorts*—Royal Dauphin or Victoria, Red Magnum Bonum, The Czar, Pond's Seedling, Bush Plum, Diamond or Kentish, Belgian Purple, Belle de Septembre, Grand Duke, and Wydale Duke.

Gosport. James Groom.

EFFECT OF SOIL ON GRAPES.

Do soil and climate materially affect the quality of Grapes? In my opinion they do. I do not mean by "climate" the difference between Alicante, in Spain, and any place in England, but simply the difference between the comparatively bright and dry climate of the eastern counties, for instance, and the warmer and damper counties, of western districts or between heavy cold soils and dry hot ones. From time to time controversies crop up in The Garden as to this or that Grape being of good quality, or a good keeper, or a good or bad setter, liable to crack, shank, shrivel, set badly, or not "do" at all, and some uphold and some condemn certain Grapes.

At present it is the Gros Maroc that is engaging attention. Some say it will not bear comparison with Black Alicante as to flavour and keeping qualities, while others say it is superior, but will not hang, and is uneatable in January, and so on. The fact is, any one Grape may do better on some soils and under certain kinds of treatment than on others; indeed, soil alone is sufficient to alter the flavour and keeping qualities of a Grape. I have fairly proved this with several varieties by comparing my own experience with that of those who write in The Garden from time to time on Grapes. I read, for instance, that Madresfield Court cracks, and that Gros Colmar is of inferior flavour, &c., and this from experienced men who would not make such statements had they not proved them to be true. Now, with me Madresfield Court does not crack, and Gros Colmar is excellent in quality. Gros Maroc is also of very fair quality with me, and a better keeper than the Black Alicante, while with others the reverse is the case. What could make this difference but the soil or climate. Gros Maroc, indeed, is such a favourite with me, that I would recommend everyone to grow at least a Vine of it. Some prefer it to all others, but this may be a matter of taste. If I were asked what Grape I liked best, I would say Muscat Hamburgh, but then it is not in all ways satisfactory. It does not succeed at all with me, and I have done away with it, although I like it better than any other Grape. I am not now speaking of

Grapes for market; if I were, I would say, let Alicante, Lady Downes, and Hamburghs be the chief kinds grown. Although Gros Colmar makes more money than Alicante, it does not produce as many pounds per Vine by nearly one-half, and it is uncertain as to colour. Gros Maroc will make more money than either. Let Gros Colmar be treated like Muscats, and give it plenty of time by starting rather early, and then I think it will be found to possess an excellent flavour, and be thin-skinned and melting. This is no exaggeration; with me it is a fact; compared with it Alicante is a poor, watery, flavourless Grape. Such is my experience of the Grapes just named; I have

no doubt I should find other people's Alicantes better than mine and Gros Colmar worse. I find Hamburghs do better here in the natural soil than they do in a made border; I mean, they do better planted out in the soil without any trenching, manure, or drainage; just make a hole and put in the Vine. This may seem strange, but it is the case here, and I can prove it. I grow very good Hamburghs in this way in an orchard house. I should mention, however, that I apply a little top-dressing—about a barrowful of manure to three Vines, no more; the roots go where they like, the canes are strong, crop well, and finish the fruit to my satisfaction. G. A. Passingham.

Milton, Cambs.

MARKET STRAWBERRIES.

There is at least one fruit crop in which the home grower has the market practically to himself, viz., Strawberries. I may, indeed, class the Raspberry crop along with it, as both generally go together, and the conditions of growth and marketableness are similar. These delicate fruits suffer so much from delay or rough usage in transit, that it is questionable if foreigners can ever compete with them in any market in this country. But can these fruits be grown by farmers at a profit? Mr Gladstone instanced the Aberdeen district in proof. Probably he was not aware that the problem had been solved in other districts as well, and especially in certain districts of Perthshire. Within a radius of a mile from where I write there are some 200 acres of land devoted to Strawberry culture, not to speak of the large extent in the neighbourhoods of Cupar Angus and Perth, and the acreage is yearly increasing. Growers are every year breaking in large portions of moorland or turning portions of their regular farm land into Strawberry plantations. But does it pay? Well, if a feuar can afford to pay £5 an acre for ground annually, and go to the expense of trenching it at, say, £20 an acre, and in addition put up his own buildings and fences (and such is the rule here), surely it ought to pay those whose only permanent expense is the rent of from £1 to £3 per acre.

Rich land is not required. Why, the "Muir o' Blair" in its unreclaimed state is not worth 5s. an acre, consisting as it does of 6 inches or 8 inches of turf, and only rusty gravel to unknown depths below. Even when reclaimed and trenched, it is not worth 15s. per acre for ordinary crops. Yet, here are people with hundreds of acres of it at £5 an acre! Indeed, rich land is positively injurious to the fruit-bearing capabilities of the Strawberry. It sets it to growing enormous masses of leaves and runners. Poor soil, on the other hand, if of a kindly nature, restricts the exuberance of foliage, causes the roots to develop more fully, and, so far as our experience goes, increases the certainty of a plentiful crop of fruit. But what about the expense of cultivating? If the crop is to be managed as it should be, the expense will be considerable. The original cost of laying down a plantation should not under any circumstances exceed that of planting a Potato crop. But the subsequent attention as regards weeding, hoeing, and keeping down runners is considerable, while it is well not to look for any return the first year. The plantation should, however, continue to bear from four to six successive years, averaging, if well attended to, from two to three tons an acre.

Marketing.—Well, to judge by the rough-and-ready way of the people hereabout, marketing Strawberries is about as easy as marketing Potatoes. The fruit is simply gathered into buckets, tumbled into barrels of from 1 cwt. to 2 cwt. each, and sent off to the large confectioners. The usual price has been £30 and upwards per ton. Dull trade and glutted markets have, however, resulted in lower quotations at times. But the grower has the market for table fruit always open to him There the demand is unlimited, and the prices good to those who are careful enough to send their fruit to market in good condition. Barrelled fruit can safely travel to great distances, and scores of tons are sent every year from this district to Dublin, Liverpool, and other towns. I send none of my fruit to confectioners, finding it much more profitable to supply fruiterers in large towns. It is in this line that I strongly urge farmers who may have suitable land, especially if near towns, to make a trial of this industry.—Blairgowie, in *Irish Farmers' Gazette.*

NOTES FROM A COLLECTOR'S JOURNAL.

Having to wait a few days in Souraboya for an opportunity to proceed to Macassar, I decided on paying a hurried visit to the Ardjuno, a mountain close on 11,000 feet high. With this object in view I left Souraboya at half-past two, and proceeded by rail to Porrong, where I hired a native cart to Kasrie. At this place the ascent of the mountain commences, and it is usual to go on native ponies to Priggin, where there is a small hotel 2000 feet up. It was dark long before we reached this place, but I ascertained from the hotel keeper that there where two gentlemen living near, enthusiastic gardeners. My first visit was to the garden of a Germao, where I found the most varied and carefully kept collection I have seen in the Archipelago. The owner, an eccentric individual, had a much better idea of cultivating than of naming his plants. Araucaria excelsa he called A. imbricata, and a pretty white Melastomad a Rhododendron, and I am afraid I failed to convince him to the contrary. A few of the plants here noted will be sufficient to show what can be done in such a climate when the necessary attention is given. Roses, especially Maréchal Niel, grow and flower finely, and there were also Dahlias, Phloxes, Antirrhinums, Pelargoniums, Lilium longiflorum, Gloxinias, Achimenes, Marantas, Crotons, Fuchsias, Passifloras, and Ferns. Among the latter I noticed Adiantum gracillimum and A. concinnum latum, two varieties I little expected to find here. Apples, Pears, Mulberries, &c., are being tried, but success in their case is doubtful. The ground is terraced, and the slopes tastefully planted. The other plant lover at this place—a Mr. McClennan—has a place at an altitude of some 7500 feet, to which he is accustomed to resort with his family during the hot season. Before ascending the mountain I paid him a visit, and he kindly granted me permission to use his bungalow, and also furnished me with a guide. Early the following morning we commenced the ascent. For about 1500 feet the land is all under Coffee; Vandas are the only Orchids of note; they grow on the shade trees, and also on the older Coffee trees. Unfortunately, the flowering season was over, but I do not imagine there is anything new among them. After climbing 3000 feet, we came to water, and halted for a short time. Above this Orchids became more plentiful, but generally with insignificant flowers; a Dendrochilum, with pseudo-bulbs in the way of D. filiforme, is very abundant. At about 6000 feet we enter the region of Casuarinas, to the exclusion of almost every other tree, and they continue up to the highest point, where they become mere bushes 5 feet or 6 feet high. Growing on these are thousands of plants of a little purplish Dendrobe, which Prof. Reichenbach named D. Curtisi. We halted for the night at Mr. McClennan's bungalow, where I found the temperature at 5 p.m. 53°, and at daybreak the following morning 44°, rising to 59° at midday. I was informed that during July and August ice forms here occasionally. From this point to the top the undergrowth has been burned at no very distant time, and the ground is now covered with coarse Grass, with here and there a plant of a Bramble. I also noticed a Ranunculus, Gentians, Paullinia, and two or three species of Composites in flower. The view from the top is grand; standing on the highest point, one looks down a precipice of 3000 feet, near the base of which is the bungalow in question. C. Curtis.

Stokesia cyanea from root cuttings—Having a plant of this most beautiful composite, I wished to increase my stock. Knowing that Senecio pulcher came free enough from root cuttings, I resolved to try the Stokesia. The plant was in a pot in a cool house. I turned it out and shook all the soil away from the roots. I then selected some of the strongest roots, cut them into pieces 2 inches in length, and inserted them in a well drained seed-pan filled with a sandy compost. I then covered them with half an inch of sand and gave them a watering to settle the soil. I then placed the pan in a gentle heat, and in the course of a month I was rewarded by the appearance of some nice healthy green shoots appearing above the surface and emitting young roots at the opposite end of the cutting. These, I think, with liberal treatment will be strong enough to flower next autumn. Having myself never heard of Stokesia being increased in this way, I thought the above hint would perhaps be of some use to lovers of this beautiful plant—James Findlow, *Royal Botanic Gardens, Manchester.*

Garden Flora.

PLATE 432.

SARANA LILY and COBWEB HOUSELEEK.*

The Sarana or Black Lily, as Fritillaria kamtschatcensis is popularly called, is a little bulbous plant one very seldom meets with, though it is one of the most interesting plants that can be grown in the alpine garden. Our plate represents the plant admirably, though it often grows several inches higher than the plant here illustrated. It is a very old garden plant; it was known to Linnæus as Lilium kamtschatcense, and another synonym is Sarana edulis. It occurs in Eastern Siberia, Kamtschatka, Western North America, and California, and has also been found in Japan. It is essentially a northern plant, and is therefore perfectly hardy with us, though, like a good many other bulbous plants of a similar nature, it is liable to deteriorate and finally disappear.

In growing it the soil should be of a peaty character and thoroughly drained, otherwise the bulbs are apt to suffer from excessive moisture in winter. On the old rockery at Kew there used to be a fine patch of it planted high and dry on a stony bank, partially shaded. This plant used to come up strong year by year and flower freely, its blackish maroon flowers and enclosed golden stamens being admired by all who saw it. It is a scarce plant even in nurseries in which hardy plants are made a speciality, but no doubt Messrs. Backhouse, of York, possess it, as our plate was drawn some few years ago in their nursery by the late Mr. Noel Humphreys. The plant is so distinct from any other known flower, that those who like hardy plants should seek it.

It is somewhat singular that in the large genus Fritillaria, numbering something like half a hundred species, so few are what are generally termed garden plants. We could name but a dozen or so that would be desirable to grow in a general way. There is quite a host of them that have dull greenish purple flowers, about which nine out of ten persons would not care. Leaving out the noble Crown Imperial (F. imperialis), which everybody knows, our selection would include the charming little scarlet-flowered F. recurva, the Californian species figured in The Garden, Vol. XVIII., p. 458. Next in importance is F. Moggridgei, a very handsome plant with large yellow bell-shaped flowers. This was also figured in The Garden, Vol. XVIII., p. 132. A near neighbour to Moggridgei is Bur-

* Drawn in Messrs. Backhouse's nursery, York, by the late Mr. Noel Humphreys.

nati, also a handsome plant with reddish brown flowers. Then there is another little Californian species with yellow flowers. This is F. pudica, of which a coloured plate appeared in The Garden, Vol. XIII., p. 588. The European species are the most numerous, and none are handsomer than the common Snake's-head Fritillary (F. Meleagris), one of our native plants of this species. There are a great many varieties now obtainable in nurseries, and though there is not very much distinction between them as regards colour, all are well worth growing. F. latifolia, a similar species to F. Meleagris, is also a very variable plant, and the very dark varieties (almost black) are extremely handsome. It is a sub-species of F. aurea. Among the other species with smaller dull coloured flowers are F. tulipifolia, pyrenaica, lilacea, and messanensis, all interesting plants and easy to grow. Finally, there are two or three small-growing species that have lately been introduced from the East. These include F. armena, a pretty little plant with yellow flowers, but, we imagine, rather fastidious under cultivation.

The Cobweb Houseleek (Sempervivum arachnoideum).—This is one of the most singular of alpine plants, its tiny rosettes of fleshy leaves being covered at the top with a thick white down, which intertwines itself all over each plant like a spider's web. It is widely distributed over the Alps and Pyrenees. Like the majority of Houseleeks, it is perfectly hardy. It thrives in exposed spots in sunny, arid parts of rockwork, forming sheets of whitish rosettes, which look as if a thousand fine-spinning spiders had been at work upon them, and sending up pretty rose-coloured flowers in summer. There are two or three other species of Sempervivum that possess the singular cobweb-like growth running over the rosettes of leaves. These are S. Laggeri, S. heterotrichum, and in a less degree it occurs in other species. All the Houseleeks are interesting, and for the most part their flowers are brightly coloured, generally of a shade of reddish pink. Although the Houseleeks are so interesting and so easily grown, they have never been cultivated much in a general way, yet there is no class of hardy plants that are better suited for clothing dry sunny banks or similar places where few other plants would thrive. As they propagate themselves so freely, they would soon completely carpet a dry, warm bank if the surface soil were moderately good, in order to give the plants a start.

A selection of a few of the most ornamental kinds would include the following: S. triste, Regiœ Amaliæ, calcareum, globiferum, Mettenianum, piliferum, arachnoideum, Laggeri, Pomelli, montanum, arenarium, Braunii, and soboliferum.

Grubs of the daddy-longlegs.—These, I find, are ruining our Grass lawn this season, and I hear that they are everywhere very plentiful. How am I to get rid of them?—A. L. P.

*** The grubs of the daddy-longlegs are by no means easy to get rid of when they attack lawns or cricket grounds, for the grubs during the day generally remain about an inch below the surface, where they cannot be effectually reached by any insecticide, for whatever fluid was used would not reach them in sufficient quantity to injure them. They, however, often come to the surface during the night, and may then or very early in the morning be killed by rolling with a heavy roller. Cutting trenches 6 inches wide and of the same depth with upright sides have been found very useful; the grubs when roaming about at night fall in and cannot get out again. They should be collected every morning. This plan has been tried with great success. Laying slates, turves, boards, &c., about for the grubs to creep under has been recommended. Rooks and starlings destroy quantities of these grubs. Late in the summer and in the autumn, when many of the flies are about, the Grass should be rolled with a heavy roller or mowing machine in the evening. These insects generally are most abundant on damp ground. Any damp weedy corners or other places should therefore be cleared out.—G. S. S.

SEASONABLE WORK.

ORCHIDS.

East India house.—As the sun comes out now with considerable force, we have found it necessary to put up the shadings so as to have them ready for any emergency. All our plants having been surface-dressed, repotted, and placed in new baskets where these have been required, there has been no other attention required for some time except to see to their daily wants; some species require more water than others, and when they are making their growth they require more than they do at other times. Thrips have been very troublesome, and we have had to go over all plants likely to be attacked once every three or four weeks, either washing or dipping them in diluted tobacco water, in which some soft soap has been dissolved, in most cases washing the leaves afterwards with clear rain water. Indeed, for all purposes, either for washing or watering Orchids, rain water ought, if possible, to be used. The various species and varieties of the genus Phalænopsis are making a very beautiful display at present. They succeed best suspended from the glass roof in baskets or pans, and they dislike being disturbed; rather than move them, we would pick the decayed material carefully from amongst the roots and substitute fresh stuff, continuing to do this annually until the teak decays. P. Stuartiana requires the same treatment as the others. This is a very distinct and beautiful Orchid furnished with long, many-flowered branched spikes like P. Schilleriana. It ought not to be placed near the glass on the sunny side of the house; rather choose a partially shaded position for it.

Cattleya house.—Blinds must now also be put up here, but early in the year it is best not to shade more than is absolutely necessary. The varieties of Cattleya Trianæ, introduced during the last few years, are remarkably beautiful, and at this season of the year last long in perfection. In Messrs. Veitch's nursery during unfavourable weather a variety of this species had flowers which remained in good condition for five weeks. Considerable quantities of it have been imported recently, and those who have plants of it should plant them in clean potsherds, merely keeping these moist until roots are formed; then remove an inch or two of the crocks from the surface, and substitute the usual potting material, taking care not to injure the roots. Cattleya citrina, also recently imported, requires different treatment; it seems to do best attached to a block or bit of Tree Fern suspended near the roof. Although this is the usual method, we have found it to do well potted in shallow pans in the ordinary way. Masdevallias of the M. Chimæra and M. bella type should be placed near the glass in a shady part of this house; the bella form does best in baskets, as then the flowers either hang over the sides or push out through openings therein. The Chimæra form, if true, produces its flowers on an upright stem. Masdevallias, now growing freely, require a good supply of water. If plants of Odontoglossum citrosmum have not yet been repotted there is yet time to do so, but it ought to be done at once, as the plants will now be making fresh roots. Anguloas of all the different species ought to be potted when the young growths are seen to be starting from the base of the old bulbs. This they are now doing, and no time should be lost in attending to them. If the potting material is not in good condition it ought all to be shaken from the roots. We have frequently recommended plants of Dendrobium Jamesianum and D. infundibulum to be grown exclusively in the cool house, where they do well all the year round, but we do not think we ever saw more healthy plants of these than we did the other day in Sir T. Lawrence's collection at Burford Lodge and in that of Mr. Lee at Downside. In both cases they were grown in the cool end of the Cattleya house. Some of the plants were attached to blocks; others were potted in the usual way. Odontoglossum Londesboroughianum succeeds best in the warmest end of the Cattleya house. This is not often seen in collections, but when well grown it is an excellent plant, the long, drooping branch spikes continuing to produce flowers for months together. It is well grown at Burford Lodge, attached to a semi-circular framework of teak rods, through which the roots run into a compost of turfy peat and Sphagnum. It also likes a light position.

Cool house.—Repotting and surface-dressing being completed, it now remains to carefully attend to the growing and flowering of the plants, and it should be understood that the conditions most conducive to healthy leaf and bulb development are not those under which the flowers remain longest in beauty. A damp, cool atmosphere, with little artificial heat, causes the flowers to spot, and for this reason it is desirable when the collection is a large one to be able to remove the flowering plants into a house by themselves, where they can have the advantage of a warmer and drier atmosphere. They usually rest a little before they start into growth after flowering. It will also be found that although they were free from slugs and snails before they were potted some have been introduced with the fresh Sphagnum. As the weather gets warmer the temperature will increase. If 50° has been the minimum hitherto, it will gradually rise above this in mild weather, although it may still fall below it on cold nights. Newly-imported plants of Odontoglossums need not be potted at once. If there is no room for them they may be laid on a surface of dry Moss or some similar material, and be shaded from the sun. As soon as new roots form they may be potted. We have noticed sometimes in looking over collections that the small-growing species of Odontoglossums, such as O. Rossi, of which there are now so many fine forms, all charming kinds; O. roseum and O. Cervantesi are placed where they are overshadowed by larger plants. It is better to place the pots containing these in baskets, and suspend them near the roof; or if the collection is large, they may be placed in a part of the house by themselves. These small growing Orchids also succeed in placed in shallow pans. It is well to be careful in watering such plants, as if they are hung up out of the reach of the eye they are apt sometimes to be neglected.

FLOWER GARDEN.

Flower beds should now be cleared of shrubs and other hardy plants with which they have been filled in winter in order that they may receive what preparation may be necessary for their summer occupants. If planted later than this the probability is that the plants moved might suffer from drought ere they had got established in the soil, but to guard against the possibility of such a check, it is our invariable practice to mulch with Bracken as soon as they are in their places, and for neatness sake the mulching is removed after there has been a long spell of showery weather to start the roots into active growth. Small plants of some few kinds of shrubs we use in summer as "dot" plants in foliage beds, and these, as a matter of course, when they can be made to fit in with the summer arrangements, are not transplanted at all. In order to better illustrate what we mean, we may say that we have a border consisting of oblong panels and circles alternately. In winter the oblong panels have had as centres small bushy plants of Retinospora pisifera aurea, and the circles, small plants of Cupressus Lawsoniana erecta viridis. The winter groundwork of the oblongs was

Heather, and that of the circles Sedum glaucum. All these shrubs will remain for the summer; the groundwork for the Retinosporas will either be Alternantheras or Ajuga reptans purpurea, and that for circles, Mesembryanthemum cordifolium variegatum. By thus endeavouring to retain all the plants possible that have done duty during winter, not only is the work lessened both as to labour of planting and propagation, but an effective summer bedding arrangement is ensured. Beds that are vacant should be deeply dug, and manured or not according to the requirements of the plants to be used; all fine-foliaged plants require abundance of manure, but the ordinary kinds of bedding plants need but little. When the beds are on Grass, the best arrangement, the soil should stand well above the turf and be edged with some kind of dwarf, close-growing, hardy plant. The best for this purpose that has yet come under my notice is Herniaria glabra; all our beds are edged with it, and they always look neat, and give but little trouble to keep them in order. About thrice during the summer they need trimming with sheep-shears. Box does not look half so neat, and certainly needs more keeping in order.

Herbaceous plants.—Borders of these are already beginning to look gay with Crocuses, Hepaticas, Scillas, and Primroses. All plants are now above ground, and gaps can therefore be perceived and be filled up either by dividing some of the old stools or by fresh importations, or indeed by sowing patches of hardy annuals. Trim off all decayed stems, clear away mulchings, and where it is not practicable from fear of injury to the plants to dig in well-decayed stable manure, give a dressing of guano or soot and wood ashes, and then surface-fork the entire border. Fresh labels should be substituted for all that are becoming illegible, and especially should they be fixed to the less known kinds of plants, in order that all who are interested in them may the more readily become conversant with their names.

In houses and frames there is now much requiring to be done. All kinds of roots and tubers ought to be started into growth. Cannas are quickly increased by cutting up the roots into single eyes, and starting them in small pots in warmth. Part the roots of herbaceous Lobelias, and plant them out in frames having a temperature of 50°. Dahlias may be planted in the same way, but require greater heat if intended to produce cuttings. Those started a month ago will now afford cuttings, which strike quickly in a bottom-heat of 75°. The stronger the cuttings, the longer are they in forming roots, and as they make no better plants than smaller ones, it is not therefore necessary to delay propagation in order to get strong shoots. Tuberous Begonias are gradually growing in favour for summer bedding; we tried a few last year, and they withstood the rain far better than Pelargoniums. Any tubers that are to be used for planting out should now be potted, and be allowed to start into growth slowly. A temperature of 45° or 50° is ample. Begonia castaneæfolia, a first-rate summer bedder, must be increased by means of cuttings. Begonia weltoniensis also makes a fine bed, and this variety is most expeditiously propagated by division of the roots. Seedling sub-tropicals should be potted off before the roots get matted together in the seed-pans, and seeds of the quick-growing kinds, such as Tobacco, Castor-oil, Sunflower, Hemp, Maize, and Chilian Beet, should now be sown. In order to make room for slow-growing and less hardy kinds, Lobelias, Verbenas, Ageratums, and Mesembryanthemums may now be planted out in cold frames. The soil should consist of loam and leaf-mould in equal proportions. They will then lift with plenty of roots at bedding-out time. Alternantheras may now be planted out in manure frames, and a fortnight hence cuttings in abundance may be had, which, if inserted after the manner of the old plants in frames, will give but little trouble, except as to airing, till they are required for the beds. Fine-foliaged Pelargoniums must still be kept in warmth, but the common and hardier varieties may be transferred to cold pits. Cuttings of the same struck during the winter will now be ready for potting off, and till re-established in the pots should be kept close and warm.

Pruning.—Now is a good time to prune Laurels and other Evergreens. It is dangerous cutting over old bushes at the beginning of winter, as they are apt to suffer or die back at the wounds, especially old and feeble bushes; but at this season they are about beginning to grow, and their vitality prevents decay. Healthy common and Portugal Laurels that have outgrown their room, or which have become too tall, may be severely pruned without any danger, and will be all the better for it. Young shrubberies on poor soils will also be greatly benefited by good top-dressings of manure of any kind to lie on the ground in the form of a mulching. Good culture makes all the difference in the getting up of shrubberies quickly. Roses should be pruned without delay. Some prefer pruning in autumn and some in spring, and both seasons have their advantages and disadvantages. Pruned in autumn, the buds are apt to push prematurely in mild moist winters, and get nipped by late frosts in spring; but when the winter is cold the bushes do well enough, and push stronger than spring-pruned plants. On the other hand, however, the unpruned bush is better able to endure severe frosts, and the most that can happen by delaying pruning till March is, that the terminal buds of the shoots may push a little at the expense of the bottom ones, to which the shoots have to be recut; but the injury from this cause is hardly discernible. Good mulchings of half-rotted manure should be applied to Rose borders and left on all the summer, if the appearance of the manure on the surface is not objected to; otherwise the borders should be pricked over, but not deeply, by the fork.

PROPAGATING.

No more suitable time could be chosen for cutting back and striking Crotons than the present. When the cuttings are taken off insert them as quickly as possible, removing no more leaves than is absolutely necessary; take some clean 2½-inch pots, put a few crocks in the bottom, and fill up moderately firm with soil consisting of loam, peat, and sand in equal parts. After insertion give them a good watering and keep them close, when they will soon root. Nepenthes may also be struck without difficulty, especially in spring, and by this means short, sturdy, fully developed plants may be secured. The soil in which they root best is fibrous peat and Sphagnum, cut up moderately fine with a liberal admixture of sand. Take the cuttings, not necessarily at a joint, and insert them in small well-drained pots in the compost just named; after this water them, and then place them in a close case or under a hand-light in the stove, if possible, where there is some bottom-heat. Take care to keep them close and shaded from bright sunshine till rooted, and on no account allow them to become dry, as a moist, steamy atmosphere hastens the formation of roots.

Tree Carnations that have been flowering during the winter will, from the warmth received during that time, have made good young growth suitable for cuttings, and if put in now will make fine flowering plants by winter. A suitable soil for them is equal parts loam and leaf mould, with a good sprinkling of sand, the whole being well mixed together and sifted moderately fine. Let the cuttings be of as recent growth as possible. Remove the two bottom leaves, and shorten the others if they are of an unwieldy length; then insert them four or five around the edges of a 4-inch pot, and place them in a gentle hotbed. In this way they will soon root, when they must be hardened off and potted singly in small pots.

Cyperus alternifolius is frequently increased by division and treated as a stove plant, while if raised from seed now and grown on in a cool temperature till autumn the produce would be stout healthy plants, well calculated to resist the various changes of temperature, to which, when used for indoor decoration, it is exposed. In order to obtain seed, two or three old plants should be potted in large pots and allowed to flower, when seed in abundance will be the result. It should be sown as soon as possible after it is gathered, for if kept long, it germinates much more slowly and irregularly. Before sowing give the pots intended to receive it a good watering; then sow on the surface, and afterwards sprinkle a little dry sand over the seeds. Place a pane of glass over the pot, and set it in the stove till germination takes place, which will not be long if the seed is fresh, and when that takes place remove the glass at once. The variegated form can only be increased by division, for which the present is a suitable time. In preparing pots for all kinds of soft-wooded cuttings do not press the soil too firmly, as that retards rooting. This remark only applies to soft-wooded subjects such as Fuchsias, Heliotropes, Verbenas, &c. All firm-wooded plants, such as Heaths, Camellias, Rhododendrons, and Coniferæ, require the soil to be made as firm as possible.

MARKET FRUIT GARDENS.

Owing to the favourableness of the season, work is generally in a forward state. Planting may now be considered to be finished. Stocks intended for grafting are headed down in readiness for that operation, and younger stock is planted out in nursery lines. Grafts, if not already secured, should be cut immediately, as the sap will now be moving in nearly all kinds, and they are best cut in as dormant a condition as possible. Young bush fruits, such as Gooseberries, Currants, and Nuts, not required for forming new plantations should be lifted and cut in quite close and replanted about 1½ feet apart, so as to make useful little bushes for another season. Cuttings collected and laid in by the heels during the pruning season must now be prepared and planted in lines. Suckers of the Farleigh Prolific Damson, a kind that reproduces itself true in that manner, are collected and planted in rows to gain strength for forming standard or half-standard trees, the latter being preferred, except in positions where cattle would destroy the branches; for, if required, a half-standard can be readily converted into a full standard by cutting away the lowest tiers of branches by degrees; the stem, too, needs less supporting by means of stakes than that of standards, and it increases in diameter much more rapidly when the lower branches are left on for a few years than when they are trimmed at once. If not already done, all freshly planted trees should have a covering of partially rotted manure spread over their roots before drying spring winds affect them.

The pruning of Nuts of all kinds may now be completed, for the catkins are fully in flower, and the abundance of little red-tipped female blossoms give promise of a good crop. All useless wood is cut away and only fruitful spray reserved. The Nut crop is so valuable that special care is taken, not only in forming the bushes by careful pruning, but also in manuring them, a favourite application being the refuse from skin and hair factories, such as the dressings from hare and rabbit-skins, old rags, &c. This is lightly forked in around the bushes, which, being surface-rooters, are found to depend more for fruitfulness on their active roots close to the surface than those that penetrate deeper. This is a good time to give both trees and bushes a good dusting of freshly-slaked lime, which answers the double purpose of killing Moss and Lichen and making the buds distasteful to birds; when washed off, too, it acts as a stimulant to the surface roots. It should be put on in damp, still weather, so that it may stick to the trees and get dried on before heavy rains occur.

The protection of fruit in the way usually practised in gardens is not possible on a large scale in market grounds; nevertheless, owners of such grounds are fully alive to the importance of shelter, and we find many are now planting rows of Poplars and other quick, erect-growing trees quite thickly, so that they may run up and form a barrier to break cold currents from exposed quarters.

Thorn or Quick hedges may also be allowed to run up, keeping them cut in narrow both at base and top, as it is surprising the amount of shelter which a hedge will afford. Preparation must also be made for the coming fruit season by looking over the stock of baskets, ladders, &c., and replacing any deficiency before the busy season arrives. A good supply of packing wood must be cut and stored in some dry place. Long rods of Ash, Hazel, or Chestnut are generally used; they are prepared in wet weather by cutting them in lengths to suit sieves or half sieves, and split up to the size required. If kept dry until a few days before they are wanted and then soaked in water, they will be found to be as tough as wire, and will withstand the rough usage to which the baskets are subjected in travelling to market, while green wood would fail.

FRUIT.

Early orchard houses.—One of the most important operations in this department at the present time may be said to be the thinning of the fruit, else Nature may assert her right to relieve herself by casting the whole of the crop. It will not be wise to thin Peaches and Nectarines down to the exact number of fruits each tree is considered capable of carrying, but under well directed management a small percentage will suffice for the final thinning after the stoning process is complete. If thinning has been carried on simultaneously with disbudding, and all the drooping fruits have been removed, those which are placed near home should be selected for the crop, as the wood near the base is generally well ripened and swells off the largest fruit, while the cultivator insures to himself the option of disbudding and shortening back his trees where they show a tendency to become loose and unshapely in their growth. As the days increase in length and the sun gains power the trees will take liberal supplies of stimulating liquid a few degrees warmer than the mean of the house, and good syringing with clean soft water at a temperature of 70° twice a day when fine will keep them clear of spider and facilitate the rapid development of the fruit. If Strawberry plants occupy the shelves, keep them thoroughly syringed backwards and forwards until they begin to change for ripening, and then if possible move them to quarters where spider can do no harm, and thoroughly cleanse the shelves they have occupied. Give timely attention to ventilation on bright mornings by opening the lights; when the temperature touches 65° run up to 75°, with a free circulation; reduce gradually and syringe about 3 p m. The minimum heat should not exceed 55° on mild nights until the fruit is stoned, and 50° will be sufficient in severe weather.

Late houses.—Owing to the absence of sun, trees in late houses and others which have been wintered in the open air are all in an equally forward and promising condition. If the latter were well washed before they were taken into the house nothing more will be needed until the blossoms begin to show signs of opening, when a good fumigating will keep them free from aphis until after the fruit is set. In the arrangement of the trees it must be borne in mind that Figs, Peaches, and Nectarines will stand the most heat; then follow Apricots, Plums, Cherries, and Pears. Of the latter the best dessert kinds only should be grown, and in the event of the space being limited they may be plunged in a warm, sheltered place in the open air, when all danger of spring frosts is over. Ventilate to the full extent, and dispense with fire-heat until the blossoms begin to open, when a little warmth will do good service in damp or frosty weather.

Peaches and Nectarines.—We must again direct atteution to the important operation of disbudding and pinching in early houses. Weak trees to which we lately alluded, as well as late kinds grown at the coldest end for succession, will now require manipulation upon the same principle as they break into free growth, the best of all proofs to the practised eye that root action is going on, and daily pinching will not produce a check. Many people make a point of leaving a great number of these pinched shoots to form spurs, and sometimes in early houses they do very well, but to us spur fruit never appears so fine as that borne by a good shoot of 1 foot in length, and the system is a failure in late houses. When all the base shoots have been neatly tied down to the current year's fruiting wood, a free and easy growth may be encouraged quite up to the stoning period, gross shoots and leaders only being tied in to check an uneven distribution of the sap, or to form shade to large bare branches in the centres of the trees. With a large area of foliage exposed under glass and all the roots inside, plentiful supplies of water will be needed, and syringing twice a day will play an important part in good culture. If forcing is not being carried on against time, a low night temperature of 56° to 60° is strongly recommended until after the stoning is complete. The heat by day may range 10° to 15° higher, with plenty of air, provided it can be given without causing a draught or sudden depression in catching weather, when early closing of the valves and moderate ventilation will answer best. A sharp watch must be kept for green, brown, or black fly. The first, if taken in time, succumbs to a moderate smoking; the last two are more tenacious of life, and being generally found on the points of gross, crude shoots, dipping in a strong insecticide may precede the smoking. Spider sometimes puts in an early appearance, but unless Strawberries have been occupants of the shelves, no excuse can be found for the person who syringes the trees.

Succession houses.—Persevere in the regular syringing of trees in succession houses until the flowers are ready to open, and fumigate before they expand. This important, simple, and inexpensive operation should never be neglected, as many houses are spoiled for the season by allowing fly to get into the blossoms. See that the borders are well watered, and old or weak trees mulched before they begin to feel the strain of a crop of fruit. Ventilate freely, and lay up strength and vigour by keeping the houses cool at night. The buds on wall trees and in late houses are still coming on together, and it is a question if the walls will not be in advance at flowering time. Be this as it may, follow up liberal ventilation until the flowers are fertilised, and if extreme lateness be an object, only use fire-heat when there is danger of the flowers being injured by damp or very severe frost. Of the latter, Peach blossoms under glass will stand several degrees, provided they are kept dry and free from draughts.

Cherries.—Where the roots are confined to the interior of the house an examination of the borders should be made as soon as the fruit is set, and in the event of water being required it should be supplied at the mean temperature of the house, which may range from 40° at night to 56° by day If late kinds are still in flower let them be carefully fertilised, and defer general syringing until they are safe and the petals of the flowers begin to fall. When trees which have covered the trellis have made five or six leaves, all side shoots not likely to be wanted may be pinched to form spurs, and leaders may be tied down to the wires. When syringing is resumed use tepid water twice a day. Give air at 50°, open the front lights at 58°, and run up a few degrees under sun-heat with a free circulation, always bearing in mind that the Cherry is the most impatient tree we have to deal with under glass, and it is always best to err on the side of low temperatures with plenty of air when cutting draughts can be avoided. When this stage has been reached, the usual enemies, black or brown aphis and the small grub, may be expected to appear. The first may be destroyed by timely and repeated fumigation, but the latter can only be extirpated by careful hand-picking.

Melons. — The first batch of pot plants plunged in bottom-heat from fermenting leaves placed over hot-water pipes will now be making good progress, and the daily routine will consist in careful watering, syringing, and ventilation wherever a chink of air can be admitted through the early part of the day. It was stated lately that confinement of the roots by means of pot culture causes some varieties to throw out side shoots and produce plenty of female blossoms before the leaders reach the top of the trellis. Where this is the case and very early fruit is wanted, the points must be pinched out to throw strength into the side shoots when the blossoms begin to open; the atmosphere of the pit must then be kept drier by means of increased fire-heat to admit of a gentle circulation of air, and syringing may be discontinued for a few days until the fruit is set and begins to swell. When grown under the restrictive or pot system it rarely happens that the most wilful ramblers are not brought into bearing at an early age; and when a "set" of fruit has been secured, the plants may be well rammed and top-dressed with stiff loam, bone dust, and dry cow manure, into which a complete mat of hungry feeders will soon find their way. These must be well supplied with good liquid a few degrees warmer than the house, which must now range from 70° at night to 80° by day, and 85° or even 90° after closing, with solar heat and moisture. In pot culture the preservation of all the stem leaves is an important matter, and some of the succulent, hairy-stemmed varieties, which are subject to scalding, should never be syringed on bright mornings, as they hold the water and suffer when air is admitted, but this danger disappears after the house is closed for the day, when overhead syringing will do no harm.

Cucumbers.—To maintain the supply through March and April, old plants which have been in bearing all the winter will take liberal supplies of warm liquid to keep them going, for if once allowed to receive a check, early spring-sown plants will commence fruiting before they can recover and be of further use. By this time the plants will have replaced the old foliage with young growths, which must be neatly tied down and stopped at the first joint beyond the fruit when it becomes evident that the foundation of a complete covering has been laid. If spider has gained a lodgment, this cold weather will favour its destruction by the use of insecticides or regular syringing with clean, soft water, light cropping, and high feeding with good liquid from the tank and guano water alternately. Sprinkle all available surfaces with the same, top-dress the roots with pure loam and old lime rubble in preference to manure, which encourages worms and leads to ultimate failure. Aim at a steady bottom-heat of 85° from pipes and fermenting material combined. Let 70° be the standard at night, and 85° by day. Give air at 78°, and close early with atmospheric moisture, but avoid wetting the pipes when they are hot enough to generate scalding steam.

Spring plants — These are now making good progress, and their clean, healthy growth is always pleasant to look upon. If planted upon hills, avoid producing a too vigorous flush of Vine by feeding or the use of manure, as the time is at hand when stimulants will be needed. Train regularly without crowding, and defer stopping until quite two-thirds of the allotted space is covered. Keep the glass well washed inside and out. Let the night heat stand at about 68°, give air at 76°, and close with plenty of solar heat in preference to having recourse to sharp firing. Earth up plants in frames, renovate the linings back and front alternately, to prevent checks, and aim at the heat recommended for spring plants in houses. Always keep a supply of warm, dry compost and plenty of fermenting material on hand. Cover at night with dry mats and give a little air to prevent the accumulation of injurious gases.

Hardy fruit.—It is imperative that all pruning not already done should be finished at once; there is all the more need for hurry in this matter, because the winter having been so mild fruit trees are very forward. As regards protection, too much reliance must not be placed on copings. The most convenient and simplest mode of protecting is to place light wooden rails in a sloping position against the wall, their top end resting on the edge of the coping, and the bottom end fixed securely in or to the ground. Another horizontal rail should

be nailed to these, about 2 feet from the ground. To this the canvas must be fastened at its bottom edge, and if cords are fastened to the top side, and run up and through a pulley or ring at the edge of the coping, the protection can then be pulled up easily at pleasure, and it will fall down when slacked, of its own accord, to the bottom rail, to which it may be tied during the day. Thin shadings, used for such purposes, should be bound round the edges with broad binding to strengthen them, and they may have strips of the same material sown across at intervals, where the cords are attached, for the same reasons. The mulching of the roots of such fruit trees as need it should be attended to at this season. Small trees, on the shallow-rooting Quince and Paradise stocks, are greatly benefited by a layer of half-rotted manure spread over the roots. It protects them effectually from cold and drought and is nourishing at the same time. In shallow and poor soils mulchings are particularly serviceable. All small fruits are benefited by the same treatment. Ground between Currants, Raspberries, and Gooseberry bushes should never be dug, only top-dressed. If nothing better can be procured, fresh stable litter—the shortest of it, and the horse droppings, if possible—will answer well. It should be packed in deeply about the necks of the bushes, and extend 2 feet or 3 feet outwards, so as to cover all the roots, and should remain on all the summer. Top-dressings of this kind help to bury caterpillars and other vermin, and to keep them down, and their manurial properties are washed down to the roots. Raspberries are particularly benefited by rich surfacings, which increase both the length and thickness of the canes and weight of the crop. Good Raspberry canes should be from 6 feet to 8 feet high, and as thick as one's finger nearly at the base. For Strawberry plantations, there is nothing better for a top dressing than fresh horse droppings mixed with short litter. This should be put on before the plants come into flower, and 2 inches or 3 inches deep, being spread evenly over the whole ground right up the collars of the plants. Such a dressing keeps the soil moist all the summer, fertilises the roots, encourages growth, and increases the size of the fruit; and, by the time the latter is fit to gather, the litter is washed as clean as the cleanest straw, thus obviating the need of placing straw or anything else under the plants to keep the fruit clean. We have always adopted this practice with perfect success.

KITCHEN GARDEN.

The main crop of Brussels Sprouts, Snow's Broccoli, and Red Cabbage, the latter for cutting late, should now be sown on a slight hotbed under glass; also Veitch's Autumn and Self-protecting Broccoli, with a pinch of Paris Cos Lettuce. Still we always find in spring-sown Lettuce the few seeds sprinkled on the top of the Onion quarter the earliest. Onions and Carrots had better wait for some days; when sown early the sharp spring winds turn them yellow, and we have had on two occasions to re-sow Onions. Parsnips may now be sown with advantage. We are busily employed turning up every inch of ground which we possess, thus bringing all under crop at the proper season. Now is a good time to make plantations of Globe Artichokes. On taking up the old stools we found in one case many dead or crippled; we pulled away the young suckers and planted them in burnt refuse, a capital thing for many purposes; whenever we sow small seeds, outside or in, we always cover them with this material. Early frame Potatoes, Radishes, Carrots, and young plants generally should be duly aired. When the weather has become warm and genial, all the lights should be drawn off, so that full advantage of the opportunity may be taken by all inmates of pits and frames to get fresh air. Prick off early Celery in small boxes for early work, and get manure well worked to make the bed which the main crop of Celery will occupy. We sow about this time. Tomatoes may soon be sown; grow them on until they worthily occupy 6-inch pots, when they will be 3 feet high in May, and begin to flower and fruit at once. Little plants put out in May grow up to September before setting or ripening their fruit. French Beans must be attended to in accordance with the demand. This fine dry weather gives us an opportunity of getting all walks free from weeds, thus making all clean and tidy.

FLOWER GARDEN.

NOTES ON DAFFODILS.

The gradual development of the very different forms—different both in shape, size, and colour—of the Trumpet Daffodil from what is generally taken to be the type of the species, the Eoglish wild Daffodil, is a subject which I hope will receive due attention at the coming Daffodil congress. Gardeners are so much in the habit of believing in the distinctness of some dozen or two kinds which have been grown for several generations and supplied to the English markets, that they are apt to overlook the fact that these are all varieties of one species, and that it would probably not be difficult to find intermediate forms connecting them all by almost imperceptible grades. It is generally thought to have been about the close of the sixteenth century that the selections were made, more from garden varieties probably than from natural, which were to fix the limits of garden Daffodils for more than 200 years; but now that a new tribe of choice garden Daffodils is fast increasing, it would be interesting to trace the older forms back to their origin.

I merely suggest this to others because I have for three or four years been working at a collection made especially with a view of connecting old forms. I owe great thanks to many friends and to some who are strangers to me for the kind way in which they have brought varieties to my notice; and I believe that in England, Wales, and Ireland there is many an orchard and field which contains material for throwing futher light upon this subject. I will mention two or three such places which have supplied me with valuable specimens In the first place, as regards the large double garden Daffodil, I find that, besides the vale of the Arno, in Italy, there are places in England where it grows in a semi-wild state mixed up with a major form of single Daffodil coming into flower at the same time, and in leaf stature, colour, and flower dimensions in every way agreeing with it The colour of the single flower varies from the nearly self golden yellow of spurius to the pale primrose perianth and clear yellow trumpet of the common wild form. I am surprised that this large single form with the pale perianth should have escaped notice so long. I have had it for nearly ten years in my garden, having first seen it in a cottage garden five years ago. I distributed half my stock of it by the name of Single Telamonius. I have lately received it also from the county of Cork, in Ireland, where it grows mixed up with a form like spurius and with the common wild Daffodil.

A few miles from Bicester, in Oxfordshire, is a meadow in which wild Daffodils grow mixed up in variety. These range from the long, slender, trumpet, and tall form, and white perianth petals, which generally constitute what is called N. cernuus, to the short, sturdy form of typical Pseudo-narcissus, between these two, however, there is every gradation. It is, of course, possible that they are hybrid seedlings, but they may be developments of the type which have originated there.

Lastly, I will speak of the variety lately showered upon us by the bounty of Mr. Barr under the name of pallidus præcox For three or four years I have received boxes of Daffodil flowers, gathered wild somewhere in the neighbourhood of Biarritz, containing every variation in colour, from typical Pseudo-narcissus, through pallidus præcox, to nearly pure white. I regret to say that bulbs are supplied to me far more sparingly than flowers, in spite of frequent appeals from me. Those which have been supplied have flowered very early, as Daffodils always do, when removed from a warmer to a colder climate, but I expect that after domestication for two or three years they will be neither earlier nor later than our common wild Lent Lilies or Garlands, as Haworth calls them. I am sorry to add that these flowers showed some signs of tenderness in our recent March frosts.—C. Wolley Dod, *Edge Hall.*

—— In The Garden last spring I directed attention to the many varieties to be found in imported blooms of Daffodils as sold by our florists in early spring. At least three of our leading seedsmen took the hint, and French and Italian Narcissi bulbs were offered in the autumn catalogues at reasonable prices. Three such collections were sent to me, and it is interesting to note the results, as they throw light upon the origin of some of our garden varieties. Amongst the first to bloom are some very vigorous scapes of N. Tazetta, exactly agreeing with No. 13 in plate 31 of Burbidge's "Narcissi," and called Hermione luteola. These are amongst Messrs. Collins and Gabriel's bulbs, gathered in the south of France. In another group, from the same district, we have the exact counterpart of Mr. Barr's N. cambricus, a Daffodil a little larger than the ordinary British Lent Lily. And again in the same group a Trumpet-flowered Daffodil, very nearly like lorifolius major, the only difference being in the paler yellow of the perianth segment. It thus seems likely that we shall recognise many old acquaintances in these imported bulbs of wild Narcissi.

Mr. Burbidge's grand Daffodil, N. maximus, is a splendid flower; one bloom of which I have today measured is 3 inches long in the tube and 2 inches in diameter at the mouth, and the spread of the perianth segments was 4 inches. In the bright sunshine it throws back its corolla, so that the segments are fully extended. N. princeps also is a grand Daffodil when well grown; we have some blooms with the tubes 3½ inches in length. Amongst the newer Daffodils Mr. Barr's Hudibras is very noteworthy; it has a rich deep yellow tube and slightly paler corolla, the segments being very broad and longer than the crown, giving the flower a very sturdy appearance. An interesting flower from Guernsey, N. nobilis, is very like it in this particular, but more bicolor, and not quite so good. This would be a useful Daffodil if it could be supplied in quantity; the sturdy Daffodils, like the Tenby, are the best for border work, and this Guernsey variety is like it, but a bicolor.

Another capital Daffodil came to me under the name of Trumpet maximus—a deep yellow variety, which might almost merit the name of obvallaris maximus. This Daffodil holds its trumpet nearly erect, so that you look into the flower, and its corolla being thrown well backwards gives the flower a peculiarly handsome character. The real obvallaris maximus is grown in one of the Dutch bulb gardens, and is sent to England as maximus, but I have only occasionally seen a flower of it. Narcissus growers should look out for this variety, which certainly exists in our gardens under another name. N. capax, or more properly N. Eystettensis (Burbidge, pl. 10), Queen Anne's double Daffodil, is beautifully in flower; almost every bulb carries one or two blooms. Last year the doubling was confused, but this mild season has favoured the plant, and the petals exactly overlie each other in six groups like the flowers of the Lady Hume's Blush Camellia. Mr. Burbidge thinks this is an example of the doubling of the perianth segments only, and calls it a crownless double. This would account also, as he points out to me in a letter, for the self colouring, all the segments being of a pure primrose-yellow. The white Daffodils are now in bloom, and we have this year a good deal of the Irish variety of cernuus as well as tortuosus. There is a good deal of difference between these Daffodils when seen in quantity. Cernuus has a long tube and narrow perianth segments, which are as long as the tube. This variety we had from Mr. Tyerman as the true cernuus.

The Irish form of cernuus has a longer and larger tube, and the perianth segments are about one-sixth shorter and are more twisted. This appears also to be Mr. Barr's cernuus pulcher. N. tortuosus has a shorter tube, wider perianth seg-

ments, and these are one-third shorter than the tube. The broader sepals become twisted, and thus stand out stiffly; indeed the variety is amongst the whites exactly what obvallaris is amongst the yellows, and it holds its head more erectly and without the peculiarly drooping habit of the white Daffodils. It is also the purest white of them all. Corbularia alba (N. monophyllus) bloomed with us more than a month ago and now we have Corbularia citrina in flower. It is a very beautiful variety. It is curious to note how the Corbularias continue gradually to wax in size until they reach the full growth, and how long a time the flowers last. Grown in a cold frame, a single flower will last over a month. Every one of our C. citrina bulbs carries a flower this season.

There are several well-marked varieties of N. minor. The true variety as supplied by Barr appears to be the same as is known in Scotland as N. pumilus. Of N. minor var. nanus, Krelage has three varieties in his catalogue, viz., nanus, n. minor, and n. minimus. I can easily recognise these three forms of nanus in my collection. There are some forms of it from Ireland only about 4 inches high. Another group are from 6 inches to 8 inches, and one variety grows quite a foot high still carrying its small flowers. The true N. minimus is quite distinct from all these, the flower having a different shape altogether.

William Brockbank.

Brockhurst, Didsbury.

HELIOPSIS LÆVIS.

This miniature Sunflower Ox-eye is a herbaceous perennial of considerable beauty. It is nearly allied to the Sunflowers, but much smaller in all its parts, and on that account it may be grown in places for which Sunflowers would be too tall or strong growing. It is a native of the United States, and grows from 2 feet to 3 feet high. It has a bushy habit, and opposite, oval, three-nerved leaves; each stem is mostly one-flowered, but sometimes there are two or three, each seldom less than 2 inches in diameter, and dark orange in colour. This plant is best suited for a stiff loamy soil and a more or less shady position. It is very susceptible of drought in summer, and in a light soil will not stand exposure to the sun. There is also a

Heliopsis lævis.

variety called scabra, which differs but slightly from the type. Its leaves are, however, a little rougher and the involucre somewhat more hairy; both flower in August and September. D. K.

Schizostylis coccinea.—It is generally thought that a rich, rather stiff soil is necessary for the growth of this very useful plant, of which a faithful portrait was given the other day in The Garden; but it appears not to be at all fastidious about this matter, for round a bed here, composed almost entirely of sand, there is an edging of it which blooms plentifully every year, throwing up flower-spikes 2 feet high. It does not increase so rapidly, nor make such long foliage as it does on stronger soil, but it shows that by thus accommodating itself to such diverse conditions, it is a flower for everybody, and right welcome it comes at a time when no other adorns the border with such brilliant colouring.—J. M., *Charmouth, Dorset.*

—— Let us hope that the remarks published the other day in connection with this plant may make its culture more general than it hitherto has been. It is very showy, and one of the most useful of all late flowers. In a garden not far from here it has been planted out in a south border for five years, and has acquired a large size. Two years ago we had a slice off the side of it, which was planted in a light dry soil on a sunny border, and here it has become thoroughly established. Last autumn it began to flower in October, and on Christmas and New Year's Day it had several spikes, with more open blooms on them than is shown in the plate in The Garden (p. 188). What Gladiolus brenchleyensis is in the flower garden or borders in August and September this may be in November and December. During one or two days in December the icicles were hanging from some of the fountains close by as thick as one's arm; but the flowers and foliage of this plant remained uninjured.—J. M.

PLANTS TO AVOID ON ROCKWORK.

If a rockery be required merely for general effect, a tangle of some such plants as the more vigorous Aubrietias, mossy Saxifrages, Veronicas of the Teucrium section, and numerous other easily-grown rock plants may be pretty partially covering the stones, though the "alpine" grower will enjoy the sight more if he is sure that it is not at the same time the grave of dozens of rare plants. In this case the question of the survival of the fittest may be left to the plants themselves to decide. But where the rockery is intended chiefly for the culture of choice rock plants (and others needing somewhat similar treatment) chosen for their beauty, rarity, or some point of special botanical interest, there must be no such picturesque tangles admitted, at all events amongst the small growing kinds. If a large plant be required here and there for effect amongst these small alpine plants, such kinds should be used as do not spread quickly, and the ultimate size of which can be pretty well known beforehand. For instance, the largest kinds of Indian Meconopsis can be trusted not to grow more than 1½ feet to 2 feet in diameter. Yuccas can be kept in check by removing their suckers, and various small plants may be safely planted almost up to the stem of Cordyline australis without being injured or over-shaded by its leaves. Perhaps Dasylirions may be equally good, but here one plant of D. Bigelowi refuses to grow large enough to endanger the smallest alpine, so we cannot judge of it. But as a general rule, by no means easy in all cases to carry out, small alpines should have special parts of the rockery entirely to themselves. It is not always possible to know beforehand what plants will grow rapidly in particular soils. Only experience as to the habit of each plant can be a safe guide as to its right place in the rock garden, and most alpine growers will probably agree that it is not a quickly-learnt lesson. The suggestion made by "Delta" (p. 163), that names of troublesome plants should be given from time to time, would be no small help, though it is sometimes tantalising to read accounts of the rapid growth of plants in some soils which no amount of care can induce to grow well in others.

One of the most dangerous experiments is to plant some pretty common wild flower of spreading habit in the deep, well-watered soil of the rockery. If it grows at all, it usually likes its quarters far too well. The quaint foliage of the Marsh Pennywort (Hydrocotyle vulgaris) tempted me to put a small piece on a damp part of the rockery three or four years ago; it is one of the worst weeds that could well be introduced, and is not yet exterminated. Campanula rapunculoides (so prettily figured in The Garden, p 207) grows with almost equal rapidity by underground shoots, which is by far the most troublesome form of rapid growth. Montbretia Pottsi smothered several small alpines before we discovered that it was rather a border than a rock plant; and Acorus Calamus (the Sweet Flag) did such mischief in a small bog bed, that we now limit a specimen of this curious Aroid to a buried flower-pot; but it is a good bog or water plant where it can have its way. Mossy Saxifrages and various other plants which spread over ground do less mischief, because their increase in size is more quickly noticed. Still, all such plants are better in parts of the rock garden at a good distance from small-growing things. Claytonia sibirica and the double Cardamine pratensis are far better off the rockery altogether. C. M. Owen.

WATER PARSNIP.

With the exception of the genus Eryngium, the Order to which the Water Parsnip belongs presents, generally speaking, very few plants really showy enough for ordinary garden purposes. A

Water Parsnip (Sium latifolium).

few, however, such as Heracleums, Ferulas, &c., are principally grown for their stateliness and graceful foliage, being used either as isolated specimens in woods or in the wild garden, and also, in company with Acanthads, &c., to give variety to mixed borders. The broad-leaved Water Parsnip (Sium latifolium) and the narrow-leaved species, both natives of this country, are extremely useful for growing near the margins of lakes, as well as in low, damp places in woods; they maintain their own, and do not spread too rapidly. Of the former the annexed woodcut is a representation. It has pinnate leaves, evenly serrated leaflets, and a fine bushy habit. D. K.

HARDY PLANTS IN FLOWER.

Of these none are prettier than Primula marginata, the violet-rose flowers of which are produced freely and thrown well up above the dense white-edged powdery foliage. It is nearly a month since the first flowers opened, and although they have been exposed to several sharp frosts, varying from 8° to 12°, they do not appear to have been injured in the least. This is one of the best of the alpine Primroses.

Primula denticulata is another hardy, early flowering plant, well worth the small amount of attention which it requires to have it in perfection at this time of year. It grows freely in the herbaceous border, where it produces numerous umbels of pretty bluish lilac flowers that will bear without injury several degrees of frost; they are, however, much larger and clearer in colour if protected with a bell-glass or hand-light. This is a very useful Primrose for flowering in pots early in spring; it does fairly well if lifted from the outside border and potted in autumn. It should be placed in a cold frame and protected from severe frost. When forced, the flowers are not so good in colour as when grown naturally outside.

Saxifraga Burseriana is one of the most beautiful of Saxifrages, producing its pure white

flowers on scarlet stalks from 1 inch to 2 inches in height. Its growth is compact and when covered with flowers it is very attractive. It should be planted on the rockery in a sheltered and comparatively dry situation.

Saxifraga coriophylla is also a pretty variety, the flowers of which are white, and but little if at all inferior to those of Burseriana; they are produced in clusters of five or six on stalks from 1 inch to 2 inches in length. The terminal flowers open first, the lower buds in succession, and in this way the season of flowering is prolonged. It is quite hardy and a good and compact grower.

Saxifraga oppositifolia splendens.—The flowers of this variety are produced abundantly; they are quite as large and of a much deeper colour than those of oppositifolia, and when more plentiful it will supersede that variety as a market plant. It is very beautiful when well flowered, but to attain this it should be planted in poor soil, otherwise it becomes too vigorous, and does not flower freely. The rockery is the most suitable place for it, but it also grows vigorously and flowers moderately well when planted in a border with a few stones placed round it, over which it may trail.

Saxifraga cordifolia.—This, with its large heart-shaped leaves and branching flower-spike several inches in height, thickly studded with pretty shaded pink flowers, is quite different from the above. It is a very useful early flowering variety, and one which is quite at home either on rockwork or in the herbaceous border.

Narcissus minor or nanus.—This is one of the prettiest of Daffodils, and one of the earliest to flower. Our variety is by some named nanus, and is distinguished from minor by the drooping habit of the flowers, particularly when frost occurs; then the flowers lie quite close to the ground. We have bulbs of it flowering now that were separated last autumn and transplanted in strong rich soil; therefore the flowers are much larger than they usually are when grown in clumps.

Narcissus obvallaris in a sunny situation has opened a few flowers, as has also the double Narcissus aurantius plenus luteus, but it will be another fortnight or three weeks before the later kinds come into full bloom. W. Neild.

Wythenshawe, Manchester.

DWARF EDGING PLANTS.

Amidst the numerous novelties now offered for filling beds and groups in the flower garden, the older kinds are apt to get neglected, in spite of their acknowledged claims to usefulness in point of hardiness, neatness, and durability in most descriptions of soil and in any part of the country. I refer more especially to dwarf-growing plants, suitable for edgings or margins to beds of plants of a larger growth. It being now thought—and quite properly—that flower beds should have occupants not only in summer and autumn, but also during winter and spring, it becomes almost necessary to select things that have the character of being at the same time evergreen and perennial, with foliage which, if not ornamental, shall not be obtrusive or unpleasant either in colour or form. The following selection will be found to possess some or most of these characteristics in a sufficient degree to make them useful to the flower gardener, viz., Campanula pumila and C. pumila alba, blue and white dwarf kinds, with bloom stalks not exceeding 6 inches in height, foliage very small and neat, and making a tuft 1 inch or so high. They flower in early summer, and are easily propagated by division in spring. Gentiana acaulis, bright metallic blue, flowers produced from old-established plants in great abundance; it is increased by division in spring or from seed raised under cool treatment in autumn in pans or boxes, or in the open during April and May. It is a plant which does not like being disturbed, therefore should be planted in a situation in which it may remain for years. The foliage will not grow more than 2 inches, and the flowers about twice as much in height. Aubrietia deltoidea, with its several newer varieties, is very pretty, its small abundant blooms of reddish purple and blue shades quite covering the plants in spring and early summer. It makes beautiful cushion beds and margins, and, to do well, should be left undisturbed for years. The whole plant will then reach a height of 1 foot or more. As it gets old and becomes thin, it is one of the most informal of edgings to a bed of dwarf Roses or Fuchsias. Propagation by timely division in spring, or from seed sown at the same time or in September. Funkia undulata variegata makes a conspicuous and pleasing edging plant, the leaf having a creamy stripe of variegation quite uncommon in hardy herbaceous plants. The whole plant is about 8 inches in height, is a slow grower, and is impatient of frequent removal. Propagation by division early in spring. F. subcordata is of larger growth, with green foliage and conspicuous white blossoms. It forms a suitable edging to a large group, and is less delicate than the variegated kind.

Hardy Heaths in many varieties make good edgings for beds consisting of peat-loving plants. If the blooms are small and not very showy, unless in large masses, still they are neat, and the plants are easily kept within bounds, and may remain for many years undisturbed if the soil is in a healthy state. They may be increased, in the case of old plants, by rooted offsets, or from seed and cuttings, the two latter methods not being so quick for stock raising as the first. The soil around them ought to have more sand of a sharp character mixed with it than most American plants demand. Silene Schafti is a rosy pink perennial, of a neat habit, seldom reaching, in old plants, 6 inches in height. It flowers abundantly in summer, and is increased by seed and by division in March. Deutzia gracilis will be found to be a good subject for margins to large beds, and, by cutting and thinning the overflowered shoots in summer, or by cutting over at the ground level, it can be kept long in a dwarf floriferous condition. This kind and D. crenata associate very well with groups of Weigela rosea and its varieties. Propagation is by cuttings of the young wood from plants started in early spring, or by ripened cuttings in September, in prepared beds in the open air. The height may range from 1 foot to 2 feet, according to soil and pruning. Begonia Veitchi is a showy dwarf plant with heart-shaped, lively green leaves, lying close to the earth, and bright scarlet blossoms, which appear late in summer. It is not particular as to soil, but should have the advantage of a warm, sheltered position. A slight protection of coal ashes is desirable in the districts north of London. Propagation is by seed under glass or from rooted rhizomes.

The winter Aconite is a good spring-flowering dwarf plant, with clear yellow-coloured blooms. The whole plant does not reach the height of 3 inches. It is best left undisturbed for years; it is increased by corms in October. Hepaticas, in the shape of many kinds, are also useful as evergreen permanent edgings for masses. They dislike transplanting, giving the best results when allowed to grow undisturbed for many years. The double and single kinds are equally abundant bloomers when so treated. Increase the single ones by seed and division, and the double kinds by the latter method. Polyanthuses and Primroses, when accorded the same treatment as the Hepatica, are much more abundant bloomers than when subjected to annual or even biennial removals. Phlox Nelsoni and prostrata, creeping species of this popular flower will be found excellent for edgings, as will also the many varieties of Viola odorata. Iberis sempervirens and I. Tenoreana are pretty, early-blooming plants, with white flowers and evergreen foliage, and not particular as to soil or position. M.

Hardy Primroses under glass — During mild winters like the present Primroses flower continuously, and none earlier or more abundantly than the single white. I find that if exposed to the full force of wind and rain its delicate blossoms get soiled and bruised. Under cultivation it cannot have the mossy banks and sheltering bushes that the wild Primrose has, and as cultivated Primroses are more precocious as regards flowering than the woodland one, precautions must be taken to guard their blossoms from injury, *i.e*, if we are to have them in the highest state of perfection. I have had grand blossoms from beds close to the foot of a west aspect wall by placing some old glass lights over them, elevated about a foot high, so that there is always a current of air passing over the plants. They dislike being closely confined, but under the conditions just named the flowers come clear and bright, and with much longer footstalks than when fully exposed. The best time to transplant Primroses is in April or May just after they cease flowering. We lift them with all the roots we can get attached to them, and pull them into as many pieces as there are crowns, replanting about a foot apart, and letting the roots deeply down into the ground. The crowns are then partially covered, and when this precaution is taken they seldom suffer from drought. Partial shade is beneficial to them in the southern counties, and I find that if planted on open borders some evergreen branches laid over the crowns make a good screen; but the best position for plants that need both shelter and shade is between rows of bush fruits. The two get on remarkably well together; fruit and flowers agree better than fruit and vegetables, as the latter rob the soil too much.—J. Groom, *Gosport*.

CUT FLOWERS OBTAINABLE IN JULY.

It is a general complaint with owners of gardens who adopt the bedding-out system that they have but few flowers fit for cutting in the autumn, when flowers ought to be plentiful; for however gay Pelargoniums, Calceolarias, and Lobelias, &c., look in beds, they are by no means the best for filling vases. Therefore, a brief list of the very best of outdoor plants in bloom at that season may, perhaps, not be unacceptable. Roses will, I suppose, always be considered the grandest of flowers; but to have plenty of the very best buds and half-expanded blooms of them, one need not have long rows of standards. Dwarfs are best for furnishing cut blooms; and it is not the finest exhibition Rose that is always the one to select for cutting, but that which looks best in a half-expanded state. Have plenty of Tea Roses—on walls or boarded fences, plenty of light coloured Roses, and some of the most brilliant. Amongst the last do not forget General Jacqueminot, a real beauty in the bud form, and above all have a quantity of Moss Roses, which are invaluable in a cut state. Sweet Peas are universal favourites. Sow them in patches late in the autumn, and also in rows in March and April in good soil: mulch with short manure and water with liquid manure, for the stronger they grow the finer are the flowers and the longer the footstalks; keep also the expanded blooms closely gathered, and allow no seed-pods to mature if you would have successional crops of bloom. Thus treated, they never fail to give satisfaction. Campanula persicifolia alba is probably the very best of hardy plants at that season, where clear white flowers are in request, its blossoms being quite equal to those of Gardenias. I find it to do well in any garden soil; the smallest pieces put in in autumn will make fine flowering masses the next season. Spiræa Filipendula is in great beauty in July, and its feathery plumes of white blooms are exceedingly graceful. Many other kinds of Spiræas also in flower then are likewise well worth attention, being very useful when cut. Aquilegias, from the old-fashioned Columbines to their later descendants, are really so lovely as to be indispensable where cut flowers are in request. The soft colouring of A. cærulea and its quaint form make it an especial favourite. Sweet Williams are easy plants to grow, and very useful. A small packet of seed sown now will produce quite a number of plants that will produce flowers of different colours, and even these alone will make a grand display. If seedlings are

dibbled in as an edging in the kitchen garden, they prove both useful and ornamental.

Carnations and Picotees are the very ideal of flower beauty; being sweet, having long footstalks, and keeping well in water, they are excellent for vase furnishing. A few plants of each distinct colour, such as the white fringed, crimson, scarlet, and some of the flaked and mottled kinds, will prove a boon at any season of the year, the old Clove being still perhaps the greatest favourite. Pentstemons are justly becoming popular, especially for mixed borders, in which they make a very fine display. Old plants and young ones struck from cuttings last autumn become alike covered with flower-spikes. In order to insure a lot of young plants, dibble the cuttings in on the floor of a vinery before severe weather sets in, and in March they will be thrifty little bushes, fit for transplanting into lines a foot apart each way. Canterbury Bells are amongst the best of flowers, and easily raised from seed. Treat them as biennials, viz, sow in the spring of one year in order to have flowers the next season; they are not at all fastidious as to soil. Lilium candidum is a magnificent flower for cutting. I find it to do best in light rather than heavy soil and in a partially shaded position. I transplant when the bulbs have died down in September, and find a partially shaded place the best for them. Last autumn I planted a quantity between lines of Currant bushes, where they get shelter and shade, and produce splendid spikes and leaves healthy to the ground. I find slugs and shell snails to be very fond of the leaves. Candytufts, crimson, white, and mauve, are excellent annuals for cutting; the first spring sowing is in fine condition in July. I generally sow in autumn for the earliest batch, and in March, April, and May for succession, and I am seldom short of Candytuft. Gaillardias are extremely well adapted for cutting, having large showy flowers, borne on long footstalks; young plants of them put out early become covered with bloom. Pyrethrums are now amongst the very best of hardy flowers, having of late years been so much improved as to be hardly recognisable as the descendants of the Pyrethrums of only a few years back; the flowers are of all shades of colour and exquisite in form.

Delphiniums, such as D. formosum, supply lovely shades of blue. They are of very easy culture. Sow in a box in March, and transplant as soon as the young plants are large enough to handle in open soil. They will flower freely after the old clumps of the previous year are over. Mignonette must not be omitted from the flower basket. If sown in February or March, it will be in good condition for cutting in July. Miles's Spiral is a fine strong-spiked sort. Paris Daisies, Marguerites, or summer Chrysanthemums are first-class subjects for cutting. Sow in March under glass, shift out in boxes, and plant out in May. They will continue to give vast quantities of flowers, and are extremely popular. The above is a selection from varieties from which cuttings may be made daily in quantity, and is only given as a proof that there is no reason to complain of lack of material fit for cutting in July, provided sowing at the proper time receives due attention.

J. Groom.

Castor-oil Plants.—Few plants grown for the beauty of their foliage are more ornamental than the different varieties of Ricinus or Castor-oil Plants. Not only are they suitable for the embellishment of large conservatories or halls, but they are grand outdoors, where, if planted as single specimens on lawns, dotted here and there in borders, or grouped in masses, they produce a striking effect. If arranged in the last named way, the stronger sorts should be placed in the centre and the weaker ones outside; where single plants are used in prominent positions, the most robust look the boldest and best. Among the weaker growers there is one deserving of special mention, viz., R. Gibsoni; this has leaves and stem as darkly coloured and rich looking as the Iresine or Dell's Beet, and if planted with an edging of Abutilon Thompsoni, the contrast between the two is most pleasing. As these Castor-oils are gross-feeding plants, the soil should be specially prepared for them by being trenched or deeply dug, and at the same time heavily manured; if this is done, they will develop magnificent leaves, and have a shapely appearance the whole of the summer. Many make mistakes in sowing them too soon and starving the plants at first starting; if they become drawn and checked then, they run up with weak, naked stems instead of being well furnished with foliage. As the seeds germinate quickly and the plants grow fast, the middle or end of April is quite time enough to sow, for it is not safe to plant out till the first week in June, and they get to a large size in a month or six weeks if well treated and nursed on in heat. Before planting out, it is necessary to harden them by gradual exposure, and directly they are in the beds they should be staked and securely tied, or the wind will break and destroy them.—S. D.

THE GARDEN AT WALMER CASTLE.

In August last I visited Walmer Castle with the members of the British Archæological Association. We there met with a kindly reception from Lady Granville, in the absence of our president, the Warden of the Cinque Ports. Before entering the portal, in which is still seen the groove to receive the portcullis, we noticed a stone in the low wall which leads up to the gate inscribed as follows: "This castle was built in the year 1540; this wall was built in the year 1661." Our gracious hostess welcomed us on a delightful terrace overlooking the sea. This terrace was provided with numerous comfortable seats, and here refreshments of various kinds were served. There is nothing between the ocean and the castle but a deep moat (now dry) and a meadow. Across this field stretched a planted walk—a quiet rural path shaded from the August sun. The situation of Walmer in this aspect somewhat reminded me of La Mortola, Mr. Hanbury's beautiful villa near Mentone, but the sea beyond was not the sapphire Mediterranean, but the "silver strip" which separates our northern isle from the rest of Europe. The windows of the low-ceiled rooms looking out on the terrace were garlanded with the purple Clematis and other creepers, which grew luxuriantly and contrasted well with the dark grey stone. The most interesting of the castle chambers was the one in which the Duke of Wellington died. Simple even to bareness is that little room, but it will always be a hallowed spot in the eyes of true patriots as the last earthly abode of a mighty spirit. Part of the moat is laid out as a garden; a broad walk divides it into two parts; there are borders on each side, which were then full of flowers, while fruit trees were carefully trained over the outer wall. Rosy-cheeked Apples and fine Pears were fast ripening. The moat recalled to my memory the Stadt Graben which surrounds the city of Nuremberg. During the Middle Ages and up to a late period (the beginning of this century) this ditch was full of water, and the town was approached by several drawbridges, which were defended by formidable towers still standing. Now the Graben has been drained and turned into a garden.

Ascending a flight of steps at Walmer, you reach a lovely flower garden; it is not extensive, but when we saw it it was a brilliant blaze of colour. Laid out in a pleasant, old-fashioned way, it was thoroughly in keeping with the fortress. Here and there grew Fig trees laden with fine fruit nearly in perfection. I never beheld such a glow of bright perennials as those in the borders. Phloxes of every shade, the white variety, a mass of snowy blossoms; great bushes of the Anemone japonica of the three kinds, the white, however, prevailing; Antirrhinums of many colours; Carnations and small trees of Heliotrope (I never saw finer specimens of Miss Nightingale), Pentstemons, the Coreopsis, and other minor beauties too numerous to mention. Giant Sunflowers in their livery of green and gold, like Flora's bodyguard, towered high above the rest, while vast patches of Mignonette and a few belated Roses, the sad survivors of July's royal splendours, scented the quiet air.

Every available space was filled with some flower more or less interesting. Leaving this fragrant paradise, we entered a broad drive planted with evergreens and forest trees; between them and the grassy borders were rows of red Geraniums and blue Lobelias. This naturally looked formal and stereotyped after what we had just left, but the horn sounded, and, having offered our thanks to our hostess, we found the carriages waiting to take us back to Dover for the evening meeting.

M. N.

Kitchen Garden.

MUSHROOMS IN SHEDS.

I have reason to know that there are still many who think good Mushrooms cannot be grown without a special house, total darkness, and about as much artificial heat as is required to grow exotic plants, but proof is not wanting that excellent Mushrooms may be grown in the greatest quantity and to the highest state of perfection in the absence of any of these conditions. Our Mushroom house, possessing all the items just named, and capable of containing 50 yards in length of 4 feet wide beds, has for these last two years been converted into a lumber place, as we have found Mushrooms much easier grown in the potting shed. The latter is a lean-to one, behind the vineries, 20 yards in length, 4 yards in width, and facing the north. Inside the potting bench runs along the front, then comes the pathway, and finally a 4 feet wide space for holding pots or soil. This has a board 1 foot wide along the front, and the back wall is the boundary behind. There is a door at each end, and when both are open, as they not unfrequently are, it is very draughty, but here Mushrooms grow in the greatest profusion and luxuriance, and at no other expense than that of making up the bed. As we can only get manure during the time when the horses are here—viz, from August until January—the beds are made up from September till the latter month, and our time of gathering begins in October and ends in April, the coldest and most trying part of the year, but that does not matter as far as the shed Mushrooms are concerned. The beds are made up in lengths; sometimes some of them are very short, not more than 5 feet long; others are two or three times that length, but all are the same in depth, viz., from 1 foot to 15 inches. The manure is moderately well dried, and trodden down as firmly as possible. The spawn is put in soon afterwards in pieces about the size of a pigeon's egg, and about 9 inches apart. After this, the soil is put over to the depth of 3 inches; then some dry hay is spread over the top, and the whole is finished. As a rule, the first Mushrooms are gathered in five or six weeks after spawning, and as the beds bear for a very long time in a cool house, a succession is produced for a considerable period.

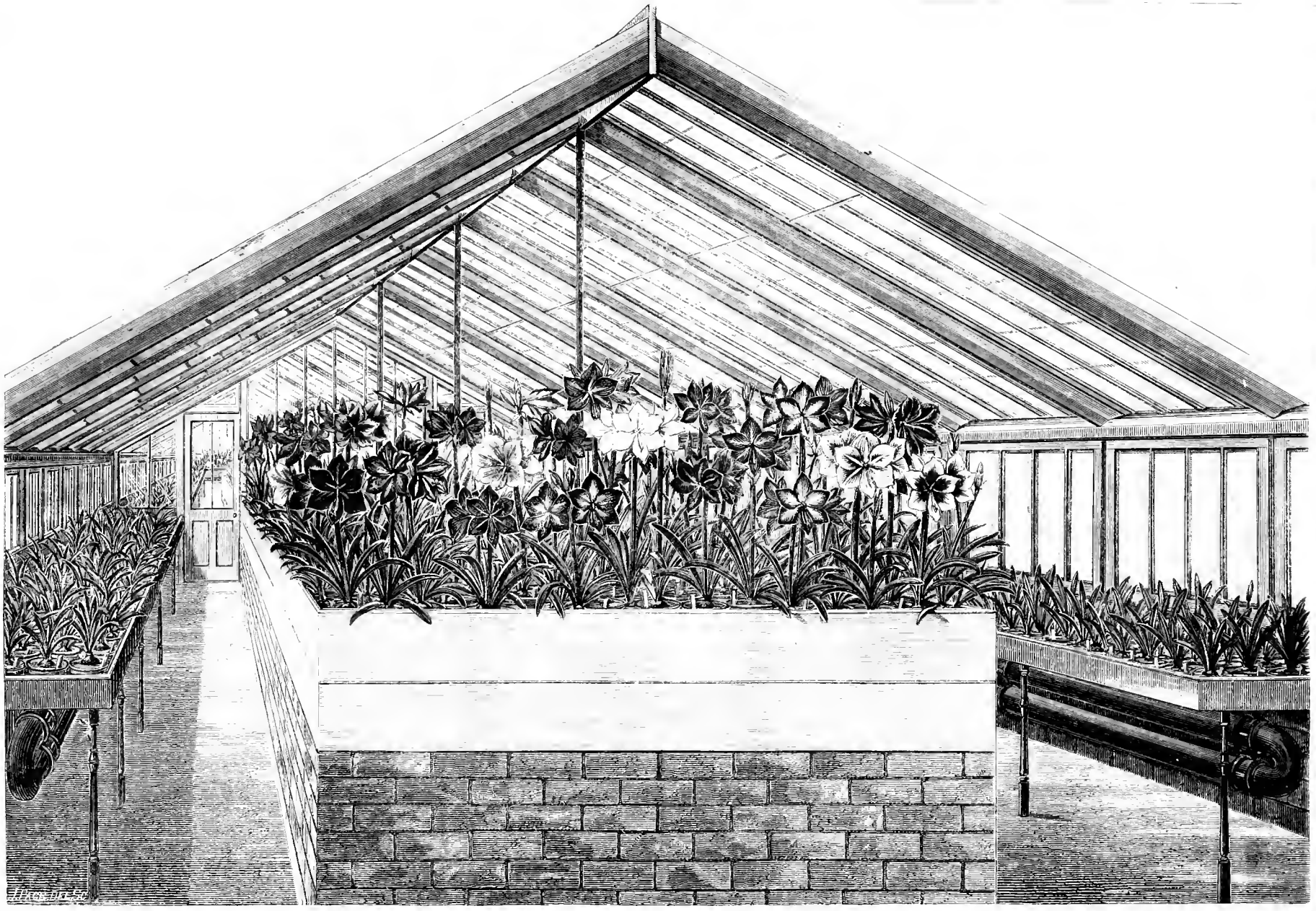
J. Muir.

Margam, South Wales.

*** With this communication came a large and very fine Mushroom, thick, fleshy, and excellent in flavour, the result of Mr. Muir's shed culture. —Ed.

POTATOES IN JERSEY.

Most of the planting of early Potatoes has now been finished, and in many places they are up and growing away rapidly. A small patch which we noticed a few days ago at L'Etacq, a very warm, sheltered spot by St. Owens Bay, was 8 inches or 10 inches high, and completely covered the ground; and in scores of places Potatoes are several inches high, and, if no bad weather intervenes, the crop promises to be unusually early this season. It is surprising what pains Jersey growers take with their Potato crop to ensure the earliest possible maturity. The seed is all set up by hand in small, shallow boxes, a single layer in each, with the eye end upwards, entailing a very large amount of labour where many tons are thus planted; when they are so set up in autumn, as is the usual practice, the boxes are packed away one



The Amaryllis House in the Royal Exotic Nursery, Chelsea, showing the beds and mode of plunging the plants.—March 22, 1884

on the other in such a manner that the air can circulate freely between them, and by planting time every set has strong, healthy shoots and roots. The boxes are carried to the fields, and each set is carefully planted, without injuring in the least the growing shoots or roots. A good sprinkle of guano or other stimulating manure is put under the sets, and in a few days, if the weather is favourable, the shoots are out of the ground and growing away vigorously. As soon as this is the case, the earth is carefully forked up between the rows, and by the time this is done they are ready for earthing up, when their culture is completed until the crop is ready to lift. The very earliest, which come in in April, fetch £1 a cabot (40 lbs.), a price certainly worth striving to obtain. The total area of Jersey is about 28,000 acres, probably a fifth of which is unproductive; the population is about 52,000. Last year the export of Potatoes was over 40,000 tons, the price ranging from £50 a ton to begin with to £3 at the finish.—Editor, *Jersey Gardener.*

AMARYLLISES AT CHELSEA.

Hybrid Amaryllises are once more the centre of attraction in the Royal Exotic Nursery, Chelsea, where for some three or four years past these showy bulbous plants have been made a speciality. Fine as the exhibition of them has been for the past two years, we consider that the present one surpasses its predecessors both as regards extent and high quality. Indeed, such a high degree of perfection has now been attained, that it is difficult to imagine in what direction further improvement could take place. The only desideratum we think now is greater variation in colour, yet how diverse now are the tints compared with those a few years ago! One could scarcely desire larger flowers, seeing that some of the latest productions have blooms measuring just upon 9 inches across. The shape of the flower, too, of the last new forms corresponds almost exactly with the ideal of what a perfectly-formed Amaryllis should be. In our notices of the Chelsea Amaryllises in the two past springs we have discussed somewhat fully the origin and development of the present race; it is, therefore, unnecessary to further allude to these matters. Every year brings surprises in the shape of grand varieties which eclipse those of previous seasons, and every day for the next fortnight or three weeks new seedlings will be flowering for the first time, the majority of which are considered worthy of naming. Only the very finest, however, are named, such as are remarkable for form, size, and colour. As an instance of their success in seedling raising we may mention that no few than fifty-three first-class certificates have been awarded to Messrs. Veitch for Amaryllises by the Royal Horticultural and Royal Botanic Societies, besides certificates for numerous others that have not originated in their nursery. It often happens, too, that seedlings flower when there are no meetings at which they can be certificated.

The high state of cultivation to which the present display of Amaryllises has been brought is remarkable, and will be obvious to all who have seen the two previous displays of them in this establishment. The flower-stems are stout and carry more flowers than in previous years, and a large percentage of the bulbs have developed two, and in many instances three, stems. To bring about this result, no trouble has been spared, and we might say no expense. A special house has been erected for the purpose, which no doubt has in a great measure conduced to the success that has been attained in Amaryllis culture. This house, shown on the opposite page, will convey some idea of its construction and contents. It is span-roofed, 70 feet long by 20 feet wide, and about 9 feet in height. It is divided into two compartments by a glass partition, so as to render it more manageable when the bulbs are in active growth. Running along the centre is a broad bed, raised about 4 feet, so as to bring the plants up near the roof. This bed contains a good depth (about 15 inches) of old tan in which the plants are plunged. Beneath the plunging material are three rows of 4-inch hot-water pipes, which are sufficient to maintain a genial temperature. The other heating pipes run along the sides, as may be seen in the illustration. The side stages are occupied by succession bulbs, the majority of which will flower next season. These successional bulbs are also plunged in tan to the rims of the pots. The thousands of Amaryllises that comprise this collection have nearly all been raised from seeds obtained from flowers that have been crossed. Of course, particular varieties are propagated by means of offsets, which, however, is a slow process compared with seed propagation; hence the rarity.

It is estimated that this grand display of bloom comprises no fewer than 1200 flower-spikes, carrying from two to five and six flowers each. The number of varieties is of course very large, as the majority of the plants are seedlings and consequently it would be difficult to find two exactly alike; even seedlings raised from the same pod of seed vary considerably as regards colour, though as a rule all the produce of one pod bear a certain set of features in common. Thus the first five varieties named in the following select list are all the produce of one pod of seed. They all vary as regards colour, but there is a striking family likeness among them all in point of size and shape of the flower. By intercrossing particular varieties the result may be pretty well predicted, as it is rarely that the good points of the parents deteriorate in the progeny. Now that the Chelsea collection of named sorts is so large, no seedling is considered worth naming unless it conforms more or less closely with the points of what Messrs. Veitch regard as a first-rate Amaryllis. Therefore, if a seedling has received a name in the collection, it may be presumed that it possesses merit. Of course there are various degrees of merit, and these degrees correspond with the number of guineas the bulbs are sold for. For instance, a flowering bulb of a variety at a guinea would be about five degrees lower in point of excellence as a similar bulb at five guineas of another variety. We append a selection of the very finest varieties that were in perfection at this nursery during the past week, and which may be regarded as the cream of the whole collection, though there may be some among the seedlings yet to bloom that may equal them.

General Gordon.—Flowers very large and symmetrical in form; colour an intense carmine striped with white and shaded with violet; one of the finest of all the varieties.

Ceres.—A splendid variety; flowers 6 inches across; petals broad, slightly reflexed; colour an extremely deep crimson upon the upper parts, lower parts greenish white, forming a striking contrast to the crimson.

General Graham.—Flowers very large and perfect in form; petals 3 inches across, of intensely deep crimson, the colour exteuding to the very centre of the flower, obliterating all the green colour excepting five broad stripes, which run a little way up each petal.

Corsair.—A perfectly formed flower; colour a bright red, netted with deeper veins and striped with white.

William Goldring.—Flowers over 6½ inches across with segments over 3 inches broad; colour a splendid deep scarlet with broad medial stripes extending nearly throughout the length of the petals. This is one of the finest of all both as regards size, form, and colour of the flowers.

Cœur de Lion.—A magnificent variety; flowers 8 inches across; colour a brilliant crimson netted with deeper veins and broadly striped with white. Robin Hood, produced from the same pod of seed, is somewhat similar, but the flowers are more starry.

Redvers Buller.—Of the same race as the preceding. It is a seedling of Empress of India, which last year was unsurpassed in colour. The flowers of this are 8½ inches across and of a fiery scarlet.

Ne Plus Ultra.—Flower very large, fully 8 inches across; petals very wide and overlapping, and of a vivid scarlet shaded with crimson.

Madonna.—White, with the upper segments striped with red; a fine large flower.

Hyas.—Bright-carmine crimson, with the alternate segments tipped with white.

Rudolf Seidel.—Brilliant scarlet; extra large open flower.

Niobe.—Orange scarlet, with a broad white central band on each segment.

Dion.—Scarlet, shaded with crimson and veined with deep crimson; large flower, with broad reflexed segments.

Artemis.—Scarlet-crimson, with a broad whitish central band on each segment.

Melia.—White, flushed with rosy crimson on each side of central band; very distinct and pretty.

Pluto.—Brilliant scarlet, with a small green centre.

Sir Evelyn Wood.—Brilliant crimson, with no green in the centre.

Princess Ida.—Perfection as regards shape; the flowers very massive, with broad sepals; colour not so.

Ivanhoe.—A very large and finely shaped flower of a very deep crimson, shaded with lake.

Pollentia.—A fine large bold flower, but deficient in form. The colour is a lovely carmine, with a wire-like edging of white to the petals.

Tancrede.—Flower very finely shaped; petals nearly all of equal breadth; colour a deep red, striped and reticulated with white.

Plutarch.—Remarkable for the exquisite shape of the large flowers, which have very broad sepals. The ground colour is white copiously striped with red.

The Friar.—A medium-sized flower of the Acramanni type; colour an extremely dark velvety crimson, spotted on the exterior with deep blotches.

Brilliant.—A pretty variety, with small pointed sepalled flowers. The colour is very striking, being a fiery scarlet, spotted as in A. pardina.

Cecilia.—Belonging to the Leopoldi race, having a perfectly-formed and pleasing flower. The petals are half white on the upper part, the lower half crimson-red.

Princess Augusta Victoria.—Somewhat similar to the preceding variety, but larger.

Clarinda, Model, and Ajax are likewise very handsome varieties, and among those that were past their best was one named James Douglas, also a first-rate variety.

QUESTIONS.

5174.—**Ficus elastica.**—Will some of the readers of The Garden kindly inform me of the best way in which to propagate Ficus elastica?—G. A. S.

5175.—**Grafting Chrysanthemums.**—Will some one be good enough to give full particulars as to how this is to be done, and also say how the plants are to be treated after operation?—Novice.

5176.—**Candollea decandra.**—I shall be very glad if any reader of The Garden will tell me the best treatment for this plant, what country it is a native of, and what is the best way to throw it into free bloom. Mine are good, healthy plants, but bloom very sparsely.—A. C.

5177.—**Elliott's floral restorative shading.**—Will some reader of The Garden be good enough to inform me where I can get this? If anyone has used it, I should be glad of their opinion of it. I am told it is very good, and I should like to try it. If I understand rightly, it is a kind of paint.—G. Page, *Great Marlow.*

5178.—**Fruiting of Meyenia erecta.**—I have capsules of Meyenia erecta which a plant here ripened a few years ago, and I should like to know if this plant has fruited before in this country. It might be crossed with advantage with the white variety. The pod is small, heart shaped, and a little larger than a large Pea.—Geo. Murray, *West Ashby Manor, Horncastle.*

*** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

ORCHIDS IN FLOWER.

Oncidium macranthum.—I send you a small spike of this Oncidium. In this variety you will observe that the two side petals are quite yellow and not brown, as in O. macranthum hastiferum (as it used to be called), and we think it even more chaste and beautiful. Mr. Burbidge did not, I think, mention this variety when you gave us a coloured plate of O. macranthum last year in THE GARDEN.—A. F. GORDON

Cypripedium villosum var.—Those who have a predilection for Lady's Slippers would, we feel sure, like to see the fine form of C. villosum now in bloom in the Royal Exotic Nursery, Chelsea; the flowers, which are fully a third larger than usual, are overcast with a golden tinge. It is well worth a distinctive name, and majus would be appropriate. It is of the same hue as one named aureum, but we think its flowers are much larger. Another Cypriped of great interest in Messrs. Veitch's nursery is a new hybrid, the result of crossing C. hirsutissimum and C. Warneri, the first being the seed parent. It is exactly intermediate between the parents and very handsome, and particularly interesting, as it is the first time a cross has been effected with C. hirsutissimum.

Odontoglossum crispum.—It is seldom that we have the opportunity of recording such a wonderful fine variety of O. crispum as that of which blooms have been received through Messrs. W. Thomson from Mr. Gair's collection at Falkirk. The flowers measure individually fully 4 inches across one way and 4½ inches the other. The sepals and petals are proportionably broad and are of spotless whiteness. There was also sent with this flowers of an uncommonly fine O. triumphans, the colours of which were wider and deeper than ordinary. Two extraordinary fine varieties of Cattleya Trianæ were likewise sent from the Falkirk collection, one with light-tinted flowers of the Warscewiczi race, the other a very fine dark variety, with large bold flowers, oval sepals of deep mauve, and a rounded lobed labellum of an intense carmine-magenta with yellow and white in the throat. We look upon this form as one of the most beautiful that has come under our notice this season.

Popayan Cattleyas.—We have received from Mr. Gaskell's garden at Woolton Wood, Liverpool, four flowers representing a consignment of a Cattleya collected by the late Mr. Chesterton in the Popayan district. All the flowers are first rate; they represent a distinct and beautiful race of C. Trianæ, and at least one of the four is worthy, we consider, of a distinctive name. This one is very lovely, having light (almost pure white) sepals and a very brilliantly coloured labellum, beautifully frilled with a white margin and admirable in form. Another variety has flowers measuring 6½ inches across the outspread petals, which are of a very deep rosy purple, beautifully feathered with a deeper hue, as in the variety Backhousiana; the lip, moreover, is like that of Backhouse's variety, being large, round, and of a uniform rich crimson-lake with chrome-yellow rays extending down the throat. The other flowers, though less remarkable than the foregoing, are nevertheless excellent, and with the others show what a diversity of colour may crop up among plants collected even in one locality.

Masdevallia Estradæ.—Those who can appreciate Orchids, whether large or small flowered, cannot fail to be charmed with this little gem among Masdevallias, as it combines elegance with a strange harmony of bright colours. The whole plant is only a few inches high, and its leaves are produced in dense tufts, from amid which the tiny flower-stalks spring. The flowers are triangular in form, and each sepal is terminated by a long attenuated tail of yellow, while the body colour is a kind of purple-magenta. We saw the other day some healthy tufts of it flowering profusely in Messrs. Shuttleworth & Carder's nursery at Clapham, where also may be seen numerous other Masdevallias in bloom, notably the large-flowered variety of M. ignea named Massangeana, the flowers of which are nearly twice the ordinary size, and of a more brilliant colour. The sweet little M. Shuttleworthi, a favourite with all Orchid fanciers, is represented here numerously, and had not the fogs a short time since destroyed the incipient flower-stems, there would have been a pretty show of blossoms; as it is, there are some dozens of plants in bloom in the Odontoglossum houses, growing in suspended shallow pans. This species is without doubt one of the finest flowering of all Masdevallias. We noticed that the stock of the newly introduced M. Crossi, whose advent was so heartily welcomed by orchidists, is thriving admirably, and some of the largest specimens will probably flower this season. We are anxious to see the blooms of this wonderful Masdevallia, for, judging by the dried specimens, it must be one of the showiest of Orchids. The new M. Schlimi, also imported largely by this firm, is likewise establishing itself satisfactorily.

Promenæa citrina.—It is not often that one meets with this pretty little Orchid. It is a most distinct plant, with conspicuous flowers about an inch across, pale citron-yellow in colour; its foliage is of a very pale green hue. It is now in bloom in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham, where it is grown in an intermediate house in suspended pans. Another yellow Orchid here in bloom is Cattleya citrina, of which we noticed a variety having a partially white labellum instead of wholly yellow. C. amethystoglossa may also be seen in bloom here.

Odontoglossum Edwardi.—In the Orchid house at Kew there is a strong plant of this distinct and beautiful Odontoglossum bearing two strong spikes, one of which has over eighty flowers upon it. Both in colour and size the flowers of this plant are superior to any we have hitherto seen; in colour they are distinctly violet, whilst in size they are almost twice as large as those generally produced by this Odontoglossum. This plant at Kew is interesting owing to its having been at Kew for some years previous to the introduction of this species in quantity in 1878. It has flowered several times previously, but failed to attract much attention until the species became better known. In our opinion, this Odontoglossum, both on account of its floriferousness and unusual colour, deserves to take rank amongst the most select of the Orchid family, whilst as a member of a genus in which yellows and whites predominate the distinctly violet colour of O. Edwardi places it quite outside the pale of the rest of the species. We have so few Orchids in which blue colours are discernible, that a violet-coloured one is certain to win popularity.

Lycaste Skinneri delicatissima.—The pure white variety of Skinner's Lycaste is looked upon as being exceedingly beautiful, and no doubt it is, but the fact that it is so rare and realises such high prices goes a long way in captivating one with its charms. For our part we prefer those varieties of this Lycaste in which the waxy whiteness of the petals is relieved by a flush of pink, and the varieties that possess this blush tinge are by no means common. Some years ago there was a variety of Lycaste Skinneri illustrated in colour in the *Florist and Pomologist* which represents just such a variety as we are endeavouring to describe. Of the hosts of varieties that we have seen of this Lycaste we have very seldom met with one identical with the plate in question; however, the other day in looking through the large collection of Lycaste Skinneri imported last year by Messrs. Shuttleworth & Carder, we singled out one that was almost identical with the figure. The flower was similar in form, being somewhat narrow-petalled, and the colour quite identical, being of a faint pink tinge, with none of the blood-red colour which characterises the bulk of the varieties Lycaste Skinneri. We think this particular variety very beautiful, and suggest the name delicatissima as one most expressive of its beauty.

Flower drawing.—Poynter's South Kensington Drawing Books: freehand, first grade; plants, books 1 to 6.—These excellent drawing books, prepared at the Art Schools under the direction of Mr. Poynter, R.A., should be known to all who wish for elementary instruction in flower drawing. Published by Blackie, Edinburgh, Glasgow, and Dublin; generally sold by artists' colourmen.—G. J.

NOTES OF THE WEEK.

Sale of Sir W. Marriott's Orchids.—The remarkably well-grown and rich collection of Orchids at The Down House, some of which have been figured and many described in THE GARDEN, will be sold by auction at Stevens' rooms about the third week in May. We regret for various reasons the dispersion of so good a collection, and can only account for it by the growing taste for hardy plants which has of late years taken possession of the owner.

The season.—On Wednesday last, the 19th of March, we saw a large Pear tree with its first blossoms open in Porchester Terrace, Bayswater. Mr. Miller writes from near Gorey, Wexford: "Our Daffodils here, which came into bloom on this day last year, did so this year on the 14th of this month." Indeed, quite a summer temperature has prevailed, which is very unusual in the month of March. The following are the readings of a dry bulb thermometer in the shade during the three warmest days, viz.: March 15, 68.3°; March 16, 69.1°; March 17, 67.5°. It may interest our readers to know that on fifteen days last July the temperature did not rise so high.

Liverpool Window Garden Association.—The annual winter flower show of this Association was held on Monday evening, in St. Bartholomew's Mission Room, Vauxhall Road, Liverpool. There was a very large attendance. Mr. R. Ker, who judged the plants, gave an interesting and instructive address on flowers and their cultivation in towns. He also expressed his great satisfaction with the success already attained in the very poor parts of Liverpool. The prizes were delivered by Mr. Rowland Williams, with very encouraging commendation of the efforts made in window gardening, and advice on the increased cultivation of Ivy. The show closed with a general distribution of beautiful Camellias and other cut flowers, provided by Miss J. Leishman, of Gateacre Hall, and Mrs. Williams. This Association has been working for more than ten years in the very poorest part of Liverpool, year by year extending the area of its influence, and is open to any individual or any associated body amongst the working people. Its extent will best be realised by a quotation from the report of 1883: "There is, perhaps, no other association in Liverpool whose work makes such varied demands on public support, and the committee are equally indebted for the success of their scheme to the patrons, who nurse and supply plants for the districts; to the local secretaries, who carry out the committee's plans in their respective districts; to the gardeners, who take so much pains to provide suitable plants, who go about the town judging the window boxes, who spend long hours at the flower show in St. George's Hall judging and arranging the plants, and who, on various occasions, give most useful instruction in window-gardening to large gatherings of the people. Further, to the many ladies and gentlemen who, on the day of the show, help in the general arrangement of the hall, and to the horticulturists and other friends who make up exhibitions to add to the enjoyment of the show. Such an enumeration will show how this Association embraces and combines in voluntary aid every branch of society."

Speckled Geranium leaves (*A. R.*).—There is no fungus on your leaves, nor is the ailment caused by insects. The plant for some reason has outgrown its strength, and is unable to produce sufficient leaf green. The white patches are simply places deficient of chlorophyl.—S.

Names of plants.—*Anon.*—1, Helleborus olympicus ruber; 2, H. olympicus; 3, H pallidus.——*F. A. R.*—1, Aspidistra lurida variegata; 2, we do not name Pelargoniums; 3, Caleodula officinalis Meteor; 4, Polypodium vulgare.——*Miss Dent.*—Cornus Mas (Dogwood).——*W. B.*—Pale bloom of Lady Hume's Blush Camellia; Selaginella Kranssiana denticulata.——*Mac.*—Catkins of some kind of Willow; other is Typha latifolis.——*K. A. S.*—Crocus vernus; Narcissus Tazetta var.; Anemone ranunculoides; Muscari pallens.——*Hubert & Manger.*—1, Allium neapolitanum; 2, Narcissus Pseudo-narcissus moschatus——*J. W. Woodall.*—Cyrtanthus lutescens (herb).——*W. Robertson.*—It is impossible to name the plant from the portion of leaf you send: can you not send us a better specimen?——*J. B. L.*—Helleborus abschasicus; double variety of the English Daffodil (uncommon).

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

POPULARISING FLOWER SHOWS.

It is, unfortunately, not a common occurrence for the managers of flower shows to put forth their very best endeavours to make them a success, and then find themselves losers financially by the venture; but I am led to ask, do secretaries and committees of flower shows attempt all in their power to combine as much as possible the various local interests on behalf of the annual exhibition? I go to some country shows, where, from the time I leave the railway train until the show ground is reached, there is a marked and extraordinary absence of any indications that a flower show is being held. There must be a great absence of any popular interest and excitement when this occurs. Such shows are rarely successful, and it will not infrequently be found that they are in the hands of a few individuals—generally a self-constituted authority—who do not work in sympathy with the populace. Here, at Ealing, we have a very large summer exhibition held always during the second week in July, which has become quite a district holiday, and that because all classes have been interested in the event. Let me endeavour to show for the guidance and encouragement of others how this has come about. The first step of importance was to change the day of the show to that on which the shops closed earlier than usual. An immediate result was that the tradesmen, instead of closing at five o'clock, closed at two o'clock on the show day. Concurrently with this I had found that scarcely a tradesman subscribed to the funds of the society. I was told they had been asked, but refused. I tried them on another tack. I said, "Will you give special prizes in kind, as articles of attire, garden tools, works of useful art, &c.?" They did, and this summer I am able to announce as special prizes from tradesmen such things as a sewing machine, a silver watch, an alarum clock, a silver tea-pot, bow, quiver, and arrows for archery; lawn tennis racquets and shoes; valuable articles of wearing apparel for men and women; cooked meats, pictures, cakes, &c., and, lastly, a half ton of coal. What is the result? The tradesmen, their families, and assistants become interested in the awarding of these prizes; they go to the show and take their friends with them. By some fastidious persons all this is considered *infra dig.*, and I had to combat this false sentiment at the outset, and, I am happy to state, overcame it. In all cases where articles of wearing apparel is given, the successful exhibitor receives from the secretary a letter, and with this he goes to the shop of the donor of the prize, and selects to a certain value what is best adapted to his position, taste, and circumstances. All special prizes of this character are received on this understanding, and, further, they are all placed prominently in the schedule of prizes, with the address of the donor given in full, so that he may have the benefit of the announcement as an advertisement; and on the show day cards are placed prominently before each class in which these prizes are offered, inscribed, "In competition for the special prizes given by Mr. ——." The children of the elementary schools are invited to compete for prizes offered in two classes, and a very large competition ensues. A kindly-disposed confectioner places at our disposal a number of one-shilling cakes as extra prizes in these classes. The children bring their parents, and thus augment the takings at the gates. In July next the co-operation of the children will be further secured by a number of them giving an open-air concert on the show day.

It is of great advantage to publicly distribute the prizes to the successful cottagers on the show day. Last year the wife of one of the county members did this, and her enjoyment was keenest when handing over to their recipients the special prizes in kind given by the tradesmen. Our cheap admission commences at five o'clock, and the distribution occurs soon afterwards. There are many ladies and gentlemen who, if applied to, will give special prizes in addition to subscriptions; they only require asking, and it serves to give them additional interest in the work of the society. Let the show be kept open as late as possible in the evening consistent with the time of year, and the band kept to entertain the poor as well as the rich.

One more suggestion, and I have done. It is better to give more prizes in a class, if of lesser amount, than to give but two or three only of larger sums. This is a matter of great importance. Here at Ealing we offer eight prizes in all the leading classes for cottagers, and find it necessary to give two or three extra ones in addition. This is sound policy, and it pays; it does something more—it equalises and distributes the competitive honours, and encourages a wider area of competition.

I commend the foregoing suggestions to managers of flower shows; but above all things it is important there be an active committee and secretary, thoroughly in sympathy with their work, and then success is almost a certainty before the event takes place. R. DEAN.

Ealing.

GARDEN IN THE HOUSE.

BUTTON-HOLE AND OTHER BOUQUETS.

During the last few years the custom of wearing flowers for personal adornment has spread amongst all classes, until it has now become well-nigh universal, and the quantity of flowers used in this branch of trade is surprising. One of the most noticeable changes, too, that has taken place is that of utilising the foliage belonging to the flower itself instead of the orthodox garnishing of Maiden-hair Fern; and certainly if one wanted to show the folly of trying to improve on Nature no better illustrations could be got than those afforded by two sets of bouquets, one done up with its own foliage and the other with extraneous leafage. For such bouquets both exotic and native flowers are equally popular, but hardy open-air flowers appear to have most admirers, forced exotics by their value being out of the reach of the majority of people. It may not be possible to get open-air flowers all the year round in such profusion as they have been during the past exceptionally mild winter, but demand creates a supply, and all sorts of expedients will be resorted to in order to have such flowers as Christmas Roses in perfect condition during the dreariest months of the year.

Chrysanthemums, mostly Japanese kinds, have been obtainable this season nearly up to the present time, and few flowers excel them for feathery grace and beauty. Even in ordinary winters they should be kept as fully exposed as possible, and only taken under glass when danger of severe frost renders protection absolutely necessary. Under such circumstances their flowers may be gathered until the worst of the winter is over. Then there are the old-fashioned China or Monthly Roses which if planted against south walls keep flowering the whole winter through; their half-expanded buds are excellent for bouquets, as are also those of Gloire de Dijon, which has been scarcely out of flower on open walls during the past 12 months. These winter-flowering varieties are grown in quantity by market growers, cut in the bud form, tied in bunches, and taken to market, where they meet with a ready sale, a Rose bud and a Rose leaf forming a perfect button-hole bouquet, without any addition whatever.

Violets, which come next in favour, have been most abundant during the winter, especially the single blue, tied in bunches with its own leaves. They are mostly grown in beds between fruit trees and bushes, such partial shelter and shade suiting them well. Fresh beds consisting of young runners are planted every year on well-manured land in April and May; they are kept frequently surface-stirred during the summer to promote vigorous growth. They begin to flower in October and yield abundance of bloom until the following May, unless checked by severe frost. Tender Violets, such as the Neapolitan, Marie Louise, and other double kinds, are transferred to frames on the approach of winter, and are very popular bouquet flowers. Primroses in all shades of colour are used in quantity, and especially the wild woodland Primrose, which in mild seasons flowers freely the whole winter through. Amongst cultivated kinds I find the clear white ones the most precocious. Polyanthuses in their varied shades of colour are much used, and, like Primroses and Violets, are tied in bunches with their own foliage and make very pretty and lasting bouquets. Anemones, both single and double, are becoming favourites, their colours being bright and varied, and the foliage equal almost to that of Ferns and far more lasting. They are grown from seed sown at this time of the year on rich soil in sheltered positions, and when they begin to flower some kind of temporary shelter or screen to break the force of the wind is given them. Few hardy flowers produce such brilliant colours during the dark days of winter as the Crown Anemone, and I anticipate a great future for this beautiful Windflower.

Helleborus niger, or Christmas Rose, has of late come in for a very large share of public favour. It is now being planted as a regular market flower in positions where it can be covered with some temporary glass lights, cloches, or hand-lights, as the purity of the blossoms is sadly marred by exposure to the elements, although hardy enough to withstand the severest winters we ever get. Narcissi or Daffodils and Jonquils are very much used for ladies' bouquets at this season; in fact, they have been abundant for some time past. The Daffodil season promises to become in time a lengthened one, as both earlier and later flowering varieties are being added yearly to the lists of these popular bulbous plants, and growing them in various aspects favours this result. The plants are of the easiest possible culture, and the light sandy soil of the south coast suits them admirably. Pyrus japonica grown as a wall shrub flowers very early in the year, and its brilliant blossoms are used in quantity by bouquetists. A spray of Euonymus makes a good backing for this useful flower. Snowdrops and Crocuses are much appreciated in their season, and bunches of pure white Snowdrops look extremely well, their drooping delicate blossoms being chaste and graceful, while Crocuses furnish a great variety of colours.

The above are a few of the most conspicuous hardy flowers that figure largely in the cut-flower trade during the first few weeks of the year. With lengthening days variety of course rapidly increases. Amongst forced flowers, the most popular are Camellias, Azaleas, Lily of the Valley, Roses, Spiræas, Cyclamens, double Primulas, single and double Pelargoniums, Roman Hyacinths, Tulips, &c, together with Fern fronds, scented Geranium, Myrtle, and other scented foliage, but for open-air wear, the hardy flowers have a decided advantage in regard to lasting qualities. The sudden change produced by bringing forced flowers into contact with a withering wind is very trying, and the beauty of button-hole and dress bouquets depends a good deal on their freshness. The most faultless arrangement is spoilt by a drooping leaf.

Gosport. JAMES GROOM.

Camellias.—The exceptional weather of the past week has brought Camellias along very fast. Woodsi, Donkelaari, double white, Lady Hume's Blush, eximia, and a sort the name of which is unknown are all well out. This unknown variety has dark glossy foliage and is very free; its flowers are nearly perfect in shape when about half expanded, but later on the petals fall back and the eye is open and ragged. This and Woodsi are our two strongest growers, and are now making wood

fast despite their heavy crop of flowers. They should both find a place in any large Camellia house, as, although the individual blooms may not be equal to those of newer varieties, their consistent flowering must always render them valuable. The same remark applies to the old French white, a plant of which has now been in flower more than three months. This variety sports in a most extraordinary manner, the flowers ranging from almost a pure white to such a preponderance of pink splashings, that the white is almost unnoticed. The length of time during which the plants have been in their present quarters, and the consequent impoverishment of the original soil, have had a marked effect on Lady Hume's Blush. We get a good crop of well shaped flowers, but nothing like the size one usually sees in the case of this variety. We intend trying a little judicious thinning at pruning time, accompanied with a very liberal allowance of top-dressing. The position of eximia in our house is not favourable to a good crop of flowers, and I am consequently unable to speak with any certainty as to the freedom with which it ought to bloom. The old double white we have in a centre bed and in the back wall; it has very little root room in the latter position, and the flowers are but scantily produced. We grew some few varieties in pots, the best of them being a thick-petalled sort of large size and glowing colour that came to us from the Mediterranean; it will be planted out later on if we can possibly make room for it.—E. B.

PLANTS IN FLOWER.

Toxicophlæa cyanocrocus.—The Rev. H. Ewbank in writing to us from Ryde says: "This plant with the dreadful name is beautifully out with me now."

Daffodils in the lake country.—The Rev. A. Rawson writes to us from Bowness as follows: "The common Narcissus is just now blooming in thousands by the lake sides—many of them actually in the water."

Prunus tomentosa.—Mr. Stevens brings from his Byfleet garden a flowering branch of this early flowering Plum. Its blossoms, which are small and white, inclined to pink, profusely wreath the branches. It is an interesting shrub, or rather small tree, but not so showy as the Almonds, which are now everywhere beautifully in flower.

The Bearberry.—This little trailing shrub (Arctostaphylos Uva-ursa) is just now prettily in flower, each tiny twig being terminated by a dense cluster of small urn-shaped blossoms of a pinkish tinge tipped with red. The small leathery foliage is evergreen thus rendering the plant useful for trailing over rocks in the rougher parts of the alpine garden. Some profusely flowered twigs of it are brought to us from Byfleet by Mr. Stevens.

Magnolia conspicua.—The front of the conservatory at Warwick Castle is now covered with pure white blossoms of this Magnolia, presenting a pretty sight from the pleasure grounds When gone they will be followed by the Wistaria, which promises to bloom with unusual freedom this year. The winter has been so exceptionally mild that everything is in perfect health, and ready to burst into vigorous growth.—Lloyd Evans, *Warwick*.

Aloe ciliaris — This we regard as one of the most beautiful and at the same time one of the most valuable of the Aloes. It is a tall slender growing plant that can be used for draping pillars or rafters of a greenhouse. When in flower it is very showy, the flowers being borne in dense spikes of a deep coral-red colour. The flower-spikes strongly remind one of those of Lachenalia pendula. This Aloe is now adorning the roof of the succulent house at Kew, where it flowers freely every year.

Muscari Heldreichi.—The Starch or Grape Hyacinths, as the Muscaris are called, all bear a great resemblance to each other; therefore, unless a collection of species be required, one need grow but three or four in order to represent the beauty of the genus. In making a selection, M. Heldreichi should, on no account, be left out, as it is unquestionably one of, if not the finest of all Its flower-spikes are stouter than those of the common form; the colour of the tiny bell-like flowers is a clear sky blue, and they have a white frilled rim. Mr. Stevens brings us some excellent spikes of it, as well as flowers of the white form of the Dog's-tooth Violet (Erythronium) and the white Scilla bifolia, both gems among hardy spring bulbs.

At Hampton Court the Laurustinus is a notable feature just now in the private gardens attached to the Palace, and on the banks by the lawn tennis ground; also specimens scattered here and there among the herbaceous plants, all being alike a sheet of bloom. The herbaceous Candytuft is also well out, and along the same border are some beautiful bush plants of Spiræa Thunbergi. Forsythia suspensa is also just at its best both as a standard and on the wall of the orangery. This variety seems freer than viridissima; it forms a striking feature in its several positions, and clearly shows the evil of the injudicious use of the knife among hardy shrubs early in the season. Not a twig has been removed at present from these shrubs, all young growth on the wall being merely given a tie to keep it a little within bounds; the result is a mass of colour that one turns back again and again to admire. In the old orangery are two plants of a variety of Xanthoxylon showing flower.

Thyrsacanthus rutilans. — One of the most attractive plants in a compartment of the T range at Kew is this Thyrsacanthus, which is just now in full flower. The specimen in question has been allowed to run up with a single stem to a height of 3 feet or 4 feet, and from the upper portion the long drooping panicles of bright crimson flowers hang down, some of them nearly to the pot. Plants grown in this way are very useful for associating with denser foliaged subjects. An important point connected with this plant is the fact that it can be had in flower throughout the whole of the winter, when its brightly coloured blossoms are very effective. It is easily propagated; cuttings struck in spring and grown on throughout the season flower in winter.

Daphne neapolitana. — This is a dense, rather upright-growing shrub about a couple of feet high, with small, dark green leaves and terminal clusters of purplish pink blossoms. It flowers during the first three or four months of the year unless severe frosts occur, when the expanded blossoms get injured and the others checked, but on a return of mild weather other buds quickly open, and the plant again becomes studded with blossoms. An additional merit is the pleasing fragrance of the flowers. Like most Daphnes, this does best when so situated as to be shaded from the sun and in a cool and moist situation rather than in a hot and dry one. D. neapolitana and, in fact, all the Daphnes are rather impatient of being moved; they should, therefore, be shifted no more than is absolutely necessary.

Marica gracilis.—The Moræas and Maricas thrive well under ordinary stove treatment, producing their flat flag-like growths as freely as the German Flag does out of doors, and yielding a profusion of blooms several times during the year. Either in a shady or light house these plants appear to be quite at home, flowering as freely in one as in the other, though perhaps the light position suits them best. The creamy-white larger divisions of the flowers with the blue and yellow veined standards in the centre are exceedingly pretty, and although their ephemeral character does not admit of their being used for decorative purposes, they are so abundantly produced as to make a nice display for several weeks at a time. A few specimens in the stove have a pretty effect, and are deserving of attention. At Kew plants of them are now gay with flowers both in the Palm house and in the stove.

Thunbergia Harrisi — When allowed to grow freely this handsome climber proves to be of great service as a spring flowering plant, as it yields an abundance of large pale blue blossoms during February and March, only, however, when the knife is sparingly applied to it, the flowers being produced on the long pendent shoots made during the previous summer. In the Begonia house at Kew there is a strong plant of it growing along one of the rafters, and now bearing large clusters of flowers. For covering pillars or growing up the side of a house this Thunbergia is well adapted. Large cuttings of it struck in autumn flower freely the following spring—a fact proved this year at Kew, where several plants struck in this way are now bearing large heads of flowers. In India this plant grows to a very large size. It was introduced into this country about 30 years ago.

Gladiolus tristis is neither large flowered nor richly coloured, but as a sweet-scented spring-flowering plant it surpasses a great many of our most popular early-blooming favourites. It belongs to the narrow, grassy-leaved section of which G. recurvus, G. gracilis, G. elongatus, and several others are in cultivation, and which are characterised by long, pointed flower segments, tall, slender, sometimes spiral foliage, and a long Rush-like flower-scape, which bears one or two white, yellow, purplish or variegated flowers. They are all deliciously fragrant and especially so at night. As I write I have before me a single flower of G. tristis, the fragrance of which permeates the whole room and suggests Almonds and Violets. There are several potfuls of this species now flowering in the Cape house at Kew, along with Lachenalias, Freesias, and other South African bulbous plants, and the cream-coloured sweet-smelling flowers of the Gladiolus seemed quite good enough to be strongly recommended for extensive cultivation as early spring flowering plants, and as the Cape of Good Hope now boasts of several enterprising nurserymen, there is little difficulty in procuring quantities of this and other beautiful, but in England rare, bulbs from the country where they are almost weeds.

Scilly Isles Narcissi.—At the late spring flower show at Clifton a fine collection of Narcissi was shown by Mr. Vallance, Tresco Abbey, Scilly Isles, and attracted much attention; they were cut from bulbs growing in the open ground, and comprised such excellent sorts as Single Incomparabilis, primrose, yellow crown; Sulphur Phœnix, large, double, and very sweet; Silver Phœnix, fine double; Orange Phœnix, citron and deep orange, double and fine; poeticus ornatus, white with red crown, one of the best single varieties; Ajax or Trumpet Narcissus, fine single variety; Emperor, yellow, very fine; Macleaii, golden and white, small and pretty; Double Incomparabilis, primrose, fine; Grand Monarque, white, citron cup, large, one of the best of the Polyanthus section; Jaune Suprême, yellow, good; and a form of orientalis, white, orange cup, a good single variety. —Visitor.

Flowers from Wexford.—I send you a bunch of Primula rosea grown through the winter under a cloche as an experiment. It, however, did not prevent the foliage being destroyed by the early winter frosts, mild though the season has been, and this group of plants is but little earlier than some not so covered. In cold spring winds, however, we find the shelter of a cloche most valuable for this lovely Indian Primrose. The flowers of Anemone fulgens seem to increase as much as Snowdrops do after they first expand. I send blossoms of different sizes from the same bed. Though its rapid increase makes Ornithogalum nutans rather troublesome in the flower garden, its silvery blossoms always make it welcome for cutting. I send a few flowers of it and of a Pulmonaria of true gentian-blue; is it P. angustifolia variegata? Will you kindly tell me whether the Epimedium which we grow as E. colchicum is the same as E. pinnatum? I am glad to see directions as to its culture in last week's Garden (p. 224), as I think we grow it in too dry a position. I may add that we were surprised to see a red admiral butterfly in the garden this morning (March 24). —C. M. Owen, *Knockmullen, Gorey*.

*** The flowers from Knockmullen are the freshest, and brightest, and usually the best grown among the hardy flowers that come to us, and these are no exception. The Primrose was quite charming. The Epimedium seems to be pinnatum.—Ed

Trees and Shrubs.

BENTHAMIA FRAGIFERA.

This beautiful Nepaulese shrub grows here without any protection, and flowers and fruits in the greatest profusion every year. It withstood the severe winters of 1879 and 1880 almost uninjured, and therefore I am induced to believe that there are hundreds of British gardens in which sheltered nooks might be found for this plant and in which it would thrive. Should, however, such a situation not be at hand, it is well worthy of a south wall, on which it would show its large flowers and fruits to advantage, and would be a pleasing ornament for many months. Our largest plant of Benthamia is about forty years old. It is 27 feet high with a spread of branches at the base of 120 feet in circumference. We have many much taller plants of it in sheltered situations, but none with such a spread of branches as the large one, which is exposed to winds from all

Strawberry Tree (Benthamia fragifera) at Fota Island, Cork.

quarters, especially the west, from which we suffer most. The Benthamia is not particular as to soil; in any good loamy soil it makes numerous roots, and can stand with impunity even a severe gale. The flowers, which are of a pale yellow, changing to red, open in July and August, and measure about 2½ inches across; when the petals fall the fruits begin to swell, and when ripe are some 5 inches in circumference. They are something like a large Trollope's Victoria Strawberry, but darker in colour and not so pointed; being distasteful to birds, they remain upon the trees after most other berries are taken—in short, until spring, when they dry up and drop off. Seeds sown spontaneously germinate in great numbers. The bloom buds for this year are already prominent; they are formed in autumn and will endure 15° of frost with impunity.

W. Osborne.

Fota, Co. Cork.

Golden form of Cupressus Lawsoniana.—This is a distinct and pleasing conifer, especially during winter, when every different shade of colour is acceptable for the sake of variety. Amidst the wealth of summer, when variety is met with on every hand, we are less struck with what we are glad to admire in winter; but if a garden is to afford pleasure at all seasons of the year, a variety of subjects becomes indispensable, and this golden Cypress is one of those subjects that help to afford an agreeable change Planted in the full sun in a good soil, it always grows well.—J. C. C.

THE KAURI PINE OF NEW ZEALAND.

In the winter garden at Kew a fine specimen of this interesting Conifer (Dammara australis) is now bearing a number of its green top-shaped cones. Although it is probably too tender to succeed in the open air in any but the most favoured spots in the British Islands, the tree is of such importance commercially, that a short notice of it seems worth a place in these columns. This is the species which furnishes the Kauri resin which is so largely used in the manufacture of varnish. The largest masses of this resin are found buried in the ground, in many places far from where the trees now grow. The following interesting account of the Kauri Pine is extracted from Loudon's "Arboretum": "It was discovered in the year 1769, on Captain Cook's first voyage, and an enormous tree of it was then cut down. The straightness of the trunk and fine grain of the wood made Captain Cook think that, if it proved light enough, it would make excellent masts. In consequence of this report, but several years afterwards, a small spar was brought to England by the *Catherine* whale ship, which proved, to use the seaman's phrase, 'a stick of first-rate quality.' Captain Cruise was afterwards sent out in the *Dromedary* to bring home some spars of this wood. He found many trunks 100 feet high without a single branch, and then forming large heads; while the trunks of others not so tall were 40 feet in circumference. It was, however, very difficult to procure spars, as the largest trees grew on the very summit of the largest hills. Two ships were afterwards sent out under Captain Downie, who not only brought home timber, but a living plant, which was presented to the Horticultural Society about 1821. In 1833 another expedition was sent out for Kauri Pine in H.M.S. *Buffalo*, and it was accompanied from Sydney by the late Mr. Richard Cunningham, who found many fair and noble specimens of the undisputed monarch of the forest, the Kauri Pines, with their vast heads towering above the other gigantic timbers of those deeply shaded regions, supporting on their upper branches large tufts of those Tillandsia-like epiphytes, the species of Astelia, originally discovered by Sir Joseph Banks. These plants are much valued by the natives for the sweetness of the stem on which the flowers grow. They (the natives) will climb the highest tree in search of these epiphytes, and when they have gathered them, they will sit for a long time at the bottom of the tree, sucking out the juice of the stem, which to them, especially on a hot day, is particularly grateful. These plants give the smaller groves the appearance of an English rookery, and there only wants the tui, that polyglot bird of the woods of New Zealand, to imitate the cawing of the rook, to make the deception complete."

N.

AGES AT WHICH TREES TRANSPLANT BEST.

Where large trees or shrubs are transplanted, it is generally either with the object of giving them a better position, or of producing an effect at once; generally the last. When the object is to furnish the landscape around a mansion, perhaps newly erected, it is a good plan to plant at least a portion of the ground with trees of as large a size as can be procured and transplanted safely; but otherwise, except in isolated and exceptional cases, it is better to begin with young trees. It is a well-ascertained fact that trees raised from seed where they are to grow make the tallest and finest specimens; but, for several reasons, this plan is not generally practicable now in this country, and small plants from the nursery are generally employed. It often becomes necessary, however, to thin out shrubberies and plantations in gardens and on estates, and the thinnings present a ready means of extending these in other directions; and, if transplanted carefully, they grow and do well. It would be difficult to say at what age such subjects as Chestnuts, Beeches, Oaks, Elms, Planes, Thorns, Spruces and Firs, &c., may not be moved with success up to thirty years of age, so much depends upon circumstances, but it is seldom wise to leave trees intended to be transplanted till they reach that age, because they get drawn up weakly by being so long crowded. The larger the trees, the greater the difficulty, no matter what their age may be. In warm situations and in good deep soils, the tops soon grow large and the roots extend, and hence both are most difficult to carry away. With proper transplanting machines and care, of course, almost any tree may be transplanted; but transplanting operations on a large scale are too often carried on with rough-and-ready appliances. I have seen many hundreds of trees moved within the past fifteen years, and very few of them failed altogether, though none were under fifteen years of age, and many would be more; but in all cases the common Spruce suffered worst, whilst Pinus austriaca and the Scotch Fir seemed to endure considerable hardships and yet thrive. Both I have seen moved during severe frosts at midwinter and grow, but not all. In mild weather both may be moved at any time, provided a good bit of soil is attached to the roots.

Deciduous trees will transplant successfully as long as they are growing vigorously, and while they are not too heavy or tall to carry from one place to another, provided they are moved at the proper time and with as many roots and fibres as possible; with them a ball of soil is not of so much consequence. However, moderate-sized trees are best, as they need less staying, and are not so liable to be prostrated or shaken by wind. I once lifted fifty vigorous Apple trees, none of them less than forty years of age probably. They had not been disturbed at the root for many years; consequently the roots were all strong and fibreless, and had no soil to them. The result was, that none of the trees put forth a leaf the following season, and made very feeble growth the second year; but they eventually recovered and did well. With evergreen trees and shrubs like the Holly, Yew, Laurel, &c., it is different. I have

transplanted these of all ages, up to about forty years, on many occasions during the past eighteen years, the object of moving the large specimens being to fill up gaps; but if I had to do the same work over again, I would prefer young trees from five to ten years of age. Very few Hollies died outright, thanks principally to the fact of their being moved at the right season—May or August; but numbers of them received such a severe shock in the moving that they have hardly added a foot to their stature in ten years or more. When a Holly tree dies from transplanting, its leaves soon wither, but hang on the tree; when it lives, it probably casts more or less of its foliage, and not unfrequently the whole of it, leaving the branches quite naked, but not dead, except perhaps at the extremities. Still, in such cases, it is years before the tree is fairly clothed with fresh foliage, while no growth is made, and in the end it is often necessary to cut all the branches back considerably in order to induce a fresh and stronger break from the old wood, thus greatly reducing the size of the tree, which is overtaken and surpassed by younger and smaller trees put in at the same time. Undoubtedly the best way to have a good Holly fence, be it high or low, is to begin with young trees in good health. It is the same with Yews and Laurels, especially the latter, which, if moved when a good few years old, soon age or grow feeble at the top. When the branches are well cut back at the same time, however, Laurels grow well enough, if in good health to begin with; but cutting the branches defeats the object of the planter of large bushes. Pruning of Evergreens recently transplanted should always be deferred till April, or even later. So long as growth has not commenced, nothing is lost: something is rather gained, for wounds soonest heal over when growth follows soon after pruning. Many a large Evergreen is killed or injured by being cut too severely back. As regards the

Best season for transplanting, deciduous trees may be moved at any season between leaf-falling and bud-bursting in spring; but October and November are the best months, and from February till April or May the next best. I have moved Elms, Planes, and Horse Chestnuts, &c., on an emergency after they had come well into leaf, and without injury, taking care to water well for some time after planting. Deciduous trees, planted at the right time, do not need much watering. Evergreens should be planted at the same season as deciduous trees, with the exception of Hollies and some of the more delicate Fir tribe, both of which should be transplanted in August or September, or late in spring, at least in the case of large trees.

At whatever age or season trees are transplanted, success depends largely upon the manner in which the operation of raising the roots of the tree is performed. Some people think if they get a good ball of soil away with the root, it is enough; but it all depends where the roots are. Trees that produce a bunch of roots like a Box tree will move with a small ball, because all the roots are near to the stem; but in the great majority of trees the roots spread out a considerable distance, and mostly all the fibrous or feeding roots are at the extremities; and hence these must be preserved carefully. The object of having soil to the roots is simply to preserve the small rootlets, and if these could be had without the soil, it would answer almost as well; only many roots are necessarily lost in digging the soil away in the transplanting. On large estates, where a nursery is provided, many trees of a few special kinds may be kept for filling up blanks; and if they are annually or periodically root-pruned or dug round, they will lift without much check or injury. S. W.

Perpetual flowering Thorn.—This is described by M. Burvenich, in the *Bulletin d'Arboriculture*, as a "charming shrub, which, flowering like the type in spring, continues to produce its fragrant white blossoms all through the summer—that is to say, during the whole period of active vegetation." The varietal name of semperflorens has been given it by M. André, who states in the *Revue Horticole* "that it forms a dwarf, very bushy shrub, which does not cease flowering from May until the first frosts. On the branches which we have inspected might be seen the results of three successive crops of bloom, that is to say, ripe berries and others just formed and abundant corymbs of perfect perfumed flowers." M André thinks it ought to make a good market plant. It has recently been put into commerce by M. Bruant, of Poitiers, Vienne.—J. C., *Byfleet*.

MESSRS. BACKHOUSE'S NURSERIES, YORK.

A visit to these world-famed nurseries is never thrown away, even though it may be a hurried one, and not at a very propitious time, so business taking me to the cathedral city the other day, I not only enjoyed the pleasure of a visit to the Minster, but had half an hour's run through the alpine portion of the nursery. The day was unfavourable; it was a day for goloshes and umbrellas, yet during the cessations of rain one was enabled to enjoy a peep at many of the beauties which are here to be found under the intelligent care of Mr. Potter in the houses, in pots in the ground, and planted out on the rockeries and borders. It was, of course, too early for a great many of the spring flowers, but the extreme mildness of the season had brought many forward that would otherwise not have been in flower.

Perhaps the most attractive plant in bloom was Saxifraga oppositifolia, of which there are several varieties here; where it takes well it is one of the most beautiful of our early spring flowers, spreading rapidly and covered close to the ground with its sheets of purplish rose-coloured flowers. I have only just succeeded in getting it to flower with me, but in many places I have seen it in great perfection. The variety major is, as its name implies, larger and differs slightly in colour, the rose being clearer; there is also splendens, large and free flowering; pyrenaica, with deep rose coloured flowers three quarters of an inch across and very round; this is a most desirable variety. There is no flower which, considering the diminutive size of its foliage, gives a more abundant bloom than does this Saxifrage. The pure white variety is pretty enough but not to be compared with the rose coloured ones. Saxifraga Burseriana major is a desirable plant with large white flowers.

Several of the Primulas were also in flower; P. rosea was just showing its blossoms in the open ground and displaying its brilliant buds in pots. There is not one of the Primroses which I think can compare in brilliancy with this little gem of the tribe; its rosy carmine flowers and deep green foliage make it very attractive, and the very smallest plants were throwing up fine heads of bloom. P. cashmeriana was also in full flower There is some confusion about this and P. capitata. I see in Ware's catalogue there is a P. capitata and P. denticulata capitata; one is this latter, is given as a synonym of cashmeriana, one is described as of a rich indigo-purple, the other of a rich violet-blue, but the P. capitata which I saw at Mr Backhouse's would not be in flower for a couple of months; while cashmeriana was, as I have said, in full flower. Then is there any difference between P. pulcherrima and purpurea? I can see none, unless, indeed, I have them wrongly named. Primula poculiformis or obconica was also in full flower in pots; it is very pretty, but there is some question as to its hardiness. It is of a delicate lilac colour, and very persistent in blooming, the plant being seldom without a flower, but then nearly hardy plants are a trouble. I dare say in South Wales and such like climates it will be hardy, but that it will be generally so seems to be a matter of doubt. Primula Allioni was in flower on a high part of this rockery, very dwarf and pretty. Chionodoxa Luciliæ was in full flower, and amongst the many introductions of recent years among hardy bulbs there is not one that can carry the palm from this lovely plant; its thorough hardiness, the rapid manner in which it increases, and the fact that the tiniest bulb produces a flower-stem, make it invaluable, and as the bulbs increase in size, so do the spikes of bloom increase also. I have counted seven on bulbs in my own garden, and clumps of it are especially lovely. This beautiful weather has been very favourable to it. Another very pretty bulb was full in flower—a spring flowering Colchicum (Colchicum crociflorum); the flowers are like a white Crocus, three or four issuing from the bulb; each segment has three purple stripes externally and the base is also purple: as it seems to flower at the same time as the Chionodoxa, it will form a pretty adjunct to it. Anemone blanda is a very pretty early flowering Windflower, very like Anemone apennina, with lovely blue flowers, but while those of apennina had not yet shown themselves this was in full flower. Gaultheria nummularifolia is a very pretty evergreen shrub with trailing habit; the flowers are insignificant, but the foliage is very pretty. There was also a very nice plantation of that pretty shrub Andromeda tetragona; it was not in flower, but nothing could exceed the healthy vigour of the plants. There was another very pretty carpet plant, Erythræa diffusa. It has small bright green leaves, and it quickly covers the ground; moreover, as it has not strong roots it does not interfere with other plants pushing through it. Ramondia pyrenaica was very strong in the rockery, but in truth, if its requirements are duly considered, placing it in a shady place where the sun does not reach it, it seems to thrive. By-the-by, I have to thank your correspondent "J. C. L." (p. 206) for so promptly taking up my request about "Plagues of the Rockery," and this plant especially reminds me that I did not mention mice as one of them, for the simple fact that they do not trouble me; but I remember a few years ago that my friend Mr. Hammond, of St. Albans Court, where it flourishes in great profusion, had an immense quantity of it destroyed by these depredators; some of his best plants are literally affixed to the face of the rocks, as he has had holes drilled in them in which this and Saxifraga longifolia alba are planted. At York Gentiana verna was also very flourishing and its buds were just beginning to show colour. Soldanella montana also seemed to be doing well, but those delightful little plants of it exhibited by Messrs. Carter at South Kensington the other day were far in advance of anything I had ever seen before, and deservedly attracted much attention. Of those difficult plants, the Androsaces, A. carnea was in good flower; but how doctors differ! Mr. Potter stated that he had at last discovered the secret of growing it, that it was really a peat-loving plant; whereas a writer in last week's Garden especially states that it requires loam. It certainly likes a high situation; the variety eximia is apparently more robust and differs in its foliage. There was a large quantity of Myosotis dissitiflora and its white variety in flower; the latter, although pretty, I do not care about. To me a Forget-me-not that is not blue is as great an anomaly as a Rose without perfume.

Such were a few of the most noticeable things I saw in my hurried visit. I did not penetrate into the ferneries, greenhouses, or Orchid houses, but only looked at the alpine flowers and mentally noted those which most struck me.

Delta.

Double-flowered Golden Feather.—The pretty Lace-leaved Golden Feather, usually called Pyrethrum aureum laciniatum, proved with us last year to be the best white-flowered bedding plant we had. Without any attention it was a dwarf and compact mass of white flowers the whole season, and the flowers were so freely produced that one could scarcely see the foliage except at the margin of the beds, where the pale, lemon-coloured leaves made a pretty fringe. I am by no means enraptured with Golden Feather, seeing it is so over-done in many gardens; but white flowers have so softening a character amongst brilliant summer blossoms, that any plant is welcome which produces them freely, and I feel sure that anyone giving the double Pyrethrum a trial—not as a foliage, but as a flowering plant—will be well satisfied with it. It

keeps sending up a continuous succession of flowering shoots from the base in such a way that a dense mass of double button-like flowers is produced the whole season. It is as easily raised from seed or by division of the old plants as the ordinary form; but whereas old plants are of very little service in a fine-foliage point of view, from their running up to flower so persistently, in this case they are very useful. In a cut state this plant is also serviceable. The shoots average from 9 inches to 1 foot in height; and, as white flowers are so effective in all kinds of floral decorations, a plant that produces an unfailing supply is ever welcome, whether for beds or borders. Although the flowers are as perfectly double as those of the old-fashioned Bachelor's Buttons, it seeds as freely as the single kind, and reproduces itself freely with a minimum of attention.—J. G.

A FEW USEFUL SWEET-SCENTED PLANTS.

Amongst plants that retain their popularity, and are ever in demand, in spite of hosts of more showy rivals, may be mentioned some of the oldest inhabitants of our gardens. Although destitute of brilliant colours, they are prized for their grateful perfume of leaf or flower; they are also plants of easy culture, requiring but little artificial heat even in winter. Amongst those that have outlived all changes may be mentioned

Mignonette. This has of late years been taken in hand by many growers and considerably improved, the large spikes of bloom produced by Miles's Spiral and some of the newer varieties being hardly recognisable as descendants of the Mignonette which we used to grow a few years back. Its culture as a pot plant is of the easiest kind, requiring no costly appliances, the main requisites being a firm soil and keeping the plants close to the glass in order to insure dwarf, sturdy growth for general purposes. Rather small pots are the most useful; 4-inch and 5-inch pots should be filled with good turfy loam pressed in firmly, and about a dozen seeds should be sown in each, to be thinned out to about half a dozen when fairly started into growth. The best situation is a shelf close to the glass, or, better still, low pits or frames, where the pots can be elevated within a foot of the glass, and where air can circulate freely amongst the pots. The best time for sowing the main crop for winter and spring is August and September; and the greatest care as regards watering should be taken, so as neither to let the soil get dry, nor, what is equally fatal, saturated with moisture. If, however, the pots are well drained with clean potsherds, there is little fear of this happening. Mignonette does not bear transplanting well; it is, therefore, advisable to sow the seed in pots in which it is to flower. For large specimens, spring-sown plants are the best. All flower-heads must be kept pinched off before they expand, and the ball of earth must be carefully shifted to a larger pot without disturbing the roots. Weak liquid manure or soot water may be employed to promote healthy growth, and syringing to keep down red spider must be resorted to in summer under glass, and abundance of air at all times should be admitted.

Musk is a deservedly popular plant, and one that adapts itself to the varied uses for which plants are grown for room and conservatory decoration. It flourishes well in subdued light or in a sunny window, provided it is kept well supplied with moisture at the roots. It is readily propagated by means of seed or underground roots or stems. Any light rich soil will grow Musk, and for indoor decoration small pots, from 3 inches to 6 inches in diameter, are the most serviceable. The old small-flowered yellow Musk is the strongest scented, but Harrison's Giant Musk is the most showy.

Aloysia citriodora, the Lemon Plant, as it is called, is one of the best of deciduous scented-leaved plants in cultivation. Cuttings of the soft young shoots, taken off with a heel when about 3 inches long, strike freely in heat, and if grown on in 3-inch pots, make nice plants by the winter. They should be kept cool and rather dry at the root until they commence to grow in spring, when they may be cut down and repotted. They will then quickly form useful little bushes, and as room plants or for cutting to use in bouquets or any cut-flower decoration, there are few more delightful plants in cultivation. Red spider is this plant's worst enemy, and frequent syringing in hot weather must be resorted to. Frames set on coal-ash foundations make good summer quarters for the Lemon Plant. It requires neither staking nor tying, merely pinching over luxuriant shoots, and nice bushy plants will be the result.

Myrtles are highly prized as evergreen scented-leaved plants. Both in the shape of neat little bushes in pots and that of gigantic specimens in tubs they are most serviceable. They strike freely from cuttings taken off with a heel and inserted in sandy soil; when rooted, they should be potted off into 3-inch pots and grown on in frames, pinching the points of the shoots in order to insure a bushy, well-furnished base. Scale is the worst of insect pests that attack Myrtles, but it may be easily kept in check by syringing with Gishurst compound or soft soap dissolved in warm water. All the varieties are well worth culture, either as decorative plants or as large specimens for cutting, the shoots lasting a long time in a cut state.

Scented-leaved Geraniums of what are called the Oak-leaf kinds are great favourites; the perfume of many of the varieties is very pleasing, and the foliage elegantly divided. They strike as freely as any other kind of Geranium. Partly ripened shoots put singly into 2½-inch pots, and when rooted shifted on as required, soon make good decorative plants, and when too large for this purpose they become useful plants to cut from, the foliage being almost equal in value to that of Ferns for garnishing or in mixed cut-flower decorations, and single leaves make excellent backing for button-hole bouquets.

Heliotropes are great favourites at all seasons either as pot plants or in cut-flower decorations, the perfume being most agreeable. As pot plants, nice little bushes in 5-inch or 6-inch pots are the most useful. Cuttings of the soft young shoots strike freely at any season in a brisk heat. It is a good plan to strike a quantity in the autumn, and keep them growing gently all the winter in an intermediate temperature, pinching the points occasionally to insure a dwarf bushy habit of growth. Early in spring another lot should be propagated for late summer use; President Garfield and White Lady are the best recent additions to this very useful class of plants. For supplying cut flowers, I find that old plants grown in large pots or boxes out of doors in summer, and placed in a warm house in September, flower freely all winter, and if the convenience of planting out and training on a wall exists, there will be little difficulty in having a succession of bloom. The plants should be pruned in hard in summer, when plenty of bloom can be obtained from old stools planted in open beds.

Diosmas are finely scented greenhouse shrubs; they succeed well under the same conditions as answer for Azaleas, viz., potted in peat soil and kept cool in winter; but they like a little extra warmth in spring and summer when making their growth. Very firm potting is necessary, and great care in watering, so that they do not suffer from excess or lack of root moisture. Where cut-flower decorations are largely carried out, some large old specimens of Diosmas, in pots or tubs, will be found most acceptable for supplying scented green sprays, for without plenty of foliage, cut flowers lose half their beauty and effect. J. Groom.

Graveyard gardening.—On a short visit to Bournemouth I lately walked through the beautiful churchyard of St. Peters, where the graves are dotted about among the trees; most of them are well tended, some are planted and others have cut flowers, but there are some, especially those near the path, which, I think, would be improved by having some of the smaller mossy Saxifrage planted on them with bulbs, such as Snowdrops or Snowflakes, below. The effect of this is very pretty: we tried it at our cottage garden. The mossy Saxifrage was intended as protection for Lilies, but did not answer; Snowdrops were then planted, grew strongly, and look well coming through the green carpet. If you think this suggestion is worth insertion, I think friends on the spot will carry it out. — George F. Wilson, *Heatherbank, Weybridge Heath.*

*** An excellent suggestion—none better.—Ed.

NOTES.

Primula rosea.—The glowing Almond bud-like blossoms of this pretty species are now appearing even before the leaves venture forth from their winter resting-place below the soil. Of all newly introduced Indian Primulas, this is one of the best, growing and blooming freely year after year in almost all soils. It not only bears division well, but actually enjoys being broken up and replanted every other year or oftener. We find all Primroses enjoy being deeply planted, and a heavy top-dressing of well-rotted leaf mould adds much to their strength and vigour. We can boast of Primroses all the year round in our moist and genial climate, and we are especially careful to raise a fresh batch of seedlings of as many species and varieties as possible every year. So treated, they yield an abundant harvest of their best blossoms.

"The Snow Glory."—This year, for the first time since its introduction, we have had Snowdrops and Snow Glory in bloom together, and the result is a very satisfying one, but they please us best when seen near to flowering clumps of the large golden Crocus, and near to the quaint little Palm-like leaves of the Winter Aconite. On a warm sunny border the Chionodoxa increases in strength and beauty year after year. This season we had an eleven-flowered spike with bells so large that they where suggestive of those of some blue and white Hyacinths. Amongst an imported batch there is much variety of colour, some darker, others paler (one, indeed, almost white) than the type as first introduced by Mr. Maw. Indoors a spike or two of Chionodoxa Luciliæ along with bronzy Heuchera leaves are most lovely. What is C. sardensis? Is it worth a place?

The Japanese Maples.—We have had some really noteworthy additions to our hardy shrubs of late years, but none are more generally useful or beautiful than are these elegant cut-leaved Maples. In tolerably mild localities they are perfectly hardy, and form beautiful objects either planted out on the lawn or in borders. As pot plants they rival the most dainty of Ferns in elegant leafage, and far surpass them in unique colouration. No other fine-leaved plants give us the effect afforded by these Acers, and for grouping in conservatories along with Orchids, Amaryllises, and spring-blooming plants generally they are most valuable. In autumn their vivid foliage is useful for indoor decoration of all kinds. There are many varieties—green, bronze-coloured, and brown-leaved, but all are beautiful, especially the finely cut-leaved forms.

The old double Wallflowers.—At this season of the year or later, when every garden is fragrant with single Wallflowers, I always remember the old shrubby double kinds—crimson, brown, and golden yellow—which grew in my mother's garden when I was quite a child. How comes it that these old kinds are now so rarely seen? That they are not rare or hard to cultivate I know, and yet for some reason or other I cannot now explain they are grown abundantly in but few gardens even of the best. Perhaps the seedling double German strain has to some extent supplanted them, but for sweetness and elegance of habit these seedlings are by comparison like Daniel Lambert compared with Antoninus. That the single Wallflowers are most sweet and lovely, I of course admit. A great handful in an old brown jug before me as I write lends emphasis to the fact, but I think it a pity, nevertheless, that the old

double crimson blood Wall Gilliver and its golden flowered form are not more generally to be met with in all good gardens. Wherever old-fashioned English flowers are appreciated they certainly should find a place.

Azolla caroliniana.—A dwarf and interesting little aquatic plant, easily to be grown in a vessel of water, no matter how small. It floats like our native Duckweeds, but in reality looks more like a pigmy Selaginella of the S. Browni type. Its slender rootlets are each protected at the tip by a delicate covering or root-sheath, and altogether it is a plant worth a place wherever curious plants are appreciated as well as showy ones. Later in the season another very pretty and nearly related plant, viz., Salvinia natans, may bear it company, as also may the Spooge Leaf (Trianæa bogatensis) and Miriophyllum proserpinacoides, the latter being especially pretty, its leaves being fresh, green, and feather-like. All are nearly hardy—perfectly so during our summer months.

The white Daffodils.—N. cernuus, N. moschatus, and N. albicans are now very lovely, the first flowers on the clumps being expanded, but most of their blossoms are as yet in the drooping bud stage, and most elegant indeed they are in grace and form. N. moschatus var. Loderi is, as I think, a most beautiful addition to this section, its crown being a little shorter than the perianth segments. The perianth divisions are nearly white, say, the palest of straw colour, and the shortened trumpet-mouthed crown is sulphur. It is a wild plant, collected by the amateur whose name it bears, and is at present as rare as it is distinct and beautiful. I am delighted to find that our clumps of N. cernuus and N. moschatus get stronger year after year, and if I could procure the double forms of N. cernuus, I think they would luxuriste where the single type and the sulphur N. Eystettensis do so well.

Veronica.

THE MUNSTEAD FLOWER GLASSES.

Among the "decorative" rubbish which one sees too much of in the present day, flashy coloured glasses, ugly in form and design, are unhappily very common. Soon after the fashion of having flowers on the table became general, a terrible blight of glass and crockery-ware, supposed to be adapted for the purpose, set in. Bad in design, ugly in colour, and in all ways unfitted for their purpose, the prevalence of such vessels has been a serious impediment to the complete enjoyment of flowers in the house and on the table, for even those who do not know why often feel the badness of much of this design. The very idea of much pattern or glaring colour in a vessel intended to hold flowers in itself shows how little designers understand the question before them. We have been told that the object of design—especially design based on beautiful natural forms—is to remind us of Nature in places where she is not; but here, where the loveliest things in Nature in a living state have to be dealt with, people cannot let them alone, and leave us to enjoy their beauty and their form and colour, but they must associate them with designs frightful in their impertinence! We go further than this, and say that any pattern design is a mistake where flowers have to be shown. Not only is bad design out of place, but any design beyond that of form and fitness. With the flowers and foliage of all seasons for our vases, surely the less we adorn them with patterns and colours the better. To select glasses right in size, with plenty of capacity for water, good in form, inoffensive in colour, and which will allow one to see the flowers in all their beauty, is surely the right way. It has long been hopelessly difficult to get any simple and suitable glasses for flowers beyond little Violet pots and a few of like size. We are, therefore, glad to state that a lady who well understands the question has designed a goodly number of glasses of different forms suited to the different types of flowers. Everybody knows that flowers have very different wants as regards the glass they go into; no one can arrange them well who does not fully recognise this fact. The glasses to which we have referred are good in form, varied in shape, so as to suit a great variety of beautiful flowers, and reasonable in price. Even those who are not obliged to study economy must prefer to spend their money in trees and flowers rather than in the barbarous patterns and colours which go to make glass expensive. The new Munstead flower glasses are designed on purpose to be of useful shapes, strong, low in price, and to hold a large quantity of water. The two sets of three at the top of the page are for use on long dinner tables; a common tumbler in the middle of each bowl makes it easier to arrange the flowers. Some of the smallest sizes are convenient for grouping on dinner tables either round a central lamp or combined with larger glasses. Some of the shapes are specially suitable for the use of florists.

The shapes comprise all that can be required for arranging any kind of flowers and foliage, from a bunch of Violets to the largest decoration that can be put upon a table.

These glasses are made by Messrs. James Green and Nephew, 107, Queen Victoria Street, E.C. They are called the Munstead glasses, as it was there they were designed and first used by Miss Jekyll.

FRUIT GARDEN.

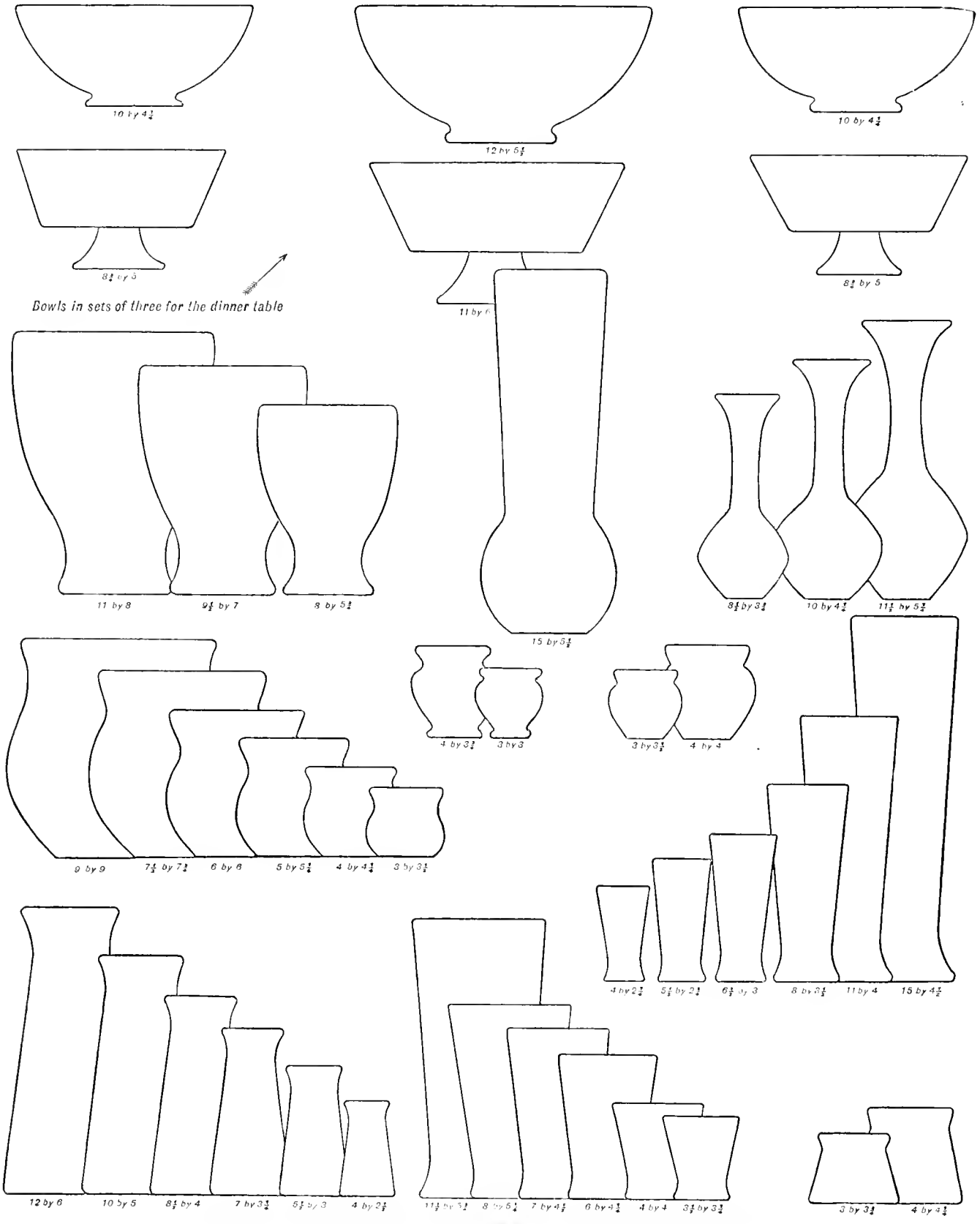
DOES PINE GROWING PAY?

I am glad to see "Cambrian" saying (p. 171) that he is one of those who think that Pine-apples can still be grown profitably, notwithstanding the fact that foreign Pine-apples have become plentiful and cheap. I prefer pits for Pine growing to houses. A pit of the following dimensions will be found to be suitable, viz., 39 feet in length, 10 feet in width, and 11 feet in depth from the top of the back wall. It should be furnished with two 4-inch hot-water pipes and an open trough for surface heat. The pipes and trough should run close by the side of the front wall and high enough to be level with the top of the bed of leaves. A pit of this size needs about thirty-six cartloads of leaves to fill it; the leaves must be trodden down firmly in order that there may be room for the plants between the bed and the glass. I always grew from ninety to 100 Queen Pine plants in 11-inch pots in a pit of this size; the pots were plunged about three parts deep in the bed. The pit is then shut and kept close for a few days. If the weather should happen to be bright and sunny during the few days the pit is kept close, it will be necessary to shade the plants. Under this system I have cut Pine-apples from 3 lbs. to 6 lbs. in weight and over, and cleared out pits of them under eighteen months from the time when the suckers were removed from the old plants, and I always had a good supply of fruit. In 1846 I was told by the late Mr. Ingram that the cost of growing Pine-apples under my care did not exceed 1s. per lb., and since that time I am confident that they cost less. In 1848 I introduced the planting-out system, and it proved to be a great success. The first Pines planted in this way were the Smooth-leaved Cayenne, a variety scarce at that time. It soon proved itself to be a most valuable Pine—much superior to the Queen in flavour during winter months, and a first-rate kind for early and late use. I have always had a good supply of this variety every month in the year. I grew them on leaf-beds in pits of the same size as those in which I grew the Queens in pots. I had ridges on the surface of the bed, on which I planted rootless suckers. By following this plan I have cut from eighty plants 500 lbs. of fruit under eighteen months; from another pit of the same size I cut from seventy-five plants 166¾ lbs., and I believe a greater weight of fruit can be had from an equal number of plants of this variety. The only labour connected with this system is the filling and emptying of the pits; no renewing of bottom-heat from the time when the suckers are planted till the fruits are cut is needed; all that is required is paying strict attention to airing, watering, and night temperature. I agree with "Cambrian" that in order to grow Pines profitably their cultivation must be rightly understood and gone about in a proper manner. Some doubtless recollect the fine Queens that used to be exhibited from Frogmore in 1845 and afterwards, and which always were successful in obtaining first prizes. They were grown in the way just described, and which I have practised since the year 1843—*i.e.*, in pits and on leaf-beds, at first in pots and afterwards planted out.—D. Murray, *late foreman Forcing Department, Royal Gardens, Frogmore.*

CUCUMBERS AND MELONS IN PITS.

The time of year is at hand when pits and frames will be set free from bedding and other plants, with which in most places they are now filled; and when that happens there is no use to which such structures can be more profitably turned than growing Cucumbers and Melons, a purpose for which during the summer they are specially adapted, for though they may not be fitted with hot-water pipes, the necessary heat may be generated and kept up by the aid of fermenting material. Where it can be obtained, tan is perhaps the best, as the warmth which it affords is very steady and lasting—a matter of much importance, especially when used in brick pits, where it cannot be assisted by the application of linings to renew the failing heat. To prepare tan properly, if fresh, it should be heaped in a shed or other place under cover, so as to keep it from heavy rain, which spoils its fermenting power to an extent little imagined. After lying a few days it is necessary to turn it and to bring the outside into the middle, an operation which should be repeated once or twice in order that the whole bulk may be sweetened. It will then be ready for filling in the body of the pit, and the soil should be laid on it. To build up hotbeds it is necessary to have some stable manure mixed with a certain portion of littery straw; to such material tan and leaves may be added, and then all should be mixed thoroughly together to induce fermentation, and if then turned a few times this material will be in proper order for forming the bed. The foundation for the latter should be marked out on the ground and made at least 6 inches larger than the frame to be used in order that it may have sufficient base, and after the bed is carried up to a height of from 2 feet to 3 feet it is advisable to leave it a few days to subside, when it will be ready for receiving the frame. This may then have the soil placed in it, and if intended for Cucumbers it should be fresh turfy loam, such as parings from the sides of borders or paths; if this is chopped up roughly and mixed with a little rotten manure or leaf mould the roots will run in it most freely, and the plants will be found to do well. For the first start all that is needful is to lay a ridge of soil along the middle of the bed, using about a barrow-load or so to a light, which is ample for the first few weeks; and as it does not spread far about, it lets the heat up, and this, with the steam, enables a steady temperature and genial atmosphere to be maintained in the frame. If it is intended to grow Melons, a stiff, loamy soil is desirable, and this should be laid along in a ridge similar to that for Cucumbers, but instead of being loose and open, as for them, it is better trodden or made firm, otherwise the Melons are apt to become too luxuriant, and run too much to leaf, a condition in which they do not fruit freely.

Planting and training.—Unless the lights are very large, it will be found that one plant is sufficient for each, but if the frame is roomy, then two should be planted, the one for training towards and filling the back, and the other the front, for which purpose it is necessary to lead two of the main branches each way, and as soon as they are within a foot or so of the sides of the frame they should be stopped by having their points nipped out, soon after which lateral shoots will form and quickly show fruit. Before the plants



DIAGRAMS OF THE MUNSTEAD FLOWER GLASSES (reduced); actual size marked under each.

reach this stage, it will be necessary to earth them up by adding more soil, taking care when doing so not to bury up or place any round the collars of the plant, which should be kept high, or they are apt to have wet lodge about them, and this causes canker. In thinning out and arranging the laterals, the point is to leave no more than are really wanted to fill the frame without the foliage overlapping, as when crowded the texture is sure to be flimsy instead of thick and firm, as it is when exposed to the influence of sunlight and air. Cucumbers do not require setting; but in order to get Melons to do this they must be fertilised, which is easily done by taking a male blossom when the pollen is ripe and inserting the crown of it so as to bring the anthers in contact with the organs of the opposite flowers. This should be done during a sunny day, and if the air of the frame is kept dry for a short time the pollen will effect its purpose, and the fruit will then increase in size rapidly. When the fruit is swelling the plants will require liberal supplies of water, which should always be given warm in order that there may be no check through chilling the roots. If the heat in the manure is failing, which may soon be found out by testing it with trial sticks, a lining of fresh stable manure should be added, the fermentation of which will revive the other and keep it going till the fruit ripens. The way in which to manage Cucumbers and Melons as regards air and moisture is to slightly tilt the lights in the morning as soon as the temperature reaches 70° or 75°, and when it rises 5° or 10° higher the air should be increased and afterwards added to, if requisite, in order to keep the thermometer standing at the latter points named. During very bright weather Cucumbers sometimes need a little shade, but Melons, if well grown, stand and are better without it, as the more sun they get the richer and higher is the flavour of their fruit, which requires much solar heat to have it in perfection.

Insects.—To assist the fruit at this stage, the frame in which the plants are growing should be closed by half-past two or three o'clock, but before this is done the plants ought to be syringed overhead, so as to well wet the foliage, which causes a genial atmosphere, and is the only way by which red spider may be kept in check. Aphides are sometimes troublesome, but these may be readily dealt with by fumigating with Tobacco. This must, however, be done with care, as the foliage of both Cucumbers and Melons is very tender, and easily damaged if the smoke is too strong or hot. To fumigate the frames, quiet, still weather should be chosen, and even then it is advisable to cover them with thick cloths or mats, and to prevent any risk from an overdose of smoke the plan is to give a little for several nights and mornings in succession, making sure when doing so that the leaves of the plants are quite dry. The latest period at which Melons can be planted to do much good in frames is the middle or end of May, by which time the plants should be strong in 4½-inch or 6-inch pots, and all ready for turning out, and if the heat is right and the management after the manner of that referred to above, they are sure to do well. S. D.

SHORT NOTES.—FRUIT.

Vines bleeding.—Allow me to point out that "J. S. W.," when referring to bottling sap (p. 192), has in some peculiar way substituted "gallons" for "quarts."—Veritas.

Musch-Musch Apricot.—This just now is one mass of bloom. It is a very hardy Apricot, and one that has hitherto always set an abundant crop of fruit. Moreover, the tree is a good grower; although our tree has been planted seven years, there is no appearance at present of the branches dying away, as is the case with the Moor Park variety.—J. C. C.

The season and fruit trees.—Although the winter has been so mild, there is but little difference in the condition of fruit trees, as regards flowering, compared with that of previous years, when we have experienced severe weather. On more than one occasion, after we had sharp frost in January, our Apricot trees set some fruit by the 1st of March; but this year no fruit was set on that date. It is therefore clear that a mild winter does not always favour early flowering.—J. C. C.

COVERING VINE BORDERS.

It is still supposed by some that, in order to keep Grapes in good condition on the Vines as long as possible, it is necessary that the roots should be kept tolerably dry. All sorts of contrivances have, therefore, been resorted to in order to keep every drop of rain from falling on the border from the time when the Grapes are ripe until they are all cut. This has in some cases been carried out with so much persistency, that I do not doubt that injury has been done to the Vines through depriving the roots of the needful supply of moisture at a time when it was wanted. Some have even gone to the expense of getting large sheets of corrugated iron to put on the border to keep off rain, while others have used wooden shutters, and when nothing better could be had the border has been thickly thatched with straw. In no instance, however, where coverings have been resorted to have I seen Grapes keep better than they do when the border is exposed to all the rain that may fall on it. In what way a dry border is supposed to assist in the preservation of Grapes I am at a loss to understand. It is, I imagine, expected to prevent too much water from being carried up by the roots and branches to the fruit. If that be really so, it is evident that the bottling system now so general for keeping late Grapes cannot be good, the branch to which the bunch is attached being in immediate contact with the water; yet in practice the amount of water which the branch absorbs does not, to any perceptible extent, interfere with the flavour or keeping properties of the Grapes. From this, therefore, we may conclude that while the Grapes are hanging on the Vines there is not sufficient water passing up to them, even if their roots are in a moist soil, to cause any deterioration in quality. Covering the borders with a view to keep them dry is, therefore, a useless waste of time and material. I dislike coddling Vine borders when Vines are at rest; indeed, as a matter of fact, I am convinced that all Vine borders are the better for being fully exposed to winter rains and frost. Exposure sweetens the soil and renders it better for the roots, and where the drainage is right the winter's rainfall does good rather than harm. J. C. C.

VINE BORDERS AT HUTTON HALL.

I have investigated this case, and have concluded that there is no occasion for me to go to Hutton Hall to examine the borders, as your readers will see from what follows. To recapitulate shortly, I said at the outset that Vines placed under equal conditions would take to the outside border by preference, and I asked Mr. Baines to furnish an example to the contrary, and he referred me to Hutton Hall. Well, I have received two very obliging letters from Mr. McIndoe, and here are the real facts of the case: 1. I learn that Mr. McIndoe was not an "unsolicited" participator in this discussion, and he writes: "Not having seen all the correspondence, I cannot offer an opinion as to whether mine is a case in point or not." He adds: "I have never said anything about equal conditions. You will observe I have abstained from offering an opinion one way or the other." 2. Mr. McIndoe exacted a promise from me that I would not damage the roots in his outside borders, and, having given it, he writes me again to say that "he accepts my promise that such will be the case, and on that condition I am welcome to investigate them." These are the borders in which Mr. Baines has challenged me to find roots, and comment on Mr. McIndoe's stipulations not to damage the roots would be superfluous. 3. Mr. Baines said of these same borders "that the roots have had a chance of entering them for seven years and refused to do so." Mr. McIndoe contradicts this, and says the borders were only commenced seven years ago, and were not finished till 1879, thus reducing Mr. Baines' seven years by about one-half. But I give Mr. McIndoe's own words on this, because they show that at the period during which, according to Mr. Baines, the borders did not contain a root, and years before they did contain any, Mr. McIndoe was busy adding ekes to them annually for four years in succession, on the well-known principle, I presume, of adding to his borders as the roots extended. I cannot comprehend his putting fresh turf to them with any other motive, more especially as he tells me "soil is not over plentiful with him." Mr. McIndoe states in his letter: "First, we completed the inside borders, which are 10 feet wide; then with a view to increasing the border space we put a ridge of soil against the walls outside. These ridges were first made in 1876-77, about 3 feet wide, just as we could afford time and get soil; six borders, each 60 feet long, require a considerable amount of material; then again in 1878-79 more soil was added, and they are now about 6 feet wide." In addition to these matters I asked Mr. McIndoe to be so good as to examine his outside borders and tell me if the roots had reached the outermost limits of the border or how far, but in his letter to-day he says the dispute is not between him and me, but between myself and Mr. Baines, and he prefers "to leave the borders intact in view of this controversy coming to an issue." So far I have, therefore, disposed of the only two cases Mr. Baines has been able to name, and I only wish to add again that the point is not whether Vine roots will grow inside or not, as that is admitted, but what I have explained it to be, and "the point of practice involved is the advisability of confining Vine roots either wholly to an inside or an outside border as against making both and planting the Vines between them. J. S. W.

Canker in Apple trees.—I have heard good fruit growers say that a gravelly subsoil will canker trees as soon as the roots get down to the gravel, and this I find to be true. I have here some trees on this kind of soil and they are badly cankered. Good soil, I believe, would improve them and even stop the disease, but I am unable through want of help to try the experiment. Some slit the bark of hide-bound trees, but that is an operation in which I have not much faith.—Y. B.

Chaumontel Pears.—Has anyone who grows this Pear experienced any bitterness in it this season? I gathered our fruits of it in the last week in October; in February they began to turn brown, but the flesh remained firm and gritty, and the fruits were quite unfit for table. Some thought they must have been gathered too soon and would not ripen, but I noticed the same thing, on taking charge of the place twelve months ago, in the case of those gathered in 1882. The tree grows against a wall and has been there about twenty years.—C. A. B. W.

Strawberry General Chanzy.—This new variety appears to have created quite a sensation amongst Parisian Strawberry growers. The French National and Central Society of Horticulture have awarded it a first-class certificate. The fruit is handsome, very large, fine in form, conical, and in colour deep carmine, the seeds being prominent; the flesh is good, melting, not in the least stringy, very juicy, and of fine flavour. Foot-stalks sufficiently strong to sustain the fruit, notwithstanding its weight. Foliage tolerably abundant, and much resembling that of Trollope's Victoria. This variety was obtained between a kind named J. Riffand and the well-known Marguerite.—J. C. B.

Vine roots going outside.—Mr. Baines insists on the value of his evidence on this subject, and complains that I do not make use of it. I must therefore show the nature of this evidence, and let your readers appraise its value. In 1876 Mr. Baines wrote a report of the Wynyard Vines for the *Gardeners' Chronicle*, and in that report the Vines are described as being about sixteen years of age. Mr. Baines, referring to these same Vines at the same period (1876) in his remarks in The Garden a few weeks back, has made the sixteen years "nearly twenty years." I referred this to Mr. Dick, who planted the Vines, and found that none of them were so old, and that some of them were not more than seven years planted when Mr. Baines saw them. Nor were the Vines "altogether" outside, as Mr. Baines

said, but were planted altogether inside; in short, this case has broken down completely. Under these circumstances I felt the Hutton Hall Vines would keep, and, besides, I know that I have the majority of noteworthy Grape growers on my side if they choose to speak. Mr. Temple's example furnished last week is a case in point; it shows that the Vines planted between the inside and outside borders ran away from a good inside border in which other Vines, planted further back, are doing well.—J. S. W.

THE PARKS RAILWAY JOB.

The second reading of the Parks Railway Bill was passed the other evening, by a majority of sixty, in a House packed with the supporters of the Government and of its latest and most compromising ally, Sir Edward Watkin; but it was agreed that the Bill should be referred to a hybrid committee, with power to entertain all petitions and to hear persons interested. In the course of the debate the word "job" was used. Lord George Hamilton used it, and Sir Edward Watkin complained of it. We entirely adopt it as being the only conceivable explanation of a bargain in which the public lose everything and Sir Edward Watkin gains everything. We have always been of opinion that there must have been secret negociations and secret terms, of which the public know nothing, to induce Mr. Shaw-Lefevre to consent to so gross an invasion of the public rights as is embodied in this Bill. It may be that the job is really limited to one by which Mr. Shaw-Lefevre and the Government will be enabled to carry out what they are pleased to call an improvement, by the aid of Sir Edward Watkin and his company, or it may be a job of any other kind; but it is a job, the essence of which is that the parks, which are the property not merely of London, but of the people of England, are to be given over to this railway company for a ridiculously small sum, in consideration of the company helping the Government to make a ridiculously small improvement.

Not a single new argument was adduced in support of this monstrous scheme during the debate; not a single new reason was given to support the assurances of Sir Edward Watkin and Sir John Hawkshaw that no harm would be done to the parks; not a single fact was adduced to show that the railway was necessary or would be beneficial; yet the mechanical majority worked mechanically so as to pass the second reading of the Bill, and in that majority we find such professed defenders of public right as Sir Charles Dilke, Mr. Firth, and Mr. Fawcett. It is admitted, first, that the railway is not, as was first said, to be made in tunnels without breaking the surface of the parks, but that it is to be made for two-thirds of its distance by an open cutting 60 feet wide, which by the terms of the Bill may remain uncovered for years; secondly, that in parts the top of the tunnel when covered will be at but 1 foot or 2 feet at most below the surface of the park; thirdly, that the trees on the line of the railway will be killed; fourthly, that the railway company is to pay but £25,000 for the privilege of burrowing under some 1500 acres of the parks, whereas the District Railway paid £200,000 for burrowing one-third the distance under the Thames Embankment. Surely herein lies not the mere suspicion, but the absolute certainty of a job, the exact nature of which it is to be hoped the hybrid committee will discover and display.

Moreover, there is the question of ventilation. If it be true, as Sir John Hawkshaw and Mr. Shaw-Lefevre declare, that there is no difficulty in ventilating such a railway without blow-holes, let Sir Edward Watkin show us that it is so by ventilating without blow-holes the existing Metropolitan Railway. Until that is done we shall not believe, and no reasonable person will believe, that the ventilation of an underground railway, with trains running every few minutes, can be effected in any other way than that which alone has hitherto been found to meet the case. But even if the plan suggested of fans and pumping stations be adopted, that would necessitate the erection of tall chimney shafts, probably not less than 100 feet high, which would disseminate into the already foul air of London the most foul and filthy products of the subterranean tunnels. In addition to this, the proposed railway is intended of malice prepense to avoid the only possibility of usefulness by avoiding a junction with the District Railway at Westminster. In the absence of such a junction there is an entire absence of any utility in the scheme, and a complete betrayal, moreover, of its true purpose—viz., the purpose of stealing traffic from the District Railway and the want of any possible public benefit.

The line has been called a north and south line. It is not so. For the greater part of its length it runs almost due east and west, and for the whole of its length it follows a line along which no traffic exists, and where consequently there is no need of a relief to or accommodation for traffic. In short, the scheme is an unnecessary one for the public accommodation; it is an invasion of the parks in its present form, and in its future form would probably be their ruin; and it is nothing more nor less than a gigantic job, by which Mr. Shaw-Lefevre is to earn a little cheap popularity by bargaining away the people's parks in order that he may carry out what he is pleased to call an "improvement" in Parliament Street. —*Vanity Fair.*

*** If there were no objection but the loss of quiet in the parks, it would be a serious one.—Ed., Garden.

NOTES ON CURRENT TOPICS.

St. Michael's Pines.—It is too late in the day for writers to advocate and praise home-grown Pines at the expense of the St. Michael's fruits, which are at least so good that they have banished Pines out of every market garden in the kingdom, and out of a great number of private gardens also, and every year the number of home growers is growing fewer. The horticultural shows indicate this in the most significant manner, as anyone who will study the reports and compare them with those of a few years back may see. If "Cambrian" wants to make it appear that home culture pays in a general way, he should furnish a debtor's and creditor's account. I know only one grower at the present time who ventures to say his Pines pay, valued at the top market price. I know of none besides who think that their crops pay for production, everything reckoned up, nor will it do to compare St. Michael's Pines to "tinned meats" as compared with home-grown Pines at the same season, for as a rule the worst and most unequal lots that appear in the shops are home grown, only fruiterers do not seek them now. The foreign Pines were imported imperfectly ripened at the beginning, but any respectable dealer will now procure you fine fruits if you want them. Here and there you find a few finely ripened Pines of home growth in the winter time and at this season, but they are the exception, and, as everyone knows, it is the average we must consider when advocating the culture of anything that is to pay. It would be very strange indeed if Pine-apples grown in the sunny Azores by English gardeners, and others equally well skilled, could not compete with fruits ripened in our northern clime in the middle of winter; and as our most noted home growers admit to keeping Pines a month or five weeks, if not longer, after they are ripe, what, it may be asked, is to hinder the St. Michael's fruit from being imported in good condition by steamers that make the journey in a few days? Reflections of this kind should convince anyone how ridiculous it is to disparage such fruit if the fruit itself did not convince them of its excellence.

Hardy *v.* Chinese Primroses.—When we get a common, coloured, hardy Primrose with a frilled petal, we shall be able to dispense with Chinese Primroses nearly altogether. This should not be an unattainable object, as I believe the original Chinese Primrose had flat petals, as many seedlings from fine strains have now. The hardy Primrose excels the Chinese Primrose in variety and richness of colour, and the flowers and trusses are nearly as large. There are already coloured varieties of the giant Polyanthus, with its fine large Primrose flower, and what may be accomplished by the pot culture of such varieties remains to be proved, but we should say the possibilities are great indeed. With the least protection, seedlings raised the previous summer may be had in flower all through the winter. Our plants have not been out of bloom since October, and their best trusses have yet to come out. Numbers of the giant varieties had flower-stems 9 inches high last year and broad trusses of remarkably large flowers. Stray sports of coloured varieties, that came among the whites and yellows, were equally large and fine. These are the sorts best suited for pot specimens. We would strongly recommend those who do not succeed with the somewhat miffy Chinese Primrose to begin with the hardy kinds in cold frames.

Pruning Calanthes.—A theorist is nothing if not consistent. About a year ago it was asserted that the proof of the vitality of old Orchid bulbs, like Dendrobium Wardianum, for example, lay in the fact that two or three-year-old bulbs cut off and potted would sprout into growth, and that hence, if left on the plant, this vigour would go into the young leads; therefore, pruning such old bulbs off was bad practice. Turning back to the chapters of those who teach this, I found the best way to treat Calanthes was to separate the new from the old bulbs annually, throwing the old bulbs away. Unable to distinguish the difference between the two cases, we, last March, potted a number of our old and spent Calanthe bulbs and raised fresh bulbs from all of them; the conclusion is therefore inevitable, viz., that we should never divide Calanthe bulbs as long as they will hang together; and although I do separate them annually, as "T. B." and others of that ilk tell me, we must all be wrong. Query? What is the difference as regards latent vitality between an old Calanthe bulb and the bulb of a Cœlogyne or a Dendrobium? The truth of the matter is, not one of those writers who have lately been expatiating on the value of old Dendrobium bulbs in a contemporary dare put their theories to the test. These nameless examples are mere "will-o'-the-wisps." Their Calanthe culture needs reconciling at all events.

Composts for Orchids.—It is rather late in the day for old practitioners to be wondering how loam or peat, or, for that part of it, charcoal, Sphagnum, or Reigate silver sand, can get up a tree in the native habitats of those Orchids which we grow here successfully in such composts, just as it would be useless to enquire if oyster shells, horn shavings, turfy loam, and lime scraps, &c., got into the soil where the wild Vine grows. But we have often thought decaying fallen tree leaves might get up trees in Orchid regions and form a compost for epiphytes in hollows and crannies of the branches, and that natural leaf-mould from the woods might be after all no bad compost for many kinds of Orchids. That they will grow in it we have proved, and, so far as we know, there is no objection to its use under suitable conditions. It is light, not so retentive as Sphagnum (which is in its nature like a sponge), and roots revel in it more than in any other pure substance of the kind we know of; but the light brown mould that is found under the trees in the wood, where it has lain and rotted, is a very different kind of material from that procured from hotbeds and garden heaps, which are often mixed with other objectionable materials as well.

Training the Lapageria.—I daresay growers of this plant have often noticed how persistently its shoots twine to the left, and how much better the plant grows when it is allowed to grow in its own way, viz, by twining round the wires or string to which it is trained. When the wires are run at right angles to the shoots, it is all tying and training, for the shoots do not take to the wires in such a case; but on a wire or piece of band running in the same direction as the shoot it is amazing how

firmly the latter grips it, twines round it, and how fast it grows. This is the way to train the plant, which, however, is better not trained to galvanised wire. Copper wire or string suits it best, and the string can be drawn out when shoo's are cut off, thus obviating the need of untwisting the shoots. It is about this season of the year and in October that those strong sucker shoots push from the base of Lapageria plants, and they should be taken care of, as they help to extend the area of the branches quickly; but they are not the shoots which flower most freely. These are all found amongst the more moderate shoots of hard texture, which produce good foliage, and if pushed outwards while growing, they will produce those large clusters of flowers that we hear of now and then.

Ventilation of hothouses.—The common plan of letting a current of fresh air in at the lowest and out at the highest point of a house has answered fairly hitherto in the case of plant houses, but as applied to dwelling house rooms has been severely condemned, because of the draught it occasions, and the Tobin principle is now being generally adopted. For the same reason, it is probable that before long the same principle will be applied to plant structures wherever practicable. Ventilation really consists, in principle, in renewing the atmosphere of a given space, and so long as this is affected without danger or discomfort, it does not matter much what means are used. No doubt the readiest means of changing the air of a plant house is by letting the foul air out and the fresh air in, and the top and bottom system of shutter ventilation effects this well enough on the worst of all principles, viz., by setting a draught in motion. It is not realised sufficiently that a plant house can be efficiently aired by simply admitting the air on one or both sides of the house at the lowest point near the floor line, and without opening the shutters at the apex of the roof, but it can, and thoroughly too, provided the volume of air admitted is sufficient; and, what is of more importance, ventilation so effected causes little or no draught. If a tube is projected through a hothouse wall 2 feet or 3 feet at the floor-line the fresh air will rush through it to the inside, keeping at the lowest level till such time as it gets warmed, when it will ascend and mingle insensibly with the air of the house, which it also displaces. In order to effect the change more quickly in a closely glazed house, the least opening may be provided at the top, say a quarter of an inch, but, be this as it may, the fresh air will rush in and find its way out again through accidental openings and laps. The great advantage of this plan during winter and spring is that the atmosphere of an Orchid house, for example, may be kept perfectly sweet by a few air funnels projecting through the lower wall, and that without ever opening a top ventilator, while the tubes may be arranged to deliver the current of fresh air so that it will not be felt in the least by the inmates. It may be delivered against the roof itself even, but if it be discharged at some vacant spot, as against a wall or over a path, it is not felt. The main point of this system is to keep the top shutters closed, or nearly so, and let the air find its way in and out at the lowest points, and if the openings are on opposite sides, all the better for the equalisation of the temperature and air.

The two classes of horticulturists.—At a small gathering of choice horticultural spirits not long since, among the topics discussed was the horticultural press, and one of the company facetiously said he divided horticulturists into two classes, viz., "those who wrote and those who didn't," and, without instituting any comparison, it was suggested that but for the former newspapers and gardening spirit and enterprise would fare badly. What gave rise to the discussion was the answer to a correspondent in one of the papers not long since, that a large portion of the gardening papers was written by few and the same men; and it was remarked to what an extent a few minds influenced and gave colour to garden practice, showing how desirable it was that the record should be as varied as possible, that all should contribute, as far as practicable, and all be conscientious and accurate. It seemed to be generally admitted that the man who wrote—made his opinions and practice public—was, upon the whole, the most useful member of the fraternity, because he worked not for himself or his employer alone, but also for the common good. J. S. W.

Garden Flora.

PLATE 443.

THE GENUS EUCHARIS.

(WITH A COLOURED FIGURE OF E. SANDERIANA.*)

For the introduction of the beautiful Eucharis represented in the accompanying plate we are indebted to Mr. F. Sander, of St. Albans, who imported a quantity of bulbs of it from New Grenada in 1882, and in compliment to whom it was named by Mr. Baker from specimens presented to Kew, which flowered in November of the same year. In the size, substance, and purity of its flowers, which are freely produced under ordinary stove treatment, Sander's Eucharis is at least equal to the two other popular species of the genus, viz., E. grandiflora (syn., amazonica) and E. candida, and as it is quite distinct from these, both in habit and floral characters, it has already become a first favourite wherever white flowers are in great demand. Until we are better acquainted with it we cannot speak with absolute certainty as to the capabilities of this new acquisition for garden purposes, but so far it has proved very prolific of flowers, bearing three, and even four crops of bloom in one year without any special kind of treatment. Indeed, to those who have seen this plant when well grown its first-class qualities must appear abundantly evident.

The nomenclature of the genus being somewhat confused, and the close resemblance when not in flower of several inferior species to the better ones having led to their being mistaken one for the other, it has been thought worth while to reproduce here the principal characters of the whole of the cultivated Eucharis, with the exception of E. grandiflora, which is too well known to be confused with the others. The species first introduced into gardens was E candida, which was sent by M. Schlim from New Grenada in 1851 to M. Linden, whose zealous labours in the introduction of valuable garden plants places him amongst the first of distinguished nurserymen. Upon this species the genus Eucharis was founded by M. Planchon, whose description and figure of this plant were published in the *Flore des Serres* in 1851. The character of the flowers of this species is shown in p. 260, and the following description shows the character of the plant: Bulb as large as a hen's egg and similar in shape, with an elongated neck, resembling a bulb of the common Daffodil. The flower-scape is accompanied by a single leaf, which has a long compressed petiole, and a broad, oblong, acuminated blade, the surface of which is smooth and pale green. The flower-stalk is 2 feet in length, and bears on its apex an umbel of from six to ten pure white drooping flowers of fleshy substance. The corona is very prominent, and is divided towards the top into six pointed segments upon which the anthers are placed. The long-necked character of the bulb of this species distinguishes it from E. subedentata, with which it has been confounded and which has frequently been sold for E. candida. Soon after its introduction the latter almost disappeared from cultivation, and its place was usurped by the relatively poor plant above mentioned. Mr. Bull, however, succeeded in re-introducing it in quantity in 1875, and since then Messrs. Shuttleworth, Carder, & Co. have been largely instrumental in bringing it into general cultivation. The chaste beauty of this species has won for it a preference over the larger flowered E. grandiflora in some quarters, and although it need not clash with that plant it is in every way deserving of the favour it now enjoys.

E. GRANDIFLORA.—M Linden was also the first to distribute plants of this species, bulbs of which were sent to him from New Grenada by M. Triana in 1854. It flowered and was figured in the *Flore des Serres* in 1854, and was described under the above name by M. Planchon. Owing to its bearing some resembleance to E. candida, it was looked upon by some as a variety only of that species, which will account for its having been cultivated at Kew for a time under the name of E. candida var. grandiflora. In 1857 Messrs. Veitch flowered it, and from their plant a figure was made for the *Botanical Magazine* and published as C. amazonica. In the same year a third figure of it appeared in the *Illustration Horticole*, and in the text accompanying this figure it is stated that the *Botanical Magazine* plate represents M. Linden's plant, from which, however, the former figure differed sufficiently to deserve a distinctive name, and the name E. amazonica was adopted. On a comparison of these three figures there appears to be no difference between them; certainly they show no characters but what are to be seen in the now widely cultivated E. grandiflora.

E. SANDERIANA.—The following description of this plant is taken from Mr. Baker's account of it in the *Botanical Magazine*: "This new Eucharis will no doubt be a very popular plant. It has completely the habit and foliage of the well-known E. grandiflora, but the corona is entirely adnate to the dilated upper portion of the perianth-tube, leaving only a narrow collar-like free border, upon which the distinct portion of the filament is inserted. It comes from the same country as E. grandiflora and E. candida and requires similar treatment." The flower-scape is about 18 inches long and bears from three to seven pure white flowers, which expand nearly all together and last about a week on the plant.

E. SUBEDENTATA.—Until recently this plant was known as a Calliphruria, but it is now placed along with the genus Eucharis, the characters upon which its claim to generic distinction was based no longer holding good after the discovery of the last introduced species, which possesses the characters of E. grandiflora and Calliphruria combined. The cut (p. 253) will enable anyone to perceive the difference between this plant and E. candida, whose long-necked, solitary-leaved bulb abundantly distinguishes it from this neckless bulbed species. As it flowers but rarely, the wide difference in the floral characters are not always available to aid in recognising it, but the abundance of its foliage—which, moreover, is shorter-stalked than in E. candida—should prevent the two being confounded with each other. The leaves of E. subedentata are about 1 foot long and nearly half as broad, and the flower-stem is 18 inches high, and bears an umbel of from four to eight flowers. It is also a native of New

* Drawn in Mr. Bull's nursery, King's Road, Chelsea, December 9, 1883.

Grenada. The name E. paradoxa was given to this plant by Dr. Masters in 1876.

E. Hartwegiana (p. 257), although still considered to be a Calliphruria by some, does not appear to differ very materially from the Eucharis, and is therefore included here. It is of little horticultural value, the flowers being comparatively small and rarely produced under cultivation. They

Eucharis (Calliphruria) subedentata.

are white, and are borne on a stalk some 9 inches in length in umbels of about half-a-dozen. It flowers at Kew now and then. Mr. Bull introduced it from the mountains of Bogota in 1874. This completes the known species of Eucharis, and it will be seen that three of the five above described are excellent garden plants.

The cultivation of Eucharis has been treated upon in these pages only recently by several well-known and successful plantsmen; it is therefore unnecessary that its details should be gone into here. The points of most importance to be observed in the management of these plants are, that the soil in which they are grown should be rich and loamy, that the bulbs be planted deeply, and that an abundance of water, both overhead and at the root, be supplied during the most active period of growth, a less quantity being necessary after the leaves are all matured, always, however, avoiding the complete drying-off treatment, which is not essential to the free production of flowers, and has a tendency to weaken the bulbs. A temperature of 65° to 70°, rising to 80° in summer, is the most suitable for these plants, and although some recommend their removal to a lower temperature after growth has almost ceased, it does not appear to be necessary to induce the plants to flower, nor in any way an advantage over the perpetually warm treatment. Some doubt has been expressed as to whether the same bulbs of these plants bear the several crops of flowers they are known to produce in the course of a year, but that bulbs of E. Sanderiana have done so is definitely proved, and there is no reason why E. grandiflora should not be equally free flowering. It is highly improbable that a number of bulbs grown together in the same pot, and as a matter of course experiencing precisely the same treatment, should flower at widely different times of the year; I know of no such freak in the case of any other bulbous plant with which I am acquainted. W. Watson.

Kew.

SEASONABLE WORK.

FLOWER GARDEN.

Cannas.—For outdoor summer decoration these cannot well be overrated; they are of easy culture, quickly increased, and wonderfully effective, both before and when they are in flower, and the variety and colour of both foliage and flowers are very great; though some are better than others, all the varieties grow and flower freely in the open air from June to October. They produce the best effects when planted in masses, the taller ones in the centre, and those that are dwarfer outside. They also look well alternated at wide distances apart with large plants of variegated Abutilons or Acacia lophantha. They attain the greatest perfection in deep, light, rich soil (a peaty loam with plenty of stable manure in it is best); they also do moderately well in stiffer soil, provided the drainage is good. To get up a stock quickly, the best way is to raise them from seeds, which, if sown in bottom-heat at once, will make useful plants for putting out in June next. Seedlings do not always come true; therefore when it is desired to retain any given variety, recourse must be had to division, an operation which may be performed any time before the roots start into growth; the portions separated should be potted in small pots and started into growth in heat. In dry soils in the south of England the roots winter safely in the beds if the surface be mulched with Bracken or Cocoa-nut fibre; but in less favoured districts and soils they should be lifted after the first severe frost occurs in autumn, and packed in dry soil in frost-proof sheds or cellars. The following are a few of the best varieties, viz., aurantiaca, magnifica, peruviana, gigantea major, nigricans, Premices de Nice, iridiflora, and Warscewiczi.

Hardy Ferns and rockwork.—Most kinds of Ferns are now throwing up new fronds, and before they get so much advanced as to be injured by working amongst them, all old fronds, weeds, and new plantings, or rearrangements should be completed as early as possible. Remove the mulchings and give fresh soil to any plants needing that attention. This is the best season to plant out Ferns; therefore, any new additions to this department should be furnished forthwith. Plant carefully, well firming the soil about their roots with the hand; after that give them a good watering to further consolidate the soil, and unless the weather prove exceptionally dry, no further artificial watering will be necessary. An immediate furnished effect may be had by intermixing with the Ferns a few compact growing shrubs, such as Thujas, Retinosporas, and Irish Junipers. A free use of mossy Saxifrages and Sedums as a carpeting for Ferns is both appropriate and desirable, as they furnish the ground until the Fern fronds have become fully developed. The rockery is now beginning to look gay; Aubrietia Campbelli, Phlox verna, and Lithospermum fruticosum are one mass of blossoms, and others are fast unfolding. In the presence of so much beauty, weeds, decayed stems, or, indeed, anything of an untidy character, should have no

place. Many kinds may still be planted, and if when the stock of plants has become exhausted there are still vacancies, these may be filled in by sowing Mignonette, Silenes, Virginian Stocks, or, in fact, any of the dwarfer spreading annuals.

General work.—Mowing must now begin in earnest. We began with the lawn mower some time ago, for the Grass has grown the whole of the winter. Negligence as to mowing early in the season results in coarse Grasses and a sickly coloured sward throughout the summer. Plenty of rolling, a dressing of soot or wood ashes, and early mowing ensure a fine velvety turf at all time. It is high time that lawn Grass seeds were sown; level and rake the surface fine, sow on a still day, rake the seeds well in, and roll frequently, but particularly after a frost, which upheaves the ground. Edgings of turf not yet trimmed should be so without delay, as they will soon be too dry to be operated on neatly. Walks, too, should ere this have had all necessary repairs done, and have received surfacings of fresh gravel, and rolling should be repeated after each heavy rainfall till they are hard and firm to the tread. Walks under trees are apt to get Moss-grown and discoloured; in all such spots apply a sprinkling of salt; this will remove the discolouration, and add brightness to the gravel. Laurel and other shrub pruning should be completed forthwith, as should also any planting that yet remains to be done. Vacant beds and borders should be dug or trenched, and with the view of lessening the pressure of work at the general planting-out time all kinds of plants that can now be put out with safety should be planted.

FLORAL DECORATIONS.

The weather being so favourable, we still have an abundance of hardy flowers that prove of great service for decorative purposes. Primroses and Violets associate well together, and for these any shallow, flat receptacle can be turned to good account, using either sand or water, but in either case some fresh green Moss will be useful; so also would a few small pieces of the finer-leaved kinds of Ivies. A few patches of Violets, taken up when in full flower, will keep for some time in a soup plate if a little soil can be got with them. In this way Violets look very well—better than in bunches, and they do not fade so soon. Wallflowers may now be had in abundance; they like plenty of water, and will keep in good condition longer if the ends of the stems be cut off once or twice. We shall shortly be cutting blooms of Magnolia conspicua from a large specimen. These will look exceedingly well arranged in a pale blue vase for sideboard decoration. We find them to invariably open well when cut just as they are about to expand their ivory-white blossoms. Their fragrance is also agreeable, but perhaps rather too strong for a somewhat small room. Daffodils may now be had in profusion. A few flowers of one or more kinds of these look well arranged with their own foliage something like the way in which they grow, and not bunched up in huge masses, as is oftentimes done. Of forced flowers, neat sprays of Deutzia gracilis, somewhat drooping in habit, are very serviceable as a fringe to a trumpet vase, the centre of which would look well filled up with a few pieces of Hoteia japonica and Dielytra spectabilis or Chionodoxa Luciliæ. Clumps of the Lily of the Valley will be valuable now in vases, and will be found more durable for this purpose than single crowns. Different coloured varieties of Azalea mollis look well together with a few pieces of their own foliage. From want of something better, a finger glass will suit very well in which to arrange them. Avoid placing vases of exotic or forced flowers or plants too close to an open window, the draught from which would soon spoil their beauty. When it is desired to prolong the perfection of the choicer cut flowers as much as possible, it is an excellent plan to arrange them in a receptacle that can be placed under a bell-glass. In the case of scentless flowers, this method is worthy of consideration.

INDOOR PLANTS.

Achimenes and Gloxinias.—As soon as Achimenes started early have made an inch or two of growth they should be placed in their blooming pots or baskets, whichever are used. A few more ought now to be started, reserving a portion to be brought on later, for if it is deemed desirable to have them in bloom for a lengthened period they must be started at different times. Some of the old bulbs of Gloxinias should now be potted and placed in a brisk heat, but as soon as the tops begin to move they must be put as near the glass as possible. Few things are so much influenced by the treatment they receive in this respect as Gloxinias, which, if grown in a way that causes them to be at all drawn up, are rendered almost useless. If not already sown, a little seed should be put in. Few plants have been so much improved in recent times as these. If a good strain of seeds is obtained they will yield flowers equal to the best named kinds.

Eucharis.—Now that the season is coming on when the sun may be expected to have a good deal of power, see that these plants are not too much under its direct influence. Easy as Eucharises are to manage, many fail with them through an inability to keep their leaves in a healthy state. The most frequent cause of this is allowing them to be exposed to the sun, to which, unlike almost all other cultivated bulbs, they have the greatest dislike unless far from the roof. Plenty of pot room is essential to quick growth and free flowering, and if small specimens are deemed the most desirable they should be divided and the bulbs placed three or four together instead of letting them remain crowded. If by any chance the plants are strong and do not flower so freely as they ought to do, the shaking out and separation needful for their being put in small pots is almost sure to have the effect of throwing them into bloom. See that they are free from worms, as where bottom-heat is used the soil is often liable to contain them, and their presence for any length of time generally results in the plants getting into bad condition. Soot water made moderately strong will usually free the soil from worms. If the plants are at all affected with scale or mealy bug, the sponge ought to be well used before the higher temperature consequent on warmer weather causes them to increase faster than they otherwise would do.

Shrubby Calceolarias.—Comparatively few soft-wooded subjects are more useful or effective for conservatory or greenhouse decoration in spring than these, and, considering the small amount of trouble they give to have them in good condition, it seems strange that they are so little grown. By cutting them back each summer when the flowering is over, like Pelargoniums, but not shortening the shoots so close as in their case, they will last for a number of years, attaining a large size and blooming so profusely as to all but hide the leaves. Old examples fairly well wintered if given a shift now into rich soil and kept in a temperature of from 40° to 45° in the night, and quite free from aphides, will form strong bushes full of flower by the beginning of May. Amongst yellows the old bedding variety aureo-floribunda is one of the best; the darker coloured kinds succeed equally well. Young plants now in their blooming pots should be kept a little warmer than ordinary cool greenhouse stock if they are wanted in bloom early.

Hydrangeas and Neriums.—Where Hydrangeas are grown in small pots from cuttings struck annually they force well, and where the pots are full of roots they must be treated to manure water every week, as on this depends the size and strength of the flowers. If a portion of the stock is kept cool, a succession of bloom can be maintained for several months. Small plants of Neriums are most useful; where well ripened by full exposure to the sun in the open air during the latter part of summer they rarely fail to flower. Care must be taken that they are plentifully supplied with water, for although the plants will bear drought without injury in the autumn and winter, yet as soon as the bloom buds begin to move if too dry they will most likely fall off. An intermediate temperature is sufficient for such as are to be forced, as if subjected to too much heat they do not generally flower well.

Humea elegans.—This old-fashioned plant deserves a place wherever room can be found for it. It is not only elegant in growth, but it has the additional merit of being at its best at a time in summer when there is usually a scarcity of conservatory stock. To have plants of it in good condition they must now be moved into large pots, as if cramped for root space they will be deficient in size and the lower leaves will not keep fresh, after the loss of which half their beauty is destroyed. They are subject to aphides, which must be regularly sought for and destroyed, as they lie concealed at the under side of the leaves, and if allowed to remain they soon do irreparable harm.

Lilium giganteum.—Although this stately plant will succeed out-of-doors over a good part of the kingdom, still it will flower in a pot, if well managed, much more profusely than in the open ground Examples that have been wintered singly in 8-inch or 9-inch pots should at once be moved to others 16 inches or 18 inches in diameter, giving them good turfy loam, enriched with manure, pressing it moderately solid in the pots. As soon as the roots have got well hold of the new material, manure water will help them, but, like almost all other quick-growing subjects, if stimulants of this nature are to have their full effect, they must be applied at the time the plants are gathering strength to form their flowers.

Fuchsias and Cinerarias.—See that everything needful is done to keep last summer's struck Fuchsias moving freely, as any check as regards want of pot room, or keeping them too cold, will throw them into a premature flowering state, after which little progress in size is possible. Where Cinerarias are wanted in bloom by the end of the year, a bit of seed ought shortly to be sown.

FRUIT.

Pines.—Examine the first batch of suckers which were potted early in February and plunged in a strong bottom-heat of 90°, and if it is found that the young fleshy roots are beginning to coil round the outside of the balls, give sufficient tepid water to keep them in a nice growing state. Ventilate more freely and dew them over with the syringe after closing with solar heat. If the young plants are kept close to the glass and have plenty of room, the top-heat may now range from 65° at night to 75° by day; and to prevent the newly formed roots from receiving injury, the heat about the pots may be allowed to descend to 80°, at which it must remain until they are potted. Where very strong suckers are obtained to start with, and the one-shift system is to be followed, make the usual preparations for carrying out the work with dispatch when the plants are in a fit state and the weather is favourable. Let the beds be made up of tan or leaves some time beforehand to ensure a steady bottom-heat of 85° to 90°, as getting into a newly-plunged bed to rock and lift the plants is very objectionable. Err on the side of small pots—say 10 inches to 12 inches for Queens, and 12 inches to 14 inches for Cayennes; use pure, rough, fibry loam—bone dust and charcoal if inclined to become adhesive—ram very firm to prevent all possibility of water being held in suspension, and while maintaining a moist, growing atmosphere by a judicious use of the syringe, carefully avoid saturating the soil until the roots begin to work freely through the new compost. Keep a close watch upon newly-potted plants, and place some very light shading over the glass for an hour or two on bright days. Let the heat in fruiting pits range from 70° at night to 80° by day; close with sun-heat at 85° and run up a few degrees with atmospheric moisture well charged with ammonia. See that plants in flower have a brisk circulation of heated air to insure perfect

fertilisation, and to prevent the crowns from becoming too large, as is often the case in close, dank, ill-ventilated pits.

Vines.—Disbud, tie down, and stop succession houses as the Vines advance, and remove all surplus bunches from free-setting kinds as soon as the most promising for the crop can be decided upon. Early Muscats having plenty of fresh, active roots working in inside borders may also be divested of ill-formed bunches, provided a fair percentage of the best are left to choose from after the Grapes are set. Draw the points of the bunches up to the light when in flower, fertilise with Hamburgh pollen, and let the heat range from 70° at night to 85° by day, and 90° when solar heat is available. Grapes now swelling must have a liberal supply of moisture charged with ammonia, and as keen easterly winds with bright sunshine frequently prevail in March, guard against checks from draught by shutting off fire-heat early on fine mornings, by timely ventilation and by early closing with sunheat at a temperature of 85° to 90°. As the stoning process approaches, allow a free and easy growth of laterals, stimulate the roots with warm diluted liquid, and aim at a steady night temperature of 65° to 68° with a little air. When this strain upon the Vines is over, sharper forcing may be indulged in if it is really necessary, but the figures I have just named are quite high enough for all Grapes which do not come under Muscat treatment.

Late houses.—Endeavour to give the Vines as long a growing season as possible by shutting up with strong sun heat; syringe the rods several times a day, and maintain a moist atmosphere by damping the mulching material every evening. Vigorous young rods which have never borne fruit will require dexterous handling to get them to break evenly, particularly where the young beginner has been led or misled into leaving his canes long enough to carry a crop which his Vines cannot finish; but much may be done by tying down the points and elevating the dormant buds over heaps of fermenting material placed on the borders.

Hardy fruit.—All arrears of winter work, if any, must be speedily gathered up, as spring operations will now require attention. As many of the recently planted fruit trees have not received a thorough soaking of rain water since the roots were disturbed, see that all mulching is well done before they suffer from the effects of drying winds and bright sunshine. Tread the soil firmly now it is dry before the manure is put on, and give all doubtful trees a moderate watering to keep them going until the sap finds its way back into the usual channel. Young stone fruit trees intended for training as supernumeraries must be treated as the above, and if cutting back is still a portion of the grower's creed, all buds must be pretty well advanced, or, better still, the work may be delayed for a year before they are subjected to a second shock. Where in low damp gardens the topping of Raspberries is put off till spring, cutting back may be performed in April, and if well mulched early in the autumn a hand-weeding of the stools will complete this part of the garden for a long time, as digging amongst the roots is simply barbarous. Look over Strawberry beds, remove all weeds, spread down the mulching and rake off before the crowns become too prominent. On our cold damp soil we make it a rule to lay the autumn mulching in ridges between the rows, and after dressing the beds with soot, the manure is levelled down early in the spring—the advantages being freedom from slugs, more complete rest to the crowns, and a later and better bloom in the spring. With the exception of Pears, which bore well last year, fruit trees of all kinds in this locality are laden with blossoms, which promise to be bold, vigorous, and perfect, and so far the season is highly favourable, provided the advice to protect, which teems in every journal, is not carried to excess. It is of course well to be prepared for an emergency, but covering which excludes light and air checks and weakens the vital energy of the trees, and does more harm than well coped, but otherwise exposed, trees would receive from several degrees of dry frost.

KITCHEN GARDEN.

Potatoes should now be planted. Our sets have been kept on shelves in a well-aired room and are in fine condition, having small, but stout sprouts. The varieties are Early Frame, Early Hammersmith, and Empress Eugénie, but the bulk consists of Myatt's and Old Ashtop. We merely draw the drills and lay in the sets, but leave a slight ridge above each row. Other operations consist in filling up blanks in Cabbage and Lettuce quarters, and keeping the soil well cultivated between the rows, which is the very life of vegetation, and which should receive attention on all favourable opportunities. Now is about the very best time to make a selection of Broccoli for seed; take only one, but let it be the king among them. When in flower, sulphur it to keep off insects. We have been busy cutting up all old stumps of Brussels Sprouts, &c. What a useful vegetable sprouting Broccoli is! Some few years back we obtained a stock of it, and capital it is. We also grow the white variety. Our opinion is, that it is not so sweet in flavour as the purple. Our early spring Cabbages will be in time to succeed the above. French Beans are the only vegetables which occupy much space under glass just now; they are very unprofitable, but cannot be dispensed with; therefore, keep up a stock of them in accordance with the demand. Early Peas in boxes in cool houses are just now little pets, Laxton's Minimum being dwarf, prolific, and good in flavour. When the flowering period is over, mulch the boxes with rotten manure, and give plenty of water—attentions which the Peas fully repay. Early Potatoes in boxes now in the Peach house should be kept short of water; only just enough should be given to keep them from flagging. We sowed our main crop of Celery to-day, the varieties being Major Clarke's, Sandringham White, and Carter's Incomparable Crimson.

FLOWER GARDEN.

SPRING FLOWERS IN YORKSHIRE.

So far north as the neighbourhood of Leeds one cannot expect to find spring flowers so early as in the south, but it is surprising how by judicious planting Mr. Wood, of Kirkstall, manages to induce them to make such a show as they do even thus early. His garden may be said to be a nursery rather than a pleasure garden, inasmuch as the choicest perennial plants of temperate latitudes are nursed into such perfection as is rarely seen. This is done by imitating as closely as possible the conditions under which each specimen is found naturally. Arenarias are to be found here on their native stones; Cypripedium spectabile and other bog-loving plants in the closest semblance of a bog that can be made; sun-loving, shade-loving, lime, peat, sand, and loam-loving subjects, each and all find their home comforts assiduously studied. Hardy, alpine, and perennial plants are grown on a series of hillocks, rocks, or raised and sunken beds, according to individual requirements, but all in such a natural ungeometrical manner as to give one an impression of being once more in a true old English garden. The firm walks made of red shale are chiefly margined with irregular stones from the adjoining woods, and quite overgrown by dense carpets of Sedums and Saxifrages; these run into the walks and mix with the shale, whilst at the back they melt off into beds of the choicer alpines. Over one of these walks four tree trunks meet at their points, and up these climbing Roses are trained, but we do not fail to observe they are planted at some distance from the base of each tree, thus avoiding the danger of fungoid growth. Another walk is arcaded the whole of its length with Roses, Clematises, and American Blackberries, the beautiful cut leaves of the latter rendering them particularly suitable for such a purpose, leaving their fruit out of the question, and for that alone they are most valuable. All the Ivies, from heart-shaped leaves 6 inches long to the diminutive Bird's-foot variety are here, and also Daffodils from minor to Emperor; Primulas are here growing in confusing multitudes, each surrounded by a barrier of fine sand, an effectual protection against slugs, snails, and worms, for who ever saw a slug travel a foot over sharp sand? Sand and leaf-mould, indeed, meet one's gaze nearly everywhere. Mr. Wood uses both extensively. Iris persica produces blooms more beautiful than those of any Orchid, and it forms a good succession to the lovely Netted Iris, which here comes unusually brilliant and deeply coloured. Hellebores, hybrid and other kinds; Primulas of various sorts, &c.; Saxifraga oppositifolia and other sorts; Daffodils, Squills, Crocuses, and Hepaticas were all finely in bloom here the other day, and every week now adds to the display. Indeed, where hardy plants are grown largely, as they are here, from Tritoma Uvaria, through the Hellebores, Winter Aconites, and Snowdrops, which bind autumn to spring, our gardens may always be things of floral beauty without glass or protecting frames; each specimen will reappear at its appointed time, wanting little care and remaining a joy for ever. I need only name such things as old walls clothed with Mosses, Ivies, and Houseleeks; beds of Clematises, edged with Euonymus radicans; columns of Jackman's Clematis and edgings of Gentiana acaulis, to show that natural gardening is conscientiously carried out at Woodville. R. A. H. G.

Horsforth, near Leeds.

LONG-LASTING ANNUALS.

The object of the following remarks is to direct attention to a few annual flowers that last long in blossom. It can hardly be disputed that those who require large numbers of summer flowering plants for beds and borders do not avail themselves of annual flowers so much as they might do, considering the little trouble involved in raising them and the variety which they afford both in growth and flower. They ought certainly to deserve a better fate than is generally assigned to them; they are often sown where the soil is poor, and where most of the moisture which it contains is sucked out of it by the roots of other plants. In the cultivation of annuals, it is of primary importance that the position be open to the sun, and that the soil be as well prepared as if it were required for zonal Pelargoniums. These conditions, moreover, will avail but little if the common error is committed of allowing the plants to be too much crowded. Two-thirds of the annual flowers sown by the inexperienced are allowed to stand too thickly on the ground; the result is, that the plants do not attain their true character; they are puny in growth, and consequently short-lived. In one sense it is a misfortune that annual flower seeds are so cheap, as their very cheapness favours thick sowing. The seeds of annuals vary a good deal in size, and to sow all at one depth would be to invite failure. The smallest seeds should be sown on the surface, which should first be made level with the back of a trowel, and the seeds scattered thinly all over the part made smooth; some sifted soil should then be lightly sprinkled over them. The seeds of Sweet Peas, Convolvuluses, Lupines, Candytufts, and all others of similar size should be sown in drills varying in depth from a quarter of an inch to half an inch, according to their size. Most annual flowers, too, are greatly benefited by having all their seeds picked off, especially Sweet Peas, Convolvuluses, Nasturtiums, Candytufts, and all other vigorous growers on which the seed vessels are sufficiently prominent to be capable of being removed without too much looking after, and, like many other subjects, they are greatly benefited by copious watering in dry weather.

Portulacas.—These are remarkable for the brilliancy and variety of their flowers. Given a suitable compost in which to grow, and there is no other annual flower that can be had with so little trouble that is so rich in colouring. They are, however, rather peculiar as regards their requirements; they must have a position exposed to the

sun, and they must be accommodated with a compost containing equal parts old lime dust, or rather old mortar, sand, and soil. This compost must be well mixed together, and laid on the surface of the bed 3 inches thick. In this mixture Portulacas will thrive much better than if planted in common soil. With reference to varieties, there are both double and single; for bedding purposes the single is to be preferred. Of these there are about eight varieties that are sufficiently distinct. It is a good plan to have them all separate, and mix the seed all together before sowing. Early in April prepare some 4-inch pots, have them drained, and half filled with potting soil, filling up the remaining space with the same kind of material as is to be placed on the bed; in this the seed may be sown, about a dozen seeds in each pot, and very lightly covered with sandy soil. The pots may then have a gentle watering, and be taken to a warm shelf in an ordinary greenhouse. As these plants in all stages of growth are impatient of too much moisture, the seed pots had better be shaded with sheets of paper until the plants appear. It must, however, be understood that the seeds cannot germinate in dry dust; an occasional watering will, therefore, be necessary to keep the soil moist. The plants must be kept growing in a warm house until the end of May; they should then be taken to a cold frame, where the lights can be taken off during the daytime; a week of such hardening will prepare them for planting. The plants should be turned out of their pots without being disturbed, and as they are not strong-growing subjects, the pots ought not to be placed more than 7 inches apart each way. If the weather should be very dry at planting time, a little water can be given to settle the soil about their roots; in ordinary summers they will want no further help from the watering-pot. In hot dry corners near the house where low-growing plants are admissible (for they do not rise more than 2 inches above the surface), these plants will thrive where many others would fail and at the same time give no trouble.

Godetias.—Not many annuals are more striking than the Godetias. The individual flowers are sufficiently large to be attractive, and these are produced with such freedom, that the beauty of the plants does not wane from the beginning of July until late in the autumn. For small beds or for clumps in the mixed border they are eminently suited. The main point in their management is to keep them always growing, and then plenty of flowers will sure to be the result. To accomplish this all the seed vessels must be picked off as soon as they appear, and they must be given a good soil and plenty of water during dry weather, especially in the months of August and September. If required to make a bed, the seed should be sown in a pan early in April, and the plants brought on in pots under glass in a temperature of about 60°; they may be either put in 3-inch pots, one in each, or half a dozen may be pricked out round a 6-inch pot. In the last week in May they may be turned out in the bed about 6 inches apart all ways. The best varieties are Lady Albemarle, crimson; Rosea alba, crimson and white; and The Bride. For the mixed border the seeds may be sown early in April where the plants are to flower. As soon as they attain a height of 3 inches they should be thinned out to 4 inches apart.

Alonsoa linifolia.—This is not a particularly striking plant, but being a continuous bloomer and different in habit from the others, I have selected it for the sake of variety. It produces innumerable scarlet blossoms on short sturdy branches, pleasing if not showy. The seed should be sown in heat in March, and the plants brought on in a hot-bed until the middle of May, when they may have cooler quarters preparatory to being planted out. To be successfully used for beds, each plant ought to be well established in a 3-inch pot by the end of May, when they may be hardened off and put out in the bed a week later This Alonsoa is hardly showy enough for large mixed borders.

Linum grandiflorum is admirably suited for bedding, as it commences to flower in July, and will continue to do so far into the autumn. Its growth is light and elegant, and it produces its blossoms so freely that it makes an effective small bed. It looks best, perhaps, in a round bed, with the centre somewhat raised. The flowers being scarlet, a band of blue Lobelia may be placed next to it, and then an edging of Golden Feather Pyrethrum. Thus arranged, a pleasing effect will be the result. As regards cultivation, it is only necessary to say that it requires a fairly rich soil and plenty of water in dry weather. It is one of those subjects that do not transplant well if sown in such a way that it is necessary to disturb its root very much. Being a hardy annual, it may be sown early in April in warm positions, but I have never been able to do much with it for bedding purposes, *i.e.*, when sown where it is to flower, as it begins to bloom too late; I therefore prefer to sow half-a-dozen seeds in a 3-inch pot about the middle of April and raise the plants in a cold pit or frame. The number of pots to be sown must depend on the size of the bed to be filled; the pots need not be drained. If they are filled to within three-fourths of an inch of the rim with any ordinary potting soil that has been first sifted and the seeds covered about an eighth of an inch in depth, they will soon vegetate, and by the middle of May they will be large enough to plant out. They may then be turned out of the pots without dividing them. Plants required for mixed borders may also be raised in the same way, but, generally speaking, the plants will flower sufficiently early if the seeds are sown where they are to flower.

French Marigolds make such excellent beds, that one cannot afford to overlook them; their merits are, however, pretty well understood by cultivators. In regard to their management, I must remark that it is not advisable to sow too early. I sow about the middle of April in pans or boxes rather thinly in order to give the young plants room; from the pans they are planted out at the end of May where they are to flower. Tagetes pumila, also closely allied to these Marigolds, should be sown at the same time and treated in the same way. I may remark that this Tagetes is a capital substitute for yellow Calceolarias where they do not succeed, or it may be used as a yellow bedding plant. Independent of any such consideration, we have no plant amongst the general summer bedders that lasts so long in flower as this Tagetes. After heavy autumn rains and winds it remains bright and cheerful. It may be truthfully said that in a sheltered situation it defies everything but frost.

Convolvulus minor.—This is unquestionably the best blue hardy annual we possess. It makes an effective small bed or an edging to a large one. The seed may be sown where it is to flower, or it may be freely used for mixed beds or borders.

J. C. C.

AUTUMN FLOWERING PLANTS.

Harpalium rigidum.—This fine Sunflower-like plant blooms from the beginning of August till October or November, and is one of the very best autumn border flowers—good for cutting purposes or for beds. It grows about a yard high, and flowers freely, the individual flowers, in good soils, measuring as much as 5 inches across or more. It is propagated by division of the root, and by cuttings about this season, taken off near the base of the plants. It should be in every collection.

Coreopsis lanceolata.—It is surprising how many of the autumn flowering herbaceous plants are yellow, and this is one of them—perfectly hardy, like the Harpalium. The habit of the plant is neat and dwarf as regards the foliage, but the flowers are thrown up a yard high and come singly. It is a very effective plant, and the flowers are neat and good for cutting also.

Carnations.—These have been mentioned among the summer flowerers, but all the best double forms continue to bloom till late in autumn. Last winter being mild, we gathered individual flowers of the white Clove W. P. Milner, sent out by Messrs. Fisher and Sibray, Handsworth Nurseries, from November till March, and some of the blooms were wonderfully fine. Seedling plants that produce single and semi-double blooms always flower before the doubles, so that those who care to have a long display should grow single kinds. Between the common border Pinks, which begin to flower in June, and the Carnations which succeed them, and last all through the autumn, beds or patches on borders may be had in flower for several months every year by planting both sorts judiciously together. Most gardeners propagate Carnations every year, but that is not necessary, as old plants will live for a number of years, only it is a wise plan to peg down the side limbs close to the ground, and cover them over with rich light compost, consisting of leaf mould, loam, and sand. The shoots will root into this and grow, of course, more vigorously the next two or three years.

Anemone japonica and japonica alba and intermedia.—The first-named of these two produces rosy red flowers the size of a crown-piece, and the last pure white flowers, as nearly of the shape and size and appearance of a single Dahlia as possible. Anemone japonica alba, the white variety, is one of the very best autumn-flowering border plants known. It begins to flower in August, and goes on flowering till November. No hardy plant has been more run upon; even although it is now comparatively common, good plants cost 1s. apiece, or £5 per 100, notwithstanding the ease with which it is propagated, as every bit of the creeping roots, if taken up and planted in autumn, will grow. The best way to manage the plant is to plant it in common garden soil and leave it alone. It will establish itself the first year and flower freely the next, and continue to do so for twenty years on the same spot, extending the while. It grows well in a poor soil, but both flowers and foliage are much improved by good culture. The red sort is also very pretty, and the intermediate variety, between the white and the red, is the most vigorous of the three, both growing and flowering stronger. All should be grown either mixed or in beds, or patches by themselves.

Gaillardia hybrida splendens.—This beautiful border subject is not well enough known yet. It produces broad, single, yellow flowers, nearly 6 inches in diameter; but the striking thing about them is the flamed corona that encircles their centre, and projects far up into the petals, giving the flowers quite an unusual and striking appearance. We notice that imitations of this flower are now produced and extensively used for different purposes. It flowers in August, September, and October, and is easily grown and propagated by division or cuttings.

Lathyrus latifolius splendens.—Among the flowering herbaceous Peas, this is not half well enough known. It produces its flowers in erect spikes of a rosy crimson colour, and, once established, the plant takes care of itself. It needs something to cling to, and hence is best planted among shrubs or near trees or fences, which it soon dresses with its luxuriant burden of pretty flowers. It thrives in any common soil.

Calendula officinalis (Pot Marigold) var. Meteor.—The common Pot Marigold cannot be called a hardy herbaceous plant, but as an annual it sows itself with such certainty wherever it happens to be, and flowers so freely all through the autumn, that it deserves to be entered in the list of useful border flowers. We have no richer shade of yellow than the Marigold, which continues to flower, notwithstanding frosts, till late in the year. One packet of seed will produce several varieties of rich yellow and all degrees of doubleness. There is a variety now sold named Meteor, which is not yellow, but of a creamy colour, and very pretty, comes true from seed and is very double. Seeds sown at any time in spring or autumn, and slightly covered over, will take care of themselves.

Phloxes.—We have elsewhere spoken of the early blooming varieties of these, and have now only to mention the late kinds of the decussata section, which blooms all through August, September,

and October. The varieties are mostly all late flowerers, and the colours of some are striking and splendid.

Tritoma grandis.—There are three varieties of this plant, but grandis is, to our thinking, so superior to the others as well as hardier, that it seems the only variety worth growing. The Tritoma is popularly known by many as the Red-hot Poker Plant, a name that describes its appearance when in flower very accurately, for the flowers have both the colour and shape of a rather stout poker heated to a bright redness. The Tritoma is hardy, but during the past ten years, owing to the cold summers and winters that we have had, it has perished in many places. It is just about as hardy as the common Globe Artichoke, and, like the latter, should always be protected in winter by dry litter or leaves tucked in round the collars of the plants. Here we find it endures the winter on a border facing south, and invariably dies out on a border opposite, which slopes a little away from the sun. Rich, but well-drained, soils suit it best; in a damp soil it soon perishes. Once planted, the roots should not be disturbed, as it is only when the stools grow large that quantities of its tall (5 feet or 6 feet) flower-spikes are produced in abundance, and then a single plant is one of the noblest objects in the garden in September and October; but it is when a good mass of roots are planted in one place that it is seen to best advantage, the mass of tall, flame-coloured heads producing a most imposing effect.

Eucharis (Calliphruria) Hartwegiana.

Pansies and Violas.—About midsummer these are apt to run out of flower, especially if the seed-pods are not picked off before they fill. With the autumn rains, however, the plants recover, and produce young growths from the base of the old shoots, and bloom right on until the end of October. Much, however, depends on soil and situation, in which respect the Pansy is very peculiar. In some places Violas can be depended on for continuous bloom all the summer and autumn, while in others they refuse to flower after the first flush is over in June and July, unless helped by mulchings of rich manure and waterings in dry weather.

Nasturtium.—Like the Pot Marigold (Calendula), this old favourite fails to be mentioned because of the facility with which it sows itself and holds its own in borders that are not frequently dug deep, to the destruction of many things. We have known the common Nasturtium sow itself regularly for nearly twenty years on the same spot. The seedsmen now supply many dwarf kinds, which, if sown on the open border, never spread far, but make compact little tufts of brilliant scarlet and yellow flowers that are among the latest of autumn flowers, while the scrambling varieties are excellent for covering fences and palings, which they soon smother in a wreath of foliage and flower, even in situations that are neither sheltered nor warm. When seed is sown, it should be buried in the soil about 1 inch or 2 inches deep in April. Home-saved seed, gathered in September or October, always produces the finest and strongest plants. J. S.

Spring bedding.—How fresh and beautiful the spring bedding looks this year! Some Pansies, and notably Yellow King, have been blooming all the winter in favoured spots in this neighbourhood. At the Priory gardens especially they have been exceedingly vigorous, and a bed of Primroses (Dean's strain) is now looking grand. Having regard to Mr. R. Greenfield's success, I wonder these improved varieties of Primroses are not more extensively grown for this purpose than they are; they are simply charming.—E., *Warwick.*

Ismene Andreana—A most beautiful new Amaryllid discovered and introduced by M. E. André from the banks of the river Ambocas, in Ecuador, is described by Mr. Baker and illustrated by a woodcut portrait in the current number of the Paris *Revue Horticole* from specimens recently bloomed by the introducer in his Touraine garden at Lacroix, and sent by him to Kew for identification, where it has been found to be new and has been named after M. André, to whom we are indebted for so many beautiful new plants. It apparently most closely resembles the variety figured in the *Botanical Magazine* on plate 6397 under the name of I. tenuifolia, but has apparently much larger flowers of the purest white with a bright green stripe down the centre of outside of petals. The flowers are borne singly on top of a tall stem. —W. E. G.

SHORT NOTES.—FLOWER.

Primula denticulata—Several plants of this growing in a herbaceous border here are just now throwing up some dozens of their beautiful heads of bloom. In favourable situations out-of-doors this Primrose flowers profusely. It should be grown in every hardy plant bed and border, as well as in pots, in which it flowers beautifully in a cool house under glass.—J. Muir, *Margam, S. Wales.*

Tulip Keizer Kroon.—For decorative purposes, whether grown under glass or in the open, there is probably no better Tulip than this. It is such an excellent grower and so effective when in bloom that a single flower is quite a striking object. The colours of the blossoms—vermilion and golden-yellow—are very showy, and the individual flowers are above the size of those of ordinary Tulips.—J. C. C.

Garraway's white Mignonette.—We need not stop to discuss the question as to whether this is really a white variety or not, as on that point opinions differ. Be that as it may, it has sufficient merit to deserve notice on account of its delightful fragrance, as in this respect I believe it excels all others. It has also a neat, compact habit of growth, a matter of importance whether grown in pots or in the open ground.—J. C. C.

Ipomæa coccinea.—This very distinct species is classed among half-hardy annuals. It bears pretty, bright-coloured, trumpet-shaped flowers, of a rich orange-scarlet colour. If lovers of this plant would grow it against a warm wall, instead of in the open, as they do the ordinary forms of Convolvulus major, the result would be much more satisfactory. But how seldom does one see it in gardens—too seldom for so charming a plant.—R. D.

Pansy Cliveden Yellow.—I find this to be the earliest to flower of all yellow Pansies or Violas; I therefore use it largely for spring bedding. In the middle of the present month, March, the beds in which this Pansy is growing are quite bright with hundreds of flowers, but of course a mild winter and warm bright spring weather have a good deal to do with its early flowering. Nevertheless, in any season it is always the first to make any show of flowers; it possesses yet another useful property: I allude to the easy way in which it can be increased and the stock of plants kept up. We lift our plants from the beds late in May, and transplant them again on a north border; early in August they are taken up and divided into three or four parts and put back in the border; by the time we want them to fill the beds for the winter they have become nicely rooted, and move with comparatively little injury.—J. C. C.

Narcissus princeps.—In answer to your question (p. 224) as to how we grow Narcissus princeps, allow me to say that we planted it first in our wood in the natural black soil in a place exposed to the sun. It flowered fairly, but the flowers were not large; we then dug in about 6 inches of loam, with the result that the number and size of the flowers were much increased. Anemone fulgens seems rather particular as to conditions of growth; we have it in three situations—one in good moderately moist loam in shade; here it flowers fairly well; another in full sun in damp loam; here it flowers, but the growth is stunted. The right place seems to be, where the flower brought to you was picked from, in moderately moist loam in the full blaze of the sun.—George F. Wilson, *Heatherbank, Weybridge.*

Kitchen Garden.

CABBAGES AND CAULIFLOWERS.

If Cabbage seeds are sown too early in the summer, the plants often bolt in spring instead of hearting. Several of ours have done so this year; their seeds were sown the third week in July, and the plants were put into their permanent quarters the second week in October. It is sometimes desirable to make a sowing about the middle or end of February; in that case procure a large seed-pan or box, fill it with light, rich soil, and thereon sow thinly and cover with fine soil, watering at the same time. Place the boxes in a warm greenhouse, or upon a hotbed until the seeds germinate, when a cooler position, and plenty of light, and ventulation on all favourable occasions should be provided for them to keep the young plants from becoming drawn up weakly. When large enough to handle let them be pricked off into boxes, or into a prepared bed in a frame. Where Potatoes are grown in frames or in pits, a few Cabbage seeds might be sown amongst them, covering them thinly with soil. When the seedlings have made their third leaf or so, prick them off like those put into boxes, and when large enough transplant them into a piece of rich ground in a sheltered position until they can be planted out in open quarters. The best varieties for early sowing are Heartwell Marrow, Cocoa-nut, and Little Pixie.

Red Dutch Cabbage.—Many defer sowing this variety until well on in the spring, but occasionally it should be done in February; if left until April when seeds of other Brassicas are sown the crop will be late, and fine, close, firm heads, which are requisite for pickling, will not be forthcoming; in some establishments Red Cabbages are cooked the same as other hearting Cabbages. In some parts of Scotland no farmer's or cottager's garden is considered complete without a row or two of Red Cabbages. Some saw them when they saw their Cauliflower seeds in August. They plant the seedlings under a hand-light or in a sheltered position at the bottom of a south wall, and transplant them into a more open place in the spring in order to make the plants strong and stocky before planting them where they are to stand. Seeds sown in February require the same treatment as that bestowed on ordinary Cabbages.

Cauliflowers.—Between the first week in March and the end of April make one or two sowings of Cauliflower; after that it is useless sowing Cauliflower seeds, as we are almost sure to get autumn frosts before the heads come to perfection, and, owing to the tenderness of the plants, they seldom yield a crop, Veitch's Autumn Giant coming in to take their place. Several different varieties may be sown at once, but the two best sorts for late crops are Early London and Walcheren. The latter is a good strong grower and not so liable to button as some of the other varieties. Seeds sown early should either be put in seed pans or boxes in light rich soil; place them in a temperature ranging from 50° to 55° until they germinate, when they must be placed in a cooler temperature. Keep the plants as near the glass as possible in order to keep them dwarf. As soon as large enough to handle, prick them off into boxes filled with loamy soil, or in a frame upon a gentle bottom heat, giving them air on mild days. After being well hardened off, they may be planted in a piece of prepared ground in some sheltered corner; plant them 4 inches apart, where they may remain until large enough to plant out in the permanent quarters in the open garden. W. Christison.

Woodham Hall, Woking.

VEGETABLE MARROW.

This vegetable, one of the most useful and extensively cultivated of the very numerous Gourd family, is not half so much appreciated as it might be. Ornamental Gourds are now and then seen decorating the walls and fences of cottages and gardens, but little or no use is made of these in this country for culinary purposes, although they may be preserved in various ways, and it is said that ripe Gourds may be preserved a long while, and pieces cut out of them for use when wanted. Gourds grow so freely in many parts of England, that it was once proposed to plant railway embankments with them as one means of adding to the quantity of human food. The variety commonly grown in gardens as a vegetable, and sometimes cooked as a substitute for Cauliflower, is the common Marrow, of which there are two or three sorts. The Long Green and the Custard are most popular, and the first named is the more useful of the two. It is of a pale or yellowish green colour throughout, 3 inches or 4 inches in diameter, and about 9 inches long. That is to say, it is fit for use up to that size, but it may be used much smaller, only beyond these dimensions it is not fit for cooking purposes, as it begins to seed and ripen. It grows freely in any open, sunny situation if planted out about the end of May. In the north the plant requires a mound of gently fermenting materials, such as leaves or leaves and half-rotten stable litter, just to give it a good start; but in the south such assistance is not necessary to insure a crop, although it promotes earliness. The only attention the shoots need is occasional thinning out and stopping. The strongest shoots should be led off in a radiating circle, and be occasionally pinched to promote fertility, as it is the laterals that produce the fruit, and these are soonest induced by pinching the points of the main limbs. To encourage a constant succession of fruits, they should be cut as soon as fit for use. All the ornamental Gourds are propagated and grown in the same way. Seed of all sorts should be sown in heat not sooner than the beginning of April, and the young plants should be grown on under glass till fit to plant out, being gradually hardened off previous to that time. The Vegetable Marrow is a tender annual that cannot have a too warm situation anywhere in this country out of doors. Warmth is really the main secret of its culture, for it will grow in any common soil; if light and rich, all the better. W.

Asparagus or Buda Kale.—Although these are sometimes catalogued separately, I believe they are generally considered to be identical. We, at any rate, are growing three varieties of this kind of Kale, but which are Asparagus and which Buda I cannot determine. All are extremely hardy and serviceable in a green state, but if blanching improves them, Mr. Moore (p. 209) will have done good service in calling attention to the fact. I consider it the best of all the Kales, the slightly bitter flavour being very pleasing to many people. Besides planting out a breadth we sowed several rows between the late Peas early in June, and lightly thinned out the plants. From these rows we shall pick abundance of greens till June.—I.

Snow's Winter White Broccoli.—Just a word in support of Mr. Gilbert's note as to the sowing of this Broccoli (page 197). Although I have not found it absolutely necessary to sow so late as he says, I know at great cost what it is to sow too early. In accordance with our custom, we sowed Snow's White Broccoli in a frame on slight bottom heat with the first sowing of Lettuces, Brussels Sprouts, Cauliflowers, &c. They were gradually hardened off and duly planted out, and all appeared to be going on well till September, when we saw many rough straggly heads coming that were good for nothing. These were, therefore, weeded out as they appeared, and by the time Autumn Giant Cauliflower and Veitch's Self-protecting Broccoli were done—and we looked to our early plantation of Snow's Winter White Broccoli—there was not a plant left. Luckily, we had made later sowings all from the same packet of seed which turned out satisfactorily, so we shall not attempt very early sowings of that variety again.—C. W. C.

Brussels Sprouts.—In gardens both large and small Brussels Sprouts are without exception the very best winter vegetables that can be grown. Not the least valuable point connected with the Brussels Sprout is that it is as hardy as the common curled Greens, these two having, as a rule, withstood our severest winters, when all Cabbage and Broccoli crops have perished. The common Cabbage is hardy enough in a young state, but when full grown and hearted frost soon destroys the large heads, which rot and fall to pieces. Not so the Brussels Sprout; being small and hard, it is not in the least affected by frost. There are, however, Sprouts and Sprouts. A fictitious value is attached to what are called large kinds, which, having been crossed with the common Cabbage, produce heads something like Coleworts in size, and when sent into the kitchen are not used as Sprouts at all, but as small Cabbages. The real Sprout is not much larger than a marble, and as firm and hard almost as the stalk itself. These are the sort which cooks prefer; they strip off their outer covering, cook them whole, and serve them up artistically in that fashion. When cooked through and no more, such Sprouts melt in the mouth, like the tenderest Cauliflower, and are equally good. The imported Brussels Sprout is the typical kind—tall-stemmed and productive; but plants vary a good deal, some producing a stem from 3 feet to 4 feet high, and clothed with Sprouts, while on others they are open and rosette-like, and of no use. If seeds are saved from the best forms for a few years a good variety will soon get fixed. Of the productiveness of Brussels Sprouts little need be said. They may be planted a good deal closer in the ground than Broccoli, and each plant will yield a dish of Sprouts for several persons, and good stalks much more.—J. S. W.

SHORT NOTES.—KITCHEN.

Scotch Kale.—We send you a specimen of our new Moss Curled Kale, which we believe to be one of the handsomest varieties in cultivation both as regards colour and form.—James Carter & Co., *High Holborn.*

*** Beautifully curled and good in colour.—Ed.

Potato Lifeguard.—Seeing in The Garden of March 1 a favourable notice of this Potato by "W. W. H.," allow me to inform him that it was raised in Fyvie, near to me, by Mr. Sim, an indefatigable hybridiser, who was also the raiser of Heather Bell and Fifties' Annie—a man much better known by his research in the animal than in the vegetable world.—Robert Farquhar, *Fyvie Castle.*

Clipping Box edgings.—Now is the time to dress these, and to have them in proper order they must be dressed annually. From 3 inches to 4 inches high and the same in width at the base are the right dimensions for them. When very tall and wide they take up too much space and afford ready shelter for all kinds of small vermin. In cutting them, the sides may be run quickly over with an old scythe blade, and the top should be clipped neat and level with the shears. When the clippings fall on the soil, they require a considerable amount of labour to get them cleared up, but if a long, thin, wide board is laid on the soil close to the Box the clippings will fall on this, are turned on to the walk, and are easily swept up. The board should be shifted onwards as the cutting proceeds.—J. MUIR.

Globe Artichoke.—This is a somewhat neglected vegetable, being grown sparingly in English gardens, and in many not at all, while with our neighbours the French it is a speciality. It is an excellent vegetable and easily grown, thriving in any exposed situation, and very productive, provided the heads are cut off and used as fast as they get ready; if left to ripen on the plant they exhaust it, and no more are produced that season. When cut regularly they are produced in succession for a good while. Heads are unfit for culinary purposes after the flowers expand; hence the indifferent opinion entertained of this vegetable through these being cooked after they have passed the proper stage, when they are tender and delicious. In Scotland the young heads of certain Thistles are peeled and eaten in the same way. These Thistles much resemble the Artichoke, to which they are related. Globe Artichokes should be planted out in good soil, and about 4 feet asunder, and plantations should be frequently renewed by division of the roots or by seeds. Old plants produce the earliest crops, the spring plantation coming in a little later, and providing a supply in autumn. Seedlings raised in spring and planted out early in summer make the finest plants and produce the largest and most succulent crowns. We saw a plantation of seedlings last autumn that were about 7 feet high, the usual height of the plant being about 4 feet or 5 feet. The plants were, however, growing in deep and rich ground. An orchard is a good place for a plantation of Artichokes, and sufficient should be cultivated to provide a fair supply of crowns as they are needed.—J. S.

INDOOR GARDEN.

CULTURE OF BANANAS.

THE Bananas or Musas may be classed amongst the most stately and distinct of all fine-leaved plants. They are quick growers and always effective where sufficient room can be given to allow of their large leaves attaining their full dimensions; and where there is not space enough to admit of this, their cultivation should not be attempted. In addition to their attractive appearance, too, valuable fruits are produced by at least two of the genus. They are free and quick growers and readily propagated from suckers, which the plants when strong produce freely; if these are separated with some roots from the old plants and at once put in pots that will admit them, with a moderate quantity of soil, and placed in a temperature of from 65° or 70°, they will grow away without delay. Good fresh loam with a little sand answers for them; if to this is added some bone dust, all the better. If the suckers are put in as above advised early in the spring, they will make rapid growth, and very soon require larger pots if to be grown in this way, which for ordinary decorative purposes is the most convenient, as it admits of the plants being moved about where required; but if cultivated with a view to the production of fruit, such as is borne by M. Cavendishi, they will succeed much better planted out where their roots will have more space, but in this case their treatment in other respects will not require to be in any way different from that practised when they are grown in pots or large tubs.

INCREASE THE HEAT as the sun gets more power. They will bear through the summer as high a temperature as most plants in cultivation, with plenty of water to the roots and a liberal admission of air in the daytime, syringing them freely overhead in the afternoons; no more shade is required than such as is found necessary to prevent the leaves scorching. By the beginning of July they will most likely want another shift, which should be into pots or tubs from 18 inches to 24 inches diameter, according to the progress that has been made or the size they are wanted to be grown to, using soil of a turfy nature in good sized pieces. They will now grow fast and require nothing more than ordinary attention, as already detailed. During the winter they should be kept at a temperature of not less than 60° in the night. With care to prevent their large massive leaves from getting disfigured they will keep in good condition for another summer, during which time they not only are commanding objects in the house in which they are grown, but are very effective when set in large halls, vestibules, or similar places where they can be allowed to remain for a short time in summer. They are quickly grown up to an effective size, for which reason it is well to keep up a stock of young plants raised from suckers, as advised. By the use of manure water they will do with but little root room.

SPECIES.—The undermentioned are the best for general cultivation: M. Cavendishi.—This is much the best where fruit-bearing is the object, as it does not grow to an unmanageable height—5 feet or 6 feet—producing massive bunches of singular looking fruit. When planted out it can be had in bearing from suckers in the course of twelve or fifteen months. A native of China. M. coccinea, also a Chinese species, an ornamental plant of moderate growth and handsome appearance. M. Ensete; this attains a considerable size, has a Palm-like stem and very large leaves. Introduced from Abyssinia. M. vittata, a handsome species of medium height, from St. Thomas.

INSECTS.—Musas are liable to the attacks of most of the insects that affect stove plants, yet their comparatively few, but very large and smooth leaves afford little shelter for them. All except scale can easily be got rid of by syringing with tepid water. If scale appears it can be removed by sponging. T. BAINES.

CASSANDRA CALYCULATA AND OTHER SHRUBS FORCED.

FEW flowering shrubs are more useful than this, producing, as it does, its pretty white bells very early in the season. It forms a small bush, at most not more than a yard high, with greyish green leaves and pure white flowers borne in great numbers from the undersides of the arching shoots, so that they have a very graceful appearance. Like most of the Ericaceæ to which this Cassandra belongs, it prefers a somewhat moist spot and succeeds best shaded to a great extent from the sun. It is a native of North America and the colder parts of Europe, so that it is quite hardy in this country. In common with many other early flowering subjects, this Cassandra might well be employed for greenhouse decoration in spring, as by using plants of this class little or no forcing is necessary. They flower naturally when out of doors at or about the same time as they do indoors; therefore slight protection just sufficient to shelter them from frost is all that is needed. I may mention that I have lately employed under glass with good effect many hardy shrubs that flower naturally early; thus in the depth of winter Chimonanthus fragrans and Lonicera fragrantissima were just as much appreciated for their fragrance in the conservatory as on the wall outside, while they were safe from very severe frosts which out of doors would have cut off the flowers had they occurred. Belonging to the same class as the Cassandra are Andromeda japonica and floribunda, both of which I have found useful under glass, where some pots of the pretty little Erica carnea were also used as an edging with good effect. They flowered beautifully, but the blossoms were somewhat paler than in the open air. From the tangled mass of small fibres formed by most of the Ericaceæ they can be lifted and potted without injury. Jasminum nudiflorum and the Forsythias flower well under glass, as do also the Laurustinus, whose blossoms expand purer white than when grown in the open air. Cydonia japonica, when intended for forcing, should be grown in a sunny position in order that the wood may be thoroughly ripened and the flower-buds well developed. It may, perhaps, be said that hardy plants do not need the shelter of a greenhouse, but where there is not much forcing space at command anything that will help in this way is useful. While on this subject I may add that a short time ago I saw a specimen of the large pinnate-leaved Mahonia, or Berberis nepalensis, planted out in a cool conservatory, and a handsome sight it was; it had grown and flourished so as to form a large mass; the foliage was well developed, and the whole crowned by clusters of golden blossoms, which, during the dull days of mid-winter, rendered it one of the most attractive features in the house. ALPHA.

FLOWERS FOR AUTUMN AND WINTER.

SALVIA PITCHERI.—This Salvia, being herbaceous in character, can at this time of the year be conveniently increased by dividing the roots, and where large plants are required it is much the best way. It can also be readily increased by cuttings, which should be taken as soon as the young stems have grown to a height of 4 inches. They should be inserted in sandy soil and placed on bottom-heat. The best way of obtaining good plants is to put four cuttings in a 3-inch pot, and as soon as rooted pot them on without disturbing them, only pinching off the tops once, and that should be done as soon as the plants have made four joints; they will bear pinching to any extent, but, like Chrysanthemums, the later they are topped, the smaller and later are the flowers. With cuttings struck in March, and the plants grown on under glass until the end of May, at which time they should be put into the pots in which they are to flower, and then grown on with Chrysanthemums in the open, there will be no difficulty in getting spikes of bloom from 6 inches to 8 inches long, but if the plants are pinched late with a view to get them dwarf, they will only produce a few flowers on the top of a spiry stem. I find it to be a very easy plant to cultivate. We have just shaken out our plants from the pots in which they flower (7-inch ones), and have put them back again in fresh soil. They now stand in a cold frame, where they will remain until the end of May, as the young growth only requires to be sheltered from cold winds and frost. When the Chrysanthemums are turned out of the frames, these Salvias will go with them and be treated in the same way. A few sticks are necessary to support the growth, which, unfortunately, is rather unruly unless restrained. This is the only drawback that this plant possesses, but that is insignificant compared with the value of its charming spikes of flowers furnished in the month of October. The intensity of the strong tone of blue on a bright day is not the least of its merits.

PLUMBAGO CAPENSIS.—This is another admirable autumn flowering plant, but it requires special treatment to induce it to bloom at that season, and only young plants can be thoroughly relied upon to do so. These must be obtained from cuttings struck in spring; the half-ripe wood of this plant strikes fairly well. Cuttings of it should be inserted in peat and sand, three cuttings being put in a 4-inch pot. They must have the benefit of a strong bottom heat either in a propagating pit or Melon bed. They must be kept close and shaded until they commence to grow, and then they may have more light and air. When they have made sufficient roots to bear disturbing they should be shifted into 6-inch pots, just as they are, without dividing them. The compost for this shift should consist of equal parts loam and peat with a liberal sprinkle of sand after being potted, and until they come

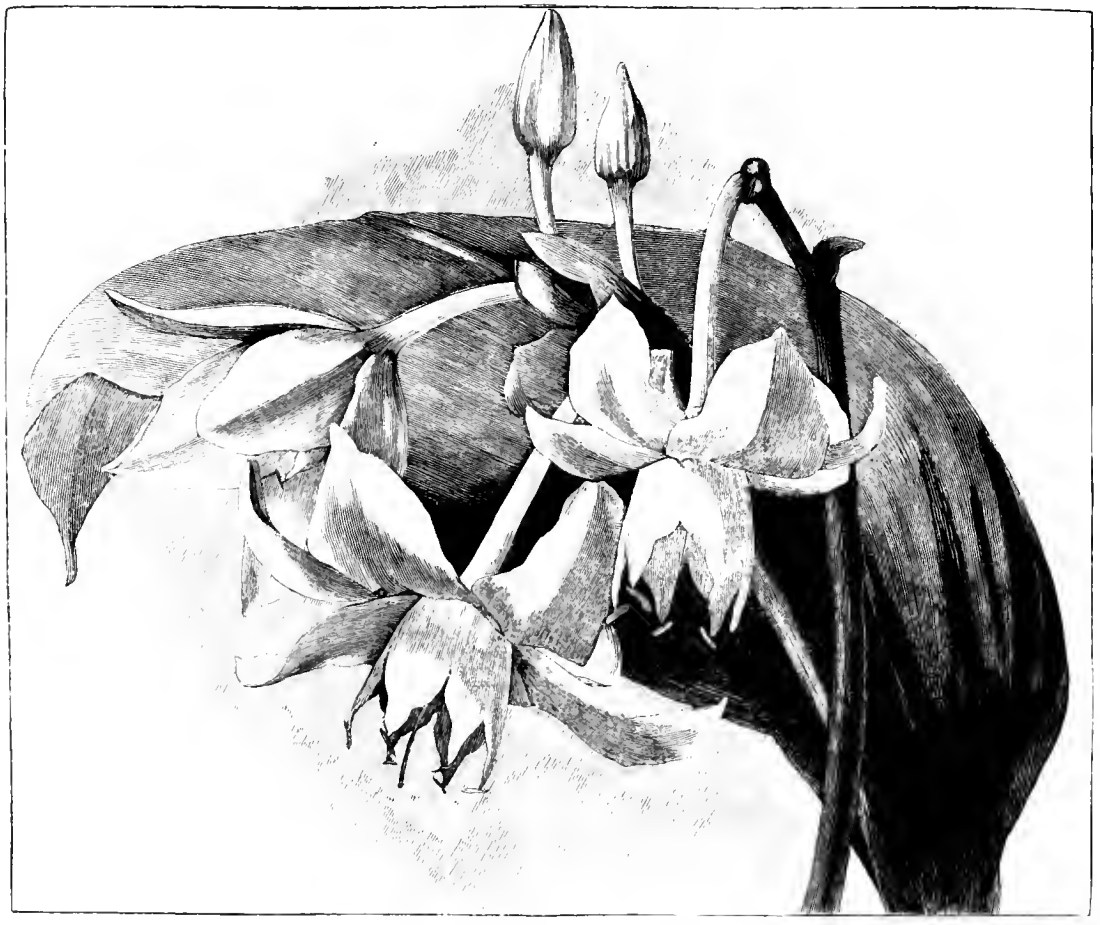
into flower they must be grown in a stove temperature, be slightly shaded, have plenty of atmospheric moisture, and regular syringing night and morning, or red spider will attack them. It is better not to resort to pinching off the tops with a view to get bushy plants, because they do not break again readily.

Miniature Asters in pots.—The little compact-growing Shakespeare Asters are invaluable for autumn flowering. Their habit is so dwarf and they produce their flowers in such a prettily formed head, that they are very suitable either for household decoration or for the conservatory. The seed should be sown about the first week in May on a warm border out of doors, and as soon as the plants are large enough to handle they should be transplanted to another piece of ground. To secure good growth, this as well as other Asters like a rich, deep soil and plenty of water in dry weather, and if a little earth is drawn up to the stem it helps to strengthen them. The time to lift them is just when the first flowers begin to show colour. Have some 5-inch pots crocked and taken to where the plants are growing; then with a trowel carefully lift the plants and drop one into each pot: press the soil about the roots and apply fresh earth, if necessary, to fill up the pot. Then take them to a cold frame, shut it up closely, and keep them shaded and well watered. At the end of a week gradually inure them to bear more light and air; in a fortnight or so they will get established in their pots and will open their flowers. It will then be found that they are well worth the little trouble which they have given.

Begonia Froebelli.—Although this Begonia has not yet ousted Zonal Pelargoniums from the flower garden, as was at one time thought it would, it is, nevertheless, a capital plant for flowering in pots for early winter decoration. The colour being a brilliant scarlet, and the flower-spikes produced in sufficient numbers to be effective, it makes a useful plant for vases, &c. It is as easily raised from seed as any of the varieties. Spring is the best time to sow the seed. It should be raised in heat, and the plants grown on all summer in a rather close, warm house. The seedlings should be pricked off into another pan as soon as large enough to handle. When young they will not bear the full force of the sun; therefore that part of the house in which they are growing had better be shaded thinly during the summer. In a rich soil and a moist growing atmosphere they will grow very fast; one half loam and the other half leaf soil and rotten farmyard manure, with some sharp grit to ensure porosity, is a very suitable mixture for them. From pans they should be put into 3-inch pots, and as soon as these are filled with roots they should be shifted into 6-inch pots. If grown under favourable conditions, they will be ready for this last shift by the middle of August. By the middle of September they should have more air given them, and the shading may now be dispensed with. By growing them in a temperature of from 50° to 55°, with plenty of light, being near the glass, they will continue to flower all through the dead of winter. After they go out of flower they require a rest, and the soil should then be kept just moist, to keep the roots fresh and plump. Complaints are sometimes made that this Begonia does not start well after being rested. When such is the case the tubers have been kept dry too long. It is not necessary to raise plants of it every year, for they are always better the second and third years than the first.

J. C. C.

Rhodanthe Manglesi.—This makes a charming pot plant as it becomes perfectly laden with its satiny pink blossoms, and is a fine ornament for placing in vases in room windows or on low shelves in the front of a greenhouse, the temperature of which is just what it wants. The way to raise the plants is to sow seed in pans, and place them in a warm frame; when the young plants are up, they should be potted in threes in 5-inch pots, which are quite large enough if the plants are kept fed with weak liquid manure.—S. D.



Eucharis candida.

5171.—**Azaleas not flowering.**—It is no uncommon occurrence for Azaleas to behave as your correspondent describes; many kinds push out quite a cluster of young shoots immediately below the flower buds, and if these shoots are allowed to make growth unchecked, they soon smother the flower bud, which dwindles away and drops without opening. The practice which we adopt in order to prevent this happening is to remove the shoots as soon as they are large enough to handle. In our case we force a great number in order to have the earliest in bloom by Christmas, and so persistently are these shoots pushed out, that it is necessary to go over them at least once a week and remove them. The quickest and

most satisfactory way to do this is to take the upper part of the twig firmly in the left hand and with the right give the shoots a pull partially downwards and also sideways, when they will separate at the base as it were from a socket. One shoot only must be removed at a time, but after a little practice the operation can be carried out very quickly. The treatment accorded his Azaleas by "W. J. T." appears, as far as can be judged, to be perfectly correct; but if they have been allowed to get dry at any time, it would also tend to cause the flowers to turn blind.—H. P.

SCREW PINES.

The Pandanuses or Screw Pines, so called from the screw-like form in which their leaves spring from the main stem, are remarkable for their elegantly carved leaves, which reflex with a regularity that gives them in either a large or small state when well grown an interesting appearance. In colour some are deep green with a reddish brown shade on their toothed edges and sharply spined mid-rib, as in P. utilis or P. elegantissimus, or beautifully variegated with white, as in P. Veitchi or P. javanicus. They are mostly strong growers, but several of the species attain a much larger size than the rest. The majority of them come from the hot parts of the eastern hemisphere; consequently, they like a high temperature.

Propagation. — They are increased by means of suckers, which most of the species produce more or less freely from the main stem; if these are taken off in the spring, a few of their bottom leaves removed, placed singly in small pots filled with a mixture of half loam and sand, stood in a brisk bottom heat, such as would do for suckers of the edible Pines, they will soon emit roots. When well rooted, it is advisable to stand the plants close to the glass where they will get a full volume of light, for upon the leaves not getting at all drawn depends the appearance of the plants as they get larger. The green-leaved kinds only require as much shade as will keep their leaves from getting injured; the variegated ones want more shading, or the white portions assume an ugly greenish yellow colour. As the sun approaches its full power the heat should be increased to 70° or 75° in the night, with 10° or 15° more in the day when it is bright, giving air each day when the weather will permit, and syringing the plants overhead in the afternoons. By the beginning of June larger pots will be required; the size of these must be regulated in accordance with the difference in the kinds cultivated, giving the most room to the strongest growers. Drain the pots well; they will succeed in either peat or loam, but I prefer the latter, as it usually favours more robust growth as well as higher colour in the variegated sorts. If more root room is wanted before the end of summer, it must be given; they are free-rooting plants, but yet it is not well to give them larger pots than is necessary. Reduce the temperature in the autumn, and discontinue shading; 60° or 65° in the night will be enough through the winter, with 5° or 10° more in the day; at the same time keep the soil drier. In the spring again increase the warmth both day and night, and treat generally as advised the preceding season, giving additional pot room as it becomes necessary. All that is required further is to follow on with the treatment advised up to this point, giving larger pots from time to time as the roots fill those they already occupy. When the specimens get old and the lower leaves fall off or become shabby the heads may be cut away, which will cause the stems to break out, the young suckers from which can be taken off and treated as advised, after which the old stools can be discarded, as young plants are preferable.

Species.—The undermentioned are a few of the best and most distinct: P. utilis.—A very strong growing handsome species from Bourbon. Suitable for cultivating in a big house where its large spreading leaves will have room. P. reflexus.—Another strong grower and one that attains a very large size: its leaves reflexing much gives it a distinct appearance. A native of the East Indies. P. elegantissimus.—A free growing kind from the Mauritius, with handsome foliage that attains a considerable size. P. graminifolius.—A very handsome small growing kind; one of the most elegant in habit and suitable for growing where the larger sorts are not. P. Vandermeerschi.—This also is a desirable sort that attains a medium size. P. Veitchi.—A beautifully variegated species, very handsome in either a large or small state. From the South Sea Islands. P. javanicus variegatus, likewise handsomely variegated and particularly pretty whilst young. When older, both this and P. Veitchi form a number of crowns.

Insects.—The hard texture of the leaves of these plants do not offer much attraction to insects generally, and they are easily kept under by syringing. If scale affects them, sponging must be resorted to. T. Baines.

LATH BLINDS FOR SHADING.

"J. C. B." laments that no one takes up the manufacture of lath blinds, such as are used in France. The reason is not far to seek; those who are not satisfied with plants badly grown require nothing more than a sight of these blinds to be deterred from using them. They have frequently been noticed in the different gardening papers, and many growers have seen samples of them and tried their effect by going inside a house with a few yards laid on the roof, which is quite enough for anyone who is practically conversant with the difference existing in plants grown under material that admits a maximum of light and others that are grown under shading of whatever kind that does not allow enough light to pass through it, such as the lath blinds in question. Many plants grown under glass are subjected to more or less shade that would not require shading at all if other matters connected with their cultivation were what they should be. In the case of Orchids, or other plants of considerable value that need some protection from the sun, it is sadly mistaken economy to use any fixed shading; this I have often urged when the question of shading has been discussed. On half the days through the spring and summer in this country no shading at all is wanted to any but exceptional plants, cuttings, &c.; anything that excludes even ever so little light from plants is a positive evil, and in bright weather, during the long interval from dawn of day until the middle of the forenoon and in the evenings, much mischief is going on where fixed shading is used. In large nurseries and market gardens where plant houses are reckoned by the acre fixed shading often becomes a necessity, but thin whitewash laid on with the syringe usually effects the work, and does it in a way much more to the advantage of the plants than where anything of a more costly description is used. In most cases the structures which the growers named possess through position and construction admit more light than those existent in private gardens, in addition to being lower, with the plants stood much nearer the glass; weak drawn-up plants will not do for those who grow them for sale, as such does not fetch more than half the price that the sturdy well grown stock turned out by the market growers does.

The nature of wood is such that it is not possible to divide it thin enough to admit as much light as the threads of the linen or cotton fabrics made for shading purposes do, and these even are often made closer and thicker in both weft and warp than they might or should be. In all cases the whiter the material the better it is for the plants. On the Continent where these lath blinds are in use there are not so many days on which the sun is obscured as in our fitful climate. T. Baines.

Moon flower.—Can anyone give the botanic name of this plant which was sent to me from Ceylon last year? I found by its growth that it required stove heat, in which it perfected four white blooms about 6 inches in diameter. They opened about four o'clock in the afternoon and remained open through the night, closing about eight or nine o'clock the next morning. The foliage is like that of an Ipomæa in shape and size, and the blooms are also like those of an Ipomæa. I was able to save two seeds which have just germinated; the old plant died back to 18 inches from the pot and is also breaking into growth. The flowers are beautiful, though we do not think it worth while to devote a light in the roof to the plant; I shall, therefore, only grow it to clothe the base of an old Allamanda.—C. A. B. W.

*** The botanic name of the Moon flower is Ipomæa bona-nox.—Ed.

Pelargonium Wonderful.—This beautiful double-flowered scarlet Pelargonium is not so well known or appreciated as its merits entitle it to be. It is one of the brightest coloured and freest bloomers of all the double section with which I am acquainted, and opens its flowers as freely in winter as in summer—a matter of great importance. Where cut flowers are in demand for button-hole bouquets, glasses, or table decoration, this Pelargonium will be found to be one of the most useful plants that can be grown. It produces flower-trusses as freely as the well-known Vesuvius, which it somewhat resembles in habit, but it has this advantage over that variety, viz., it does not drop its petals. Plants treated in the ordinary way in which zonal Pelargoniums are treated for winter flowering will give satisfaction. They should be got into their flowering pots by the middle or end of June, and set on a bed of ashes out-of-doors in a sunny position. They should be kept well supplied with water, and the flower-buds should be picked off as they appear until the middle or end of September, when they should be housed in a light position in an intermediate temperature, allowing abundance of air on bright days and a little stimulating liquid to those that are pot-bound. We grew twelve plants of P. Wonderful last winter, but think of having five times that number next winter, so much are we satisfied with its good qualities.—C. W. C.

Epacris onosmæflora.—This is a pretty species of Epacris and one quite distinct from the generality of cultivated kinds. The growth is stout and dense, while the flowers, which are short in the tube and more widely expanded than those of most others, are white and borne in great profusion. It is a native of moist spots on the elevated table lands of New South Wales and was introduced into this country about 1822. Pretty and distinct though it be, this Epacris is almost unknown outside of botanical gardens, one reason for this probably being that it is by no means easy to propagate. Owing to the succulent character of the shoots they are very apt to decay, so that it is necessary to put the stock plant in a little heat in order to induce the shoots to come weaker or, in technical parlance, to draw them out. When this is done they root fairly well if treated the same as cuttings of Heaths and similar subjects. A good bushy little plant of this species is now in flower in a cool compartment of the T range at Kew. The double flowered variety of E. onosmæflora was introduced by Mr. Bull some few years ago, and has been by him repeatedly exhibited, so that it has become somewhat familiar, though it was only distributed for the first time last year. In this variety the flowers, which resemble little white rosettes, are borne in such profusion, that the shoot is completely clothed with them, and, in common with most other double flowers, they last a long time in beauty. For the more select purposes to which cut flowers are put, such as wreaths, button-holes, and bouquets, this Epacris will be found to be very valuable.—H. P.

5172.—**Seedling Amaryllises.**—The seeds of Amaryllis ripen in our hothouses about the end of July, sooner or later according as the flowers set, early or late. When the seed-pods open and show the black seeds inside, they may be gathered and laid out in a dry airy place for two or three days. The seeds do not take long to vegetate in a gentle hotbed, and in three weeks the plants may be potted off, putting about a dozen in a 5-inch or 6-inch pot. The pots should be plunged in a tan bed,

and at that season of the year (September) but little artificial heat will be required. We grow our plants in what might be termed a cool stove temperature. The plants will require just enough water during the winter to keep the soil from becoming dust-dry, and in January they may be repotted, this time three plants in 5-inch and 6-inch pots. The plants will not be large at this time, but they will make good sized bulbs, some of them as large as hen's eggs. They require the same treatment during summer as the ordinary stock, and should be allowed to rest in winter by the house being kept at a greenhouse temperature, water being entirely withheld. At potting time in January each bulb should be potted separately, using the same sized pots as heretofore. A few of these will flower during the season; indeed there are some producing strong flowering stems, with four flowers on each in our own garden at this moment, the seeds of which were not ripened until August, 1882, so that these strong flowering plants have been produced from the seeds in nineteen months. As a rule not more than 5 per cent. of the plants will flower in eighteen or nineteen months from the time of sowing.—J. Douglas.

Orchids.

Dendrobium Wardianum.—There is a good deal of variation in this Dendrobe, some being remarkable for size, as, for instance, that which we noticed last week. Now we have before us a form remarkable for the high colouring of the tips of the sepals and lip. These flowers were sent by Mr W. C. Walker, of Oakleigh Park, Whetstone, who assuredly possesses a very good variety of this Orchid.

Spot in Orchids.—I have a few Orchids some of which have been and are affected, as you see the enclosed leaf. Will you kindly tell me what the disease is and, if possible, the remedy for it? It began with a Vanda cœrulea, but is now extending to some of my Cattleyas, and some apparently healthy plants are being attacked by it.—W. L.

*** Your Vanda cœrulea and Cattleyas are badly attacked by the disease known to Orchid growers as black spot. It is supposed to be caused by a fungus named Protomyces concomitans. Sometimes the spots are livid in colour and altogether moister than your examples; in these latter specimens the fungus is best seen. The parasite, however, is very distinct within the black spots on the leaves sent by you. No cure is known, the subject having never been worked out. The better plan is to carefully cut away the blackened leaves and destroy them, as the reproductive bodies belonging to the fungus are in the tissues.—W. G. S.

Cattleyas from Southport.—We have received from Mr. Percival a gathering of flowers from his rich collection of Cattleya Trianæ varieties. The flowers sent—about half a hundred—convey a good idea of the wealth of beauty which Mr. Percival's Cattleya houses must contain at the present time. Moreover, the gathering admirably shows the extreme variation in this Cattleya, for out of the dozens of blooms sent it would be difficult to find two exactly alike in shade of tint or form. Some of the flowers represent superb varieties—as fine as we have seen this season, and two or three light varieties are exquisitely beautiful, particularly one, almost pure white, save a faint dash of mauve on the labellum. There are several other uncommonly fine forms, but it would be a difficult matter to intelligibly describe them. If Mr. Percival's Cattleya collection is as rich in varieties of other species as it is in C. Trianæ, it must indeed be a fine one.

Ponthieva maculata.—A pretty little Orchid, whose flowers are curiously formed, and marked with colours which are more charming to the taste of the æsthetic than to the more vulgar taste for gaudiness. Its soft hairy foliage has been likened to the leaves of Arnica montana, which it resembles much more than it does any cultivated Orchid. In the cool Orchid house at Kew a healthy plant is now bearing several spikes of bloom, and in passing we might suggest to the few who possess this rare little plant that its requirements are those of Odontoglossum crispum rather than of Phalænopsis, for it does not like heat, preferring a cool moist atmosphere and shade from bright sunshine, under which conditions it is very satisfactory at Kew. The flower-spikes are nearly a foot high when fully developed, continuing to grow after the first whorl of flowers has opened; these are an inch in diameter, are shaped like a Lobelia flower; the upper sepal is whitish green and pale brown, the lower ones being somewhat similarly marked, but the white is clearer. The petals are bright buff, with the nerves marked at the base by pale green. The singular glandular hairs which spring from the green spots on the sepals are supposed by Prof. Reichenbach to be meant for the attraction of insects. He says: "They have such a firm protoplasmic content as to break up the light, as if they were diamonds, and are, no doubt, for attracting insects." Messrs. Sander & Co. introduced a quantity of this plant from Venezuela some three years ago.

Sarcochilus Hartmanni.—This pretty plant is one of the very few good garden Orchids found in Australia, where, considering the size of the country, the order is comparatively poorly represented, so far as is at present known. If we except a Dendrobium or two, Calanthe veratrifolia, and a few others, including several whose homes are in the Malay Archipelago, from whence they appear to have strayed into the Australian continent, none of the Orchids of that country are possessed of any particular beauty, although many of them, and especially the terrestrial kinds, are peculiarly interesting in the form and colours of their flowers, and are perhaps even beautiful microscopically. The two species of Sarcochilus which are grown in a few collections in this country are, however, exceptionally beautiful little plants, and are also exceptional in that they are much more easily kept in good health than the majority of Australian Orchids are. S Hartmanni is a dwarf, compact-growing epiphyte, somewhat like a dwarf Vanda or Aerides japonica in habit; the growths are tufted and the leaves fleshy and bright green. A plant now in flower at Kew bears four spikes, each about 9 inches long and two-thirds clothed with flowers nearly an inch across. These flowers are pure white with a sparkling frosted-like surface, the bases of the petals and sepals as well as the Saccolabium-like lip, column, and stalk being thickly spotted with purplish brown. The flowers last for several weeks. The other species, S. Fitzgeraldi, which will soon flower at Kew, is larger in all its parts, and the flowers are zoned with rosy purple instead of being spotted. Both these plants thrive in an Odontoglossum house.

Cypripedium spectabile.—The flora of North America does not yield us a brighter jewel than the lovely Mocasson flower, as this handsomest of Lady's Slippers is called, nor, on the other hand, one more difficult to make happy in English gardens. It is true we hear of it, and now and then see it thriving by the side of a stream, in a peaty bog, or nestling under the sheltering shade of Ferns and rocks, but it seldom remains long happy, dying away in a year or two, as if in grief, and, like the beautiful sun birds of Borneo, refuses to make its home with us. Fortunately, it appears to be plentiful in its native haunts, from whence we receive annually large consignments of strong healthy clumps, to be sold in the auction rooms and by nurserymen, so that we can always easily replace losses by planting fresh imported roots. This winter an unusually large quantity of plants were imported, and for as many shillings we could buy a dozen good clumps. We bought a good number of them, some to be planted in specially prepared beds out of doors, and a few to be planted in pots for forcing. These last are now beautiful specimens, bearing six or eight fine blooms, whose charms are superior to most of the flowers of the tropical species among which the forced Mocassons stand. A flower-worshipping friend would never admit that Lady's Slippers were beautiful until she saw this northern gem, which she said made up for the ugliness of its darker brothers. When forced, the blush on the lip of the flowers of the Mocasson is paler than it is out of doors, but the whole flower is much purer and larger, while the foliage is of the brightest, healthiest green. We pay half-a-crown for a Hyacinth bulb whose worth is only for a few weeks, and which by the side of this lovely Orchid is as a goose to a swan.

Finely flowered Phalænopsis.—In Mr. Perkins' garden at Kirkley Hall, near Newcastle, there are two uncommonly fine specimens of Phalænopsis Schilleriana in perfection at the present time. There are two plants, each having nine leaves from 12 inches to 15 inches long. One plant carries three spikes bearing 255 flowers all expanded, while the other plant bears two spikes with 255 flowers. Both specimens are of the same variety, and are very sweet-scented. The appearance of these plants in the old-fashioned lofty lean-to house is very fine indeed.

Cattleya Trianæ Leeana.—Even in these days, when almost fabulous sums are paid for Orchids, the sum of 250 guineas for one plant, and particularly for a variety of Cattleya Trianæ, is extraordinary. Such, however, is the price which Mr. Lee gave for a plant of Cattleya Trianæ at Messrs. Sander's nursery at St. Albans. As may be supposed, the variety is as extraordinary as the price paid for it, and the fact that it has during the past week been awarded two first-class certificates (one from the Royal Horticultural Society, the other from the Royal Botanic Society) tends to confirm the high estimation with which it is regarded both by Messrs. Sander and Mr. Lee. It is indeed a most extraordinary Cattleya, remarkable for the large size of the flowers, as well as for their splendid colour. Across the outspread sepals it measures just 8 inches across. The outer sepals are an inch broad, and the upper one holds itself almost erect; the inner sepals are 3¼ inches broad, and are of sufficiently firm texture to hold themselves out boldly; their colour is a delicate lilac-mauve. The lip measures just 2 inches across the lower lobe and the neck of it forms a prominent, sharp ridge. The colour of the lip is a splendid carmine-magenta, deepening towards the inner part of the throat, but gradually becoming paler. It is but little frilled, but there is a distinct pale margin round the lip which adds much to its beauty. The remarkable point as regards colour is the entire absence of any tendency to a yellow tinge in the throat, which is so unusual in Cattleya Trianæ. Such is a brief description of this magnificent Cattleya, which must hereafter be looked upon as peerless among the named varieties of C. Trianæ, and it will be probably years before another such variety appears, for among the thousands of plants Messrs. Sanders have imported of this Cattleya, none have equalled this one. The plant is a fine specimen attached to a block of wood, and numbers forty bulbs. It has been named in compliment to Mr. Lee, a great lover of Cattleyas, whose grand collection at Downside, Leatherhead, this new beauty has gone to enrich.

Pruning Orchids.—"T. B." seems determined not to be convinced that it is possible to grow Orchids successfully with their back bulbs cut away. And it is quite possible that some Orchid growers may have failed in the use of the pruning knife where others have been successful. But if "T. B." is desirous of getting at the truth of the matter, I should recommend him to do as I have done—go and see the plants about which "J. S. W." has written so much, and then he will be able to judge for himself whether or not it is possible to grow certain Orchids successfully after they have been pruned. I have seen "J. S. W.'s" plants of Dendrobium Wardianum several times lately, and I can confirm every word he has said in reference to them. It is all very well for "T. B." to talk about sending a pruned plant to Regent's Park or Manchester to put the system to the test, no matter if they be in flower or not. But I think that most Orchid growers will agree with me in saying that the proper time to judge an Orchid or any other plant is when it is in flower. Then one can see not only the length and strength of the growth, but also the size and colour of the blooms. "J. S. W." is not the only Orchid grower who can grow pruned

Orchids. Not many days ago I called on a friend who had a small houseful of Dendrobiums, and there was not one old bulb left in the case of any of the plants. Nevertheless, a grander lot of plants and flowers I never saw; and I think that if "T. B." had seen them he would have modified his views on the subject of pruning considerably. —H. Parker.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

April 1.—South Kensington.—Narcissus Conference.
4 and 5.—Crystal Palace.—Exhibition of Spring Flowers.

Daffodil conference.—This, which is to be held in the conservatory, South Kensiogton, on Tuesday next, is for the exhibition of the various species and varieties of Daffodils, and for a discussion on their habits and culture. Prof. Michael Foster is to preside, and it is expected that a great number of the admirers and cultivators of Daffodils will take part in the discussion, and that specimens will be sent from many places in the United Kingdom and the Continent. Some of the most enthusiastic growers have have already expressed their warm approval of the matter and their intention to assist in every way to make it a success. The conference will take place at one o'clock, when Mr. Burbidge, Trinity College Gardens, Dublin, will deliver a lecture on Daffodils.

Royal Horticultural Society.—The schedule of this society for the coming season has just been issued. It announces that in addition to the usual fortnightly committee meetings there will be special exhibitions of fruit and vegetables during May, June, July, August, September, and October, at which valuable prizes will be offered amounting in the aggregate to about £1000. The prizes range from £10 to 5s, and the schedule, on the whole, is a most comprehensive one, though it does not include any classes for plants or flowers, excepting those in connection with special societies. A busy season is anticipated at South Kensington, and the inducements offered to fruit and vegetable growers to compete cannot fail to work much good in bringing high class garden produce before the throngs of visitors that will be attracted to the Health Exhibition to be held in the gardens this year.

The Coffee Plant (Coffea arabica).—A fine, well fruited specimen of this plant is now in beautiful condition in the Palm house at Kew, where it is planted in a small bed on the side of the transept. About 400 berries are distributed amongst the branches of the upper portion of this tree or shrub, which is about 12 feet in height, and the contrast of the shining red cherry-like berries with the dark lustrous green of the foliage among which they nestle is especially good. Apart from its interest as the source of the popular beverage, this plant is exceedingly ornamental in a garden sense, and where room can be spared for it to develop itself, it proves a very attractive stove plant, as indeed are several other species of the same genus, C. bengalensis being particularly so, its pure white Jasmine-like flowers, which are deliciously scented, being borne freely during the winter and spring months; it was in flower at Kew a few weeks ago. Close by the above specimen of C. arabica may be seen a plant of C. liberica, which will soon bear flowers for the first time in this country. The following extract from Simmonds' "Tropical Agriculture" will give some idea of the beauty of a Coffee plantation: "The aspect of a Coffee plantation during the period of blossoming is very interesting. In one night the blossoms expand themselves so profusely as to present the same appearance which is sometimes witnessed in England when a casual snowstorm, at the close of autumn, has loaded the trees while still furnished with their full complement of foliage." When in flower the Coffee trees should be kept dry, which assists their fertilisation. The blooms are as large as Orange blossoms, and remain on the plant for about three days. There is a variety of C. arabica which bears bright yellow berries, and is also very ornamental. For their cultivation under glass, the Coffeas require a richly manured soil, an abundance of water both at the root and overhead, and exposure to bright sunlight. Seeds, if fresh, germinate in about three weeks, and from these, with liberal treatment, it is possible to raise handsome fruiting specimens in about four years. —B.

Hyacinths at the Bristol exhibition.—I doubt if there were ever a much finer lot of Hyacinths seen in the provinces than were exhibited recently at the Victoria Rooms, Clifton. Messrs. Garaway were the leading exhibitors, this firm staging upwards of 200 specimens, not, however, for competition; these included many choice varieties, and all were shown in excellent condition. Some of the best were Blondin, silvery blue; Czar Peter, porcelain blue; General Pellisier, deep crimson; King of the Blues, rich blue, one of the best; La Grandesse, pure white; Leviathan, single white, very fine; L'Innocence, pure white, good; Lothair, bright blue; Masterpiece, black, fine spike; Princess Mary of Cambridge, delicate porcelain, very fine; Vuurbaak, bright crimson, grand spike; Lord Derby, deep pink, fine truss; Lord Byron, pale blue; President Lincoln, mauve, of branching habit; Marchioness of Lorne, rich cream colour, tinted with pink; Sultan, a very dark blue; and Cavaignac, a pale pink. In the competing classes the most noteworthy were the twelve Hyacinths which gained for Messrs. J. Cypher & Son, Cheltenham, the first prize in a class for six pairs, and also the silver Banksian medal of the Royal Horticultural Society for the best twelve Hyacinths in the show. They were, I was informed, selected by the exhibitors from a collection of 500 specimens in great variety, and, as may be imagined, were very fine. The varieties were L'Innocence, Anna, Von Schiller, General Havelock, Czar Peter, and Vieur Cook. Among the hundreds of Hyacinths exhibited in the various classes provided for them, the best represented were Alba maxima, with large spikes and bells; Blondin, Czar Peter, De Candolle, single blue, fine; General Havelock, dark purple, fine spike; Gigantea, pale pink, sturdy spike and large bells; Grand Lilas, porcelain blue, extra strong; Haydn, mauve, very fine spike; L'Or d'Australie, yellow, fine spike; Miss Nightingale, white, semi-double, and fine; Von Schiller, salmon-red, striped, fine spike; Vuurbaak, Macaulay, striped carmine, grand spike; Lord Derby, Leonidas, dark porcelain blue, fine spike; La Grandesse, Pieneman, dark porcelain blue, one of the best; Lina, rich crimson, very compact and good; Fabiola, rose, good spike; King of the Blues, one of the most popular; Grandeur à Merveille, rosy white, very strong; Mont Blanc, Etna, bright red, new; and Feruck Khan, dark purple, sturdy spike.—W. I. M.

QUESTIONS.

5179.—**Shading.**—How can I best shade the roof of a small lean-to conservatory—what covering outside and what foliage within? Will anyone kindly tell me?—Mells.

5180.—**Sweet-scented Verbena.**—Many years ago I saw a beautiful white-blossomed Verbena, the flowers and leaves of which were much larger than usual; the latter were sea-green and very soft, and the bloasom sweet-scented like Jessamine; it was a very free grower; the cuttings of it came from France. Where can I get this plant?—H. C. A.

5181.—**Fertilising Moss.**—I should be glad to hear anyone's experience of fertilised Moss; whether it would be of any use to take some to Switzerland, so as to grow in it during a stay of a couple of months plants which it was not convenient to send home at once to England; and whether such a plan would afford a better chance of preserving plants than sending them home to be planted out. Also, where best to obtain the Moss.—S. M.

5182.—**Rock and wall plants.**—Will some of the readers of The Garden kindly furnish answers to the following questions—viz.: 1. What are the best and most suitable plants for a rockery situated south-west? I want them to mix in with a good collection of hardy Ferns. 2. What scarlet or crimson Rose would be best for a conservatory? one that will bloom freely, yet be good in quality? 3. What would be best for a west wall in the way of something evergreen (not Ivy), as well as something that will flower freely for contrast in summer? 4. Something of the same kind that will thrive facing direct north?—H.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 25.

A great gathering of spring flowers filled the conservatory at South Kensington on Tuesday last, the flowers of the season—Hyacinths, Tulips, and Narcissi—being the most prominent in the show. There was also a considerable number of miscellaneous plants, several of which were new, and among them the following were awarded first-class certificates:—

Cattleya Trianæ Leeana.—This magnificent variety, which is described in another column, was exhibited by Mr. Woolford, Mr. Lee's gardener at Downside, Leatherhead.

Lælia callistoglossa.—A splendid hybrid Orchid, the result of a cross between Lælia purpurata and Cattleya gigas. The hybrid combines the splendour of these two Orchids in its flowers, which are as large as those of an average-sized C. gigas variety, but the sepals are somewhat narrower and of a delicate mauve. The lip is exceedingly fine, being fully 2 inches across and of an intensely deep carmine-crimson, inclined to magenta. It is one of the finest of all hybrid Orchids, and the fortunate possessor of it is Baron Schroeder, The Dell, Egham, whose gardener, Mr. Ballantine, exhibited an admirably grown specimen on this occasion.

Adiantum rhodophyllum.—A new Maidenhair Fern, presumably of hybrid origin. It may be best described as similar to the new A. Victoriæ exhibited last year. The plant is dwarf in growth, scarcely more than 6 inches high. The fronds carry broad pinnæ, and in a young state are a coppery red tinge. This tint gradually passes through lighter shades until it acquires the deep green of the mature fronds. It is undoubtedly one of the most beautiful Ferns that has yet come into cultivation, and will become widely popular. Shown by Messrs. Veitch, Royal Exotic Nursery, Chelsea.

Odontoglossum Oerstedi.—A sweetly pretty Orchid of dwarf growth, the whole plant being but a few inches high. The bulbs are small and bear solitary flowers, each over an inch across, and of a pure waxy white, spotted in the centre with yellow. The plants shown by Mr. Lee's gardener on this occasion were exceptionally well flowered, one plant bearing fifteen flowers, the other twelve. It is a lovely cool house Orchid.

Wallflower Bedfont Yellow.—A very fine new variety, remarkable for its dwarf, sturdy growth and floriferousness. The massive spikes of large flowers are of a rich bright yellow. The plants shown by Mr. R. Dean, of Ealing, were from 9 inches to 1 foot high, and the vigorous growth of every plant indicated the strong constitution of the variety. It is undoubtedly a valuable acquisition to spring-flowering hardy plants.

Amaryllis Sir Redvers Buller.—A gigantic flower, measuring nearly 9 inches in diameter, with broad, overlapping petals of thick texture. The colour is a vivid scarlet, with a broad stripe of white running through each petal. Shown by the raisers, Messrs. Veitch.

Hyacinth Harlequin.—A variety in the way of an old sort named The Shah, but the spike is more massive and the individual flowers are finer. The colour is the same, except that there is a white centre in the flowers of Harlequin. Messrs. Veitch.

Rose Anna Marie de Montravel.—A new variety of the R. polyantha race, characterised by the large clusters of flowers produced on almost every twig. The flowers of this sort are about 2 inches across, very double, and pure white, and being borne abundantly render the plants highly attractive. It was exhibited by Mr. Bennett, Shepperton, who had some pot plants about a foot in height completely covered with blooms.

Auricula Hetty Dean.—A new variety belonging to what is called the self-coloured section, in which it is almost unique. The flowers are of perfectly circular outline, of a clear yellow, and

with mealy white centre. It may be regarded as an acquisition to the already long list of Auriculas. Shown by Mr. R. Dean, Ealing.

Amaryllis Colonel Burnaby.—Flowers very large, but not remarkable for refined form. The colour, a brilliant scarlet, renders it a very showy variety. Shown by the raisers, Messrs. Veitch.

Amaryllis Mrs. Shirley Hibberd. — One of the Leopoldi race, characterised by finely-shaped flowers and white-tipped petals. The flowers of this sort are larger than usual, but are somewhat deficient in form The colour of the petals is striking, being a very deep crimson tipped with white. Messrs. Veitch.

Hyacinth General Gordon. — Spike large and massive, colour a bluish black. A very handsome variety and very superior to others of a similar colour. Messrs. Veitch.

Orchids.—There were a few choice Orchids, contributed by various amateurs. Mr. Philbrick sent from his garden at Oldfield, Bickley, a few interesting plants, among which was a new Cypripedium named sylhetense; it is in the way of C. insigne, and is strikingly similar to the new hybrid C. Leeanum, exhibited a short time ago, except that the dorsal sepal is scarcely so white. It is a most interesting species. From the Oldfield collection Mr. Heims also brought a fine spike of Odontoglossum Jenningsianum in the way of O Ruckerianum, but finer; O. triumphans punctatum, remarkable for the flowers being copiously spotted in addition to the usual blotches of brown. The rare Eriopsis rutidobulbon was also shown by Mr. Philbrick. It is a handsome Orchid, bearing a long spike of flowers with cinnamon-red sepals and white-tipped lips.

Among the plants from Mr. Lee's collection, Downside, Leatherhead, was the rare little Masdevallia Schlimi, with a spike carrying five flowers, and the new hybrid M Chelsoni, also with five flowers, large and highly coloured. The same variety was also shown by Messrs. Veitch. The most charming plant, however, that Mr. Woolford brought from Downside was a plant of the old Leptotes bicolor, bearing eight spikes with three flowers on each spike. The plant was in a shallow pan and was much admired.

A spike of the unique Odontoglossum elegans, shown by Mr. Wilson from Mr. Pollett's garden at Ferofield, Bickley. It is supposed to be a hybrid and bears affinity with O. cirrhosum, the flowers being of a similar size and form. They are heavily spotted with chocolate-red on a white ground. A plant of the curious Cirrhopetalum picturatum bearing eight flower spikes was shown by Major Leedy, Sunbury, who was worthily awarded a cultural commendation for such a fine specimen.

Cattleya Loddigesi, one of the most beautiful species when well grown, was shown admirably by Mr. J. N. Dains, gardener to Mr. W. Soper, 307, Clapham Road, S.W. There were three spikes on the plant, one of which was fully 30 inches high, and bore an extremely fine spike of six flowers of a soft rose-pink colour, with the lips of a pale primrose-yellow. The plant was growing on a block fixed in a pot. The committee accorded a vote of thanks to the exhibitor.

A new Odontoglossum named macrospilum was shown by Mr. B. S. Williams. It may be best described as being similar to O. crispum, with long narrow sepals heavily blotched with chestnut-red on a white ground; it is a very attractive variety. Mr. Williams also showed O. vexillarium gigauteum, with uncommonly large flowers of the usual colour.

Rhododendron grande was again shown by Mr. Mangles, Valewood, Haslemere. The huge trusses of pure white wax-like flowers were greatly admired, and the luxuriant growth of the specimens shown indicated the health of the plants. Of this truly grand Rhododendron, Mr. Mangles has a specimen in his garden carrying thirty-seven trusses. A large gathering of early flowering Rhododendrons of the Nobleanum race was shown by Mr. Burnett, from the Deepdene gardens, Dorking, where these Rhododendrons flourish admirably in the more sheltered spots.

Begonia Roezli and B. nitida were shown in admirable condition by Mr. Bain, gardener to Sir Trevor Lawrence, Burford Lodge, Dorking. The first named is a particularly beautiful plant with clusters of cherry-red flowers in the way of B. nitida; accompanying these were Freesia refracta alba, finely grown and flowered, and Doronicum austriacum, a handsome yellow-flowered hardy composite, which, when slightly forced into bloom early, is one of the most beautiful plants one can have in a greenhouse at this season.

Primroses in great variety were again shown by Mr. A. Waterer from his nursery at Knap Hill These included a large basketful of the bright yellow Hose-in-hose variety, named Hyde Park Yellow, a very fine sort. There were numerous others in this collection, chiefly seedlings of great merit, whose colours were indescribably rich and varied. Mr. Waterer also showed again plants of the beautiful Andromeda japonica profusely hung with necklace-like racemes of small white blossoms, which, in contrast to the evergreen foliage have a beautiful effect.

Forced Roses were shown by Mr. Walker, Thame, in beautiful condition for the season. The finest blooms among these consisted of Souvenir d'un Ami, Helen Paul, Lord Macaulay, Climbing Devoniensis, Cheshunt Hybrid, Niphetos, Sir Garnet Wolseley, Lamarque, Thomas Mills, Senateur Vaisse, and a numerous gathering of Maréchal Niel. These blooms were uncommonly fine for the season, and some, such as those of Thomas Mills and Souvenir d'un Ami, would have done credit to an exhibitor's stand in July.

Three new Carnations (perpetual flowering) were shown by Mr. Turner, Royal Nurseries, Slough; they were Rufus, crimson; Mrs. Llewellyn, a beautiful salmon-pink; Ruby, deep purple-magenta, all fine large-flowered sorts. Two new Abutilons came from Mr. Parr, Given's Grove, Leatherhead; one named General Graham, a large yellow, considered very fine. A fine new Rose, named Etendard de Jeanne d'Arc, was shown by Mr. Bennett, Shepperton; it is said to be a white Gloire de Dijon. Another was shown, named Perle d'Or, which will evidently prove a beautiful sort. Four new Cinerarias came from Mr. James, Faroham Royal, all being first-rate. They were named Mrs. Cox, Duke of Northumberland, Sir F. Roberts, and King Lear. Mr. Graham, Canford, showed his new Wallflower, Canford Beauty, in fine condition, and was even finer than when shown last year. He also showed a new Primrose, named Sir Gerald Graham, of a beautiful red-purple colour, for which he was awarded a cultural commendation. New Cyclamens were shown by Mr. H. B. Smith, Ealing, among which were four beautiful sorts, named Butterfly, The Guardsman, Lord Tennyson, Crimson Belle, and Sunrise, all first-rate. A group of new plants shown by Messrs. Veitch included the following: Azalea serpyllifolia, best described as a white-flowered variety of A. amœna, very distinct and pretty; Rhododendron suave, with large white flowers in the way of Sesterianum; Amaryllis Cordelia, Madonna, Olivette, all new seedlings.

A group of hardy florists' flowers, from Mr. R. Dean, Ealing, contained several worthy of note, particularly a new Aubrietia named violacea which is apparently the finest variety yet raised, better even than Hendersoni and Campbelli. There were also numerous sorts of coloured Primroses similar to those shown on the last occasion; a bunch of Anemone coronaria, said to be home-grown, was certainly as fine as any we have seen from the south of France this season; a bunch of cut blooms of Doronicum austriacum from a frame, and some varieties of Primula Sieboldi (amœna) named Mauve Beauty, Ophelia laciniata, all excellent sorts, were also shown by Mr. Dean, as well as Bedfont Beauty laced Polyanthus, a beautiful sort.

Hyacinths. — A very fine display; the most extensive in the show was contributed by Mr. B. S. Williams from his Victoria and Paradise Nurseries, Upper Holloway. It consisted of some 250 Hyacinths representing the finest of the older kinds, besides several new ones, among which the most prominent were Roi des Belges, single red; Duke of Albany, double red; Pink Perfection, single red; Primrose Perfection, single yellow; Souvenir de J. H. Veen, single dark blue; Blanchenr à Merveille, single white; Electra, single light blue; Leviathan, single rose; The Sultan, single dark blue; Challenger, single lilac; and Etna, single red. All these may be considered superior to the older sorts of a similar colour. Mr. Williams group also contained a large collection of Tulips, Polyanthus Narcissi, Cyclamens, Azalea mollis, some extremely fine potfuls of Lily of the Valley, and a group of Imantophyllums, all large and well flowered specimens of such fine varieties as Madame Van Houtte and cruentum, both of which have huge trusses of highly coloured flowers. There was also a collection of Amaryllises, which comprised some fine sorts such as Virginalis, pure white; Baron F. Rothschild, bright scarlet; and Acramanni pulcherrima. For this group Mr. Williams was deservedly awarded a gold medal.

An extremely fine group of Hyacinths numbering between 200 or 300 plants, was shown by Messrs. Veitch. This collection represented the very finest of the hundreds of sorts now cultivated, and included several that had been exhibited for the first time. Besides those certificated there were the following new sorts: General Graham, bluish lilac, very fine spike; Minerva, flesh-pink; Lady of the Lake, a beautiful yellow; General Roberts, dark red; and Lord Derby Improved, having more massive spikes and better shaped flowers than the original. A silver-gilt medal was awarded to Messrs. Veitch. A similarly fine, but smaller collection of Hyacinths was shown by Messrs. Cutbush & Son, Highgate. It likewise represented the cream of the Hyacinth varieties, all in fine condition, and worthily deserved the silver-gilt Banksian medal awarded.

Narcissi in great numbers were contributed by Messrs. Barr and Son and Mr. T. S. Ware, but as we shall have a deal to say respecting Daffodils next week, we will defer our remarks respecting them. Besides Narcissi, however, Mr. Ware showed numerous interesting flowers, such as the new Lachenalia tigrina Warei, Erythronium grandiflorum and E. Hartwegi, the latter a pretty yellow flowered kind; Lachenalia violacea, L. Nelsoni, Sisyrinchium grandiflorum album and others. A bronze Banksian medal was awarded to Mr. Ware and a silver-gilt Banksian medal to Messrs. Barr, whose group contained, in addition to Narcissi, a host of rare and interesting bulbous and other plants, among which we noted Fritillaria armena, F. tristis, Ilessea spiralis, Corydalis alba, Puschkinia libanotica compacta, and a large gathering of Anemone fulgens. A showy display was made by Messrs. Collins and Gabriel with Anemone fulgens and various kinds of the finest Daffodils, and the bright little Triteleia uniflora lilacina, which has been in flower in the open air for some weeks past.

Fruit and vegetables.—There were but few exhibits submitted to the fruit committee. A first-class certificate was awarded to Mr. Gilbert, Burghley, for his new Savoy called Gilbert's Universal. It was shown on the last occasion, and the committee desired Mr. Barron to put the Savoy to the test in the interval. A first-class certificate was also awarded to Messrs. Bunyard, Maidstone, for Rhubarb Hawke's Early Champagne, said to be a first-rate variety in every respect, and distinct from the numerous other varieties grown. A collection of the different sorts of Rhubarb was shown by Mr. Barron from the Society's garden at Chiswick. The complication of names with which the Rhubarbs are burdened is well shown by the following list of the sorts comprised in this collection. These were Goliath (Barr), Johnston's St. Martin (Barr), Dancer's Early Red (Osborn), Buck's Early Red (Woodbridge), Champagne (Barr), Crimson Perfection (Carter), Baldrey's Scarlet Defiance (Osborn), Early Red (R.H.S.), Early Red (Lawson), Albert (Barr), Albert (Osborn), Mitchell's Royal Albert (Carter),

Salt's Crimson Perfection (Osborn), Linnæus (Barr), Scotch Mammoth (Bunyard), Linnæus, or Johnston's St. Martin's Linnæus (Lawson), Linnæus (Osborn), Victoria (Lawson), and Backley's Crimson (Barr).

A well preserved collection of a dozen or more sorts of Apples was shown by Mr. Oldham, from North Finchley. These included Allan's Everlasting, Dumelow's Seedling, King of the Pippins, Annie Elizabeth, Ribston Pippin, Alfriston, Margil, all in excellent condition.

Scientific Committee.—Sir J. D. Hooker in the chair.

Black Knot in Birch.—With reference to this subject, brought before the Committee at the last meeting, Mr. Maclachlan observed that Prof. Trail had come to the same state of uncertainty as to Phytoptus being the cause of it as himself, inasmuch as by his experiments he obtained a small gall-like structure, which would, however, develop no further, and failed to produce the characteristic features of the disease.

Experiments in Protecting Potatoes from the Disease.—A sub-Committee was nominated to superintend the experiments to be carried out at Chiswick, consisting of Sir J. D. Hooker, Messrs. Plowright, W. G. Smith, G. Murray, S. Hibberd, Dr. Masters, Mr. Maclachlan, Mr. Bower, and Rev. G. Henslow.

Apples attacked by Fungi.—Mr. Maclachlan exhibited Apples showing cup-like depressions. They were referred to Mr. Murray for examination.

Rhododendron Wightii.—Mr. Mangles exhibited a truss of this species, and traced the history of its occurrence and descriptions as follows:—*Gardener's Chronicle*, 1856, p. 213, "R. Wightii bloomed at Standish's, not equal to the description by Hooker in 'Himalayan Rhododendrons'; it turned white when open, of a good shape, was 3 inches across, and petals singularly transparent. Hooker figured it as yellow with red spots." In the Kew Herbarium is a sheet of R. Wightii, signed 'J. D. H. Lachen,' 12,000 feet, and labelled flowers white." Another reference was Combe Royal, where it also blossomed white. Herr Otto Foster, of Austria, writes:—"Years ago I had R. Wightii with flowers." The bud scales showed the same rich chestnut colour as in Hooker's figure.

Primula elatior.—Mr. Boulger showed an extremely dwarfed specimen as grown in a London atmosphere, the corolla being about half an inch across.

Proliferous Cardamine.—Mr. Houston showed a specimen having a bud growing between the petal and pistil.

Flowers for Open Ground.—Mr. G. F. Wilson exhibited several specimens—*e.g.* a Camellia (planted out in October from a cool house) was in full bloom. Sir J. D. Hooker remarked upon the various degrees of hardiness of this plant. Primula denticulata with very fine trusses, &c.

Plants Exhibited.—Mr. Loder brought Scilla italica var. alba, a rare form; Muscari luteum, very sweet-scented; Chionodoxa nana, &c. Dr. Low brought two species of Cheiranthus longifolius and mutabilis, which are usually cut by frost, but were not at all injured in the past winter; also a Richardia with leaf and undeveloped spadix. A Cerinthe major, which for six or seven years had borne yellow flowers, reverted to brown, the normal colour.

"*Black Spot*" *Fungus on Orchids.*—Mr. W. G. Smith exhibited leaves belonging to Vanda and Cattleya, as forwarded by a correspondent of The Garden, covered with black disease pustules. Mr. Smith said the sporangia, the fungus described under Protomyces concomitans, *B.*, were very distinct in the discoloured patches.

Black Fungus Patches on Oranges.—Mr. Smith also exhibited blackened Oranges, the sooty patches being caused by the fungus known as Capnodium citri.

"*Bunt*" *Disease of Wheat.*—Mr. Smith pointed out the fact that the Rev. M. J. Berkeley in 1847 described and illustrated the secondary spores of germinating Bunt as distinctly septate, like a Fusisporium. Since then, and especially after the publication of Tulasne's memoir in 1854, the spores have been invariably described and illustrated as non-septate. Dr. Oscar Brefeld however, in his recent magnificent work on Smuts and Bunt, illustrates a series of these spores as distinctly septate, and precisely agreeing with the original description and illustration published by Mr. Berkeley.

Corn Mildew and Barberry Blight.—Mr. Smith said in reference to this subject that the Puccinia of mildew of corn was perennial and hereditary. It was, however, not so easy to prove that the fungus of Barberry Blight was perennial, as the bush, as well as the fungus, was rare. Mr. Plowright was, however, good enough last spring to send a collection of Mahonia berries on to Mr. Smith, many of which were invaded by Æcidium berberidis, *Pers.* Mr. Smith planted three series of these berries, giving each series three months for germination. Not a single berry germinated or appeared above the ground. Twelve berries, each invaded by Æcidium, were also sent on to Mr. B. S. Williams, of Holloway, who planted them under favourable conditions as a test experiment, and not one seed came up in Mr. Williams's pots. Mr. Smith has since sent a series to Chiswick, where Mr. Barron is trying them. Mr. Smith thought the Barberry Blight disease, like the mildew of corn, was probably perennial; if so, all the deductions made from experiments with plants saturated with hereditary disease should be received with very great caution.

Lecture.—The Rev. George Henslow took the Narcissus as the subject of his lecture, which was illustrated by many specimens from Mr. Barr's beautiful collection.

With reference to the origin of the name, he explained how in Greek mythology the son of Cephissus and Liriope, slighting the nymph Echo, fell so desperately in love with his own shadow in the stream instead, that death alone could release him from the anguish of such unrequited love. The Nalads mourned for him, and on searching for his body discovered nothing but a beautiful flower instead, which henceforth bore his name.

Coming to more prosaic matters, the genus, though abounding in "forms," is, according to Mr. G. Baker, a limited one. That botanist groups them under three heads—viz., those with long trumpet-shaped crowns or coronas, as the Daffodil; those with crowns of a medium length, as in the imperialis group; and those with a mere rim, as the Poet's Narcissus.

Describing the structure of the flower, he pointed out the difference between the family Amaryllideæ, to which this genus belongs, and that of Lilies, which it resembles, the former being known by all its members having the ovary inferior, or below the perianth.

The crown he explained as being a mere outgrowth from the perianth, and would seem to correspond to the rim seen in the corollas of the Primrose and Forget-me-not. It is not at all characteristic of the majority of the genera in the family, the Amaryllis and Snowdrop, for example, being entirely without it.

Double flowers are frequent, and are of different kinds:—1, The corona may be filled with a mass of petals, this being derived from weaker bulbs 2, The perianth and corona may be broken up and repeated many times, so as to form an irregular mass of petals, such arising from stronger bulbs. 3, The petals may be piled up in front of each other, as in a Rose. This occurs in the var. Eystettensis, first figured by Lobelius in 1581.

With reference to the physiological properties, the Narcissus is more or less poisonous, the Daffodil and the Poet's being especially so, and have been used in medicine as emetics. Other members of the family are poisonous, as Brunsvigia toxicaria, which is used by the natives of South Africa to poison fish. It was this which accidentally poisoned Dr. Pattison, though he fortunately recovered.

The Narcissus has been long cultivated in England. Gerard, in his "Herball," A.D. 1597, described seventeen kinds, and Parkinson, in his "Paradisus" (1629) figures many and describes ninety-two kinds.

Selecting a few for illustration, Mr. Henslow first alluded to the "Hoop Petticoat," N. Bulbocodium, from the W. Mediterranean regions, and which is remarkable for the shape of the crown and the declinate stamens. It is recorded that a bulb of this species having been in an herbarium for twenty years, subsequently revived, was planted and flowered. The Daffodil, or N. Pseudo-narcissus, is probably the only native species of Great Britain, though N. poeticus, &c., are naturalised. It is very variable, especially under cultivation. The size of the flowers quite justifies the terms, maximus, major, minor, minimus applied to as many varieties. The colour may be all yellow, or the perianth may be white while the crown alone is yellow (*e.g.*, bicolor) or all white (*e.g.*, cernuus), such as are the Spanish forms.

Double flowers of the larger sorts are common, though that of the true wild Daffodil is not. The great double Daffodil first appeared in the garden of Vincent Sion of Flandres in 1620. Of the second group with shorter crowns the most important is the form incomparabilis, with its many varieties. This is now considered to be a hybrid between the Poet's Narcissus and the Daffodil, although it occurs wild in France and Spain, for Dean Herbert and others have raised it from such a cross; indeed, he thought that by using the pollen of N. poeticus successively for two or three generations the Daffodil could be converted into N. poeticus. A new form with a pale rosy tint and with a strong scent of Violets was exhibited by Mr. Barr, about the size of the common Daffodil, but entirely pale yellow in tint. It is remarkable that the purple rim of the cup of N. poeticus, with the golden yellow of the Daffodil, give rise to an orange tint in the cup of imperialis, just as a purple and chrome yellow when mixed on a palette produce a similar orange.

Another important species is N. odorus, the Campernelle, of a pure yellow colour, with a six-lobed corona, and is very sweetly scented. This is intermediate between the Jonquil and incomparabilis. Its native home is S. France, Italy, and Dalmatia.

Of the third or short-crowned section, N. Tazetta is perhaps the most variable. The Dutch, even in 1800 cultivated as many as 300 forms. It has apparently the widest geographical range; for if not truly wild there, it is at least very largely cultivated in China. All other species appear to be limited between Great Britain and the Caucasus. It is the common Polyanthus Narcissus, as it bears many flowers on the scape.

The typical form has a white perianth and a yellow cup; but varies in colour like the Daffodil, and may be double as well. The true Narcissus of the ancient poets appears to be N. poeticus or N. biflorus, especially the former, as it is described by Virgil as "purpureus"—doubtless in allusion to the purple rim to the crown, which colour is wanting in N. biflorus. Its double form resembling Gardenia florida, is much cultivated for decorative purposes.

Mr. Henslow also exhibited a dried specimen of the Hyacinth as wild in S. Europe, to show the great advance made in 300 years. It is not mentioned by Turner, 1548, though Gerard in 1597 had both single and double kinds. He called attention to two remarkable Orchids, a Cirrhopetalum, in which two sepals were coherent to form a false labellum (see *Bot. Mag.*, 1849, tab. 4422), and Eriopsis rutidobulbon, first introduced to Kew, where it flowered in 1868, but has rarely flowered since. It was found in New Grenada "growing on the smooth stem of a Palm fully exposed to the sun," See *Bot. Mag.*, 1849, tab. 4437.

Berried Aucubas.—We have received branches of the common Aucuba furnished plentifully with large glossy red berries from the gardens at Furze Park, Torquay. The gardener, Mr. Ball, says they were cut from plants 8 feet and 10 feet high and as much through, and he adds that since they were intermixed with male plants they fruit freely every year.

ROYAL BOTANIC.

March 26.

This, the first show of the season held by this Society, was finer in every respect than the corresponding spring show for several years past both as regards the extent of the exhibits and their quality. Since last year the corridor has been considerably enlarged in order to properly accommodate the spring shows, but although it is now some 225 feet in length by 15 feet in breadth, the crowds of visitors who thronged the gardens on Wednesday last showed that the building even now is too small to hold such exhibitions if visitors are to move about with ease. The show, though destitute of any novel feature, was bright and cheerful and fairly exemplified the high perfection which has been attained in the culture of spring flowers about London. Its principal features were the extensive groups of plants shown the day before at South Kensington, and these were supplemented by charming displays of Cyclamens, Roses, Cinerarias, Primulas, besides the numerous collections of various plants in the competitive classes.

The forced Roses in pots from Messrs. Paul, of Cheshunt, being finely flowered, were greatly admired. Those which won the greatest share of admiration were the following: La France, Claude Bernard, Mrs. Laxton, Helen Paul, Sonvenir d'Elise, Alba rosea, Madame Cusin, Baroness Rothschild, Magna Charta, Catherine Sonpert, President, and Etoile de Lyon, all first rate for forcing into flower early. Besides these there was the charming Mignonette, the new miniature pink Rose of the Polyantha race.

Cyclamens formed a fine feature, and rarely have we seen them finer at any show. The chief growers about London vied with each other as regards display. Thus there were the champion growers, Mr. Little among the amateurs and Mr. H. B. Smith among the nurserymen, the latter showing a magnificent collection, in which were some sweet-scented sorts. Mr. Wiggins, a well-known Cyclamen grower, also showed a grand group, in which was a plant of a pure white kind named General Gordon; it measured about 2 feet in diameter, and carried a huge head of bloom. There were some large collections of Cinerarias, that from Mr. James, the celebrated Cineraria raiser, being a long way ahead of all the others. As usual, he showed a large number of new named sorts, several of which the judges thought fit to certificate. As may be seen by the prize list given in our advertising columns, Mr. Douglas, of Great Gearies, Ilford, was, as usual, unapproachable in several of the competitive classes His first-prize dozen of Hyacinths consisted of Solfaterre, Cavaignac, Von Schiller, Koh-i-noor, all first-rate red sorts; Princess Mary of Cambridge and Lord Derby among the light blues; King of the Blues among the dark sorts; La Grandesse, white; and Grandeur à Merveille, pale pink. The Narcissi and Tulips from Great Gearies were also up to their usual standard, as were likewise the half-dozen Deutzias, huge bushes of white bloom. The other sets of Deutzias shown were smaller, but well flowered. Amaryllises were finer than usual—an indication that their culture is becoming better understood and the varieties improved. Compared, however, with the superb sorts which Messrs. Veitch have lately raised, there were very few worth notice, except two exceedingly fine plants of Empress of India in Mr. Douglas' first prize collection. This is still one of the finest of all Amaryllises, and these examples were finer than we had ever seen. The Lachenalias shown by Mr. Eason, of Highgate, were a noteworthy feature, as they were so admirably grown and profusely flowered.

The nurserymen showed admirably, the most successful being the Messrs. Williams, of Fortis Green, Finchley, who exhibited the finest collections of Hyacinths, Tulips, Chinese Primulas, and Lily of the Valley, the latter being uncommonly fine plants, in huge pots, filled with healthy foliage and associated with charming flower-spikes. Messrs. Cutbush, as usual, were prominent with bulbs, and particularly with Crocuses, for which they were first, showing a fine collection.

A much admired feature in the show was a collection—the only one—of hardy herbaceous plants from Mr. Douglas. This contained a few really fine plants, and none more remarkable than a fine potful of Narcissus Horsfieldi carrying a dozen flowers amidst tall healthy foliage. There were also some excellent potfuls of Fritillaria Meleagris and its white variety, both well flowered; Jonquils and Mertensia virginica. Mr. Douglas also showed the only collection of hardy Primulas and Auriculas. The former included some very fine plants of Primula viscosa and the white variety nivalis, and among the Auriculas were some new seedling varieties, three of which were considered worthy of certificates.

The miscellaneous class—always an important one at these shows—seemed to be larger than ever on this occasion, the large groups contributed by the various exhibitors constituting the bulk of the exhibition The principal exhibitors were Mr. B. S. Williams, who was awarded a silver medal for a fine group of Hyacinths, Tulips, and other bulbous plants, and also a bronze medal for a miscellaneous group of choice plants. Silver medals were likewise awarded to Messrs. Barr for Narcissi, Mr. Wiggins for Cyclamens and Cinerarias, Mr. James for Cinerarias, Mr. H. B Smith for Cyclamens, and Messrs. Paul for pot Roses. Bronze medals were awarded to Messrs. Gregory & Evans for Hyacinths and other plants, to Messrs. Cutbush for Hyacinths, to Mr. Hill for Cyclamens, to Mr. Anthony Waterer for Primroses; while other awards were made to Mr. Ware for Narcissi and other cut flowers, Messrs. Collins & Gabriel for cut blooms of Anemones and Narcissi, and to Messrs. Carter for a very fine collection of blooms of Anemone coronaria and fulgens.

A full list of awards made on this occasion will be found in our advertising columns.

New plants.—A large number of new plants was submitted to the judges as usual; these numbered nearly 100, and of them the following were awarded certificates:—

Botanical certificates were awarded to Dieffenbachia Jenmanni, Masdevallia Chelsoni, and Adiantum rhodophyllum. Shown by Messrs. Veitch.

Cypripedium Druryi, Odontoglossum macrospilum, and Adiantum strictum. From Mr. B. S. Williams.

Cattleya Trianæ Leeana, Masdevallia Schlimi, Odontoglossum Oerstedi. From Mr. W. Lee, Downside, Leatherhead.

Odontoglossum Wilckeanum Littleanum. From Mr. Little, Hillingdon Place, Uxbridge.

Muscari concinnum. From Mr. Douglas.

Floricultural certificates were awarded to

Amaryllises Madonna, Mrs. Shirley Hibberd, Colonel Burnaby, Sir Redvers Buller. Hyacinths Lord Derby Improved, Minerva, and Harlequin. Azalea La Marveilleuse. From Messrs. Veitch.

Cyclamens Rose Gem and Purity. From Mr. H. Little.

Auriculas General Gordon, Mrs. Moore, and Sir W. Ilewett. Shown by Mr Douglas.

Cyclamen Dame Blanche. From Mr. H. B. Smith, Ealing.

Cinerarias Lottie Williamson, Venus, Sir F. Roberts, Princess of Wales, and Mrs. Arden. From Mr. James, Woodside, Farnham Royal.

New Bomarea.—At a recent meeting of the French National Horticultural Society, a new species of Bomarea was exhibited by M. André It was discovered by him in May, 1876, on the Andes of New Grenada, at an altitude of some 10 000 feet, and was introduced into France by him in 1880, and flowered for the first time with him at his establishment at Lacroix. This plant resembles Bomarea Kalbreyeri in growth, but it differs from that kind in having flowers of a nearly uniform orange-red, not spotted inside. Like its congeners, it will be found a fine plant for cool houses.—J. C. B.

FRUIT AND FLOWER BOXES.

The Postmaster-General has issued a notice to the public calling attention to the spring season and the growing custom of sending flowers, &c., by post. He points out that in all cases these flowers should be securely packed in boxes or cases of wood, and that boxes of pasteboard should not be used, owing to the liability of the wet flowers to reduce them to soft pulp in transit. Light wood boxes should, we think, be placed at the disposal of the Post Office authorities and the public at a price that would compete with pasteboard. Such boxes should be made to fit one in another, and be of stock sizes, such as perfect cubes, ranging by half lengths into double or treble cubes. It would, perhaps, not be impossible, as the postal and railway authorities are anxious to increase the parcels business, to arrange with them to sell boxes to the public, as such a movement could not fail to prove profitable to them and a boon to tradesmen and private individuals. Failing this, the servants might be permitted to sell such boxes to the public on an agreed commission. Take the case of a person in a strange town wishing to send flowers or fruit to his family at a distance; he cannot do so because of the difficulty presented by the box. He goes into the market, where there are flowers and fruit galore; but he cannot purchase the necessary box. Again, take the private residents; they buy their flowers and fruit, and take them home, where they perforce remain, for they have no knowledge where to purchase a post box, with which to send them to their friends. The same difficulty in some degree presents itself to the tradesman. If post offices, parcels offices, railway parcel offices, or receiving offices were the depôts of these wooden envelopes, the difficulty would at once be removed, and a great and lasting trade would, no doubt, spring up in this department. Failing this, the tradesmen themselves might become the custodians of these parcel boxes, as also stationers or dealers in post envelopes. If such dealers were to place notices like the following before the public—"Flowers, fruit, and other damageable goods packed here and sent by post"—we have no doubt they would do a lucrative business. To us it occurs that this box trade is a natural outgrowth of the development of the postal system in the direction of parcels. Compared with pasteboard, there is no reason why wood should not be freely used; it is cheap, and has the advantage over pasteboard of being more durable, and of being a favoured material in every household, if for no other purpose than firewood. As to the making of such parcel boxes, we can only suggest the free use of machinery. We believe it would be possible to dovetail the corners without adding to the cost of otherwise nailing them, and to lace or stitch them through the angles with soft wire. Softened wire, such as that used in bottling aërated waters, might be freely used in connection with these boxes —*Timber Trades Journal*.

Colchicum byzantinum (*A. J.*).—This bulb succeeds best in a light soil in a sunny and open position.—W. G.

Nerine Fothergilli (*A. J.*)—This bulbous plant requires to be rested as soon as the foliage turns yellow and falls off. It should be kept hot and dry until September when the flower-spikes are just developing. It should then be thoroughly soaked and kept moist and growing until the eaves show signs of decay again.—W. G.

Names of plants.—*L. H. F.*—1, Salvia Heeri; 2, Oncidium Cavendishi (?); 3, Fittonia argyroneura; 4, Lonicera sempervirens minor; 5, Conoclinium lanthinum.——*R. W.*—Dendrobium Pierardi.——*Delta.*—Lencojum pulchellum.——*E. H. W.*—Stauntonia latifolia.——*J. T. Poe.*—Narcissus Pseudo-narcissus var. princeps.——*S. M.*—Next week.——*G. F. Donald.*—1, Adiaotum chilense; 2, Blechnum lanceolatum; 3, Adiantum exc snm multifidum; 4, Adiantum pubescens, syn. hispidulum.——*Mrs. Kennedy.*—Asplenium Adiantum nigrum, commooly called black Maiden-hair Spleenwort, and one very commoo in England.——*H. Winter.*—1, Odontoglossum gloriosum; 2, O. odoratum; 3. Selaginella unciuata; 4, S. inæqualifolia.——*J. T. Rigby.*—Echeveria retusa.——*T. Buckfield.*—1, Saxifraga Geum var.; 2, S. hypooides; 3. S. cuneifolia; 4, Sednm oppositifolium.——1 and 2, Salvia Heeri.

No. 646. SATURDAY, April 5, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE DAFFODIL CONFERENCE.

WHATEVER the practical results may be that accrue from this conference, it is certain that at least in one direction the promoters of it have achieved signal success, inasmuch as they have been the means of concentrating in one place the largest and finest exhibition of Narcissi that has ever taken place, and the throngs of visitors who witnessed it gave abundant evidence of the universal popularity of these beautiful spring flowers. Such a vast gathering of Daffodils was, indeed, a grand sight—a veritable "field of the cloth of gold," as Mr. Burbidge aptly designated it. There were representatives of almost every variety of Daffodil in cultivation and of every gradation in size, from minimus, the tiniest of all, to maximus, that giant among Daffodils, of which we give an illustration in another column, and from the commonest to the rarest, from the pretty calathinus, which one seldom sees, to the ordinary double Daffodil of our cottage gardens.

All the wealth of beauty that Narcissi embody was displayed on this occasion, and displayed too in various ways, but all illustrated the many uses to which cut Daffodils may be put in the way of floral decoration. Beautiful as was the display as a whole, the centre of attraction was a table occupied by a few large bowls arranged by Miss Jekyll with consummate taste. The materials used to produce such a charming effect consisted of Daffodils and the foliage of hardy shrubs, such as that of the Mahonia, Alexandrian Laurel, Evergreen Oak, and Laurustinus. The charm of the arrangement consisted in its simplicity. No harsh mixtures of inharmonious tints were there; on the contrary, each kind of Daffodil was allowed to show itself fully. One bowl, for example, contained nothing but flowers of the large bright yellow maximus mixed with Mahonia and Laurustinus. Another contained evergreen Oak branches and sulphur Phœnix Daffodils, and a third was made up of Tazetta spikes and Alexandrian Laurel—arrangements which admirably exemplified the beauty of Narcissi when employed in a correct way in a cut state.

Not more strikingly did Miss Jekyll outdistance all other exhibitors of Daffodils arranged for effect than did Mr. Walker, of Whitton, outshine all other collections of blooms shown by his grand display, which both as regards high quality and effective setting up surpassed anything that has ever been seen in that way before. Until the other day Mr. Walker was almost unheard of as a Daffodil grower. His sole business is to grow flowers for the London markets. Narcissi culture he has for years made a speciality. As he grows Daffodils expressly for cut blooms, it would not pay him to cultivate otherwise than to the highest degree of perfection, and this he undoubtedly does. Of course he enjoys superior advantages to such growers as Barr and Ware, inasmuch as he never sells his bulbs; consequently he can allow them to become thoroughly established. What, too, rendered his group so fine was the absence of all but the very finest varieties, such as Horsfieldi, maximus, major and its numerous forms, the finest of the bicolors, and the cream of the incomparabilis section, the poeticus and Tazetta groups.

It was fortunate for the conference that such a high authority, as regards Daffodils, as Mr. Baker, of Kew, was able to take part in it, and Mr. Burbidge is to be complimented for his masterly paper on a subject which he has made his own. The Dutch bulb traders, too, were well represented by M. Krelage, of Haarlem, who, notwithstanding the disadvantages under which he laboured in speaking English, offered some valuable hints which were not lost on those eager to acquire information respecting Narcissi.

The most valuable result of this conference, however, is yet to come in the form of a report on nomenclature. This report, if carried out in the way in which we have reason to believe it will be, will be of universal interest, and if traders and amateur cultivators will but agree to adopt the decisions arrived at, this conference will have done good work. That the naming committee will have a difficult task to perform is evident, but, judging by the progress made on Wednesday last, the difficulties are not unsurmonntable. It is to be hoped that the report will include lists of select varieties, which would be an invaluable guide to amateurs commencing Daffodil culture.

The unqualified success of this conference and the Apple congress held last autumn should encourage the council of the Society to proceed further in the same direction, such works being unquestionably those which the representative society of British horticulture should carry on. That willing help will be forthcoming in such undertakings has been abundantly shown on this and on previous occasions—help from exhibitors, too, without the stimulating influence of prizes. There is yet a wide field for such gatherings; the Grape and the Pear among fruits, and the Orchids and Roses among flowers, are only a few of the many subjects that might profitably be taken in hand in a similar way, as the Daffodils and Apples have been.

NOTES FROM BADEN-BADEN.

ERYTHRONIUM NUTTALLIANUM is very conspicuous just now, its large bright yellow flowers even putting some fine clumps of E. giganteum in the shade. The singular Iris orchioides splendens is a very desirable species; it flowers all along the stem; from the axil of each leaf a bud appears, and the colour of the blooms is a dazzling yellow with a small green spot. Trillium discolor, sombre coloured, both in flower and leafage is unusually fine; a mass of Tecophlæa cyanocrocus (not Toxicophlæa, as was inadvertently printed last week, p. 244) has brightened one of our frames for the last four weeks, and many of the flowers are now more than 3 inches across. Romulea purpurascens has very good large purplish violet flowers. Among the different kinds of Muscari, M. Heldreichi is one of the best; its colour is very good, being brightened up by a pure white rim on each bell. Tropæolum brachyceras, on a small bamboo trellis, is furnished with hundreds of tiny yellow flowers, and the silvery cupped Fritillaria Walujewi at once attracts the eye of the visitor. A grand feature is the new crimson-flowered Aubrietia Leichtliui: and on a corner next a shady wall Saxifraga speciosa shows its corymbs of beautiful rosy flowers to be far superior to those of S. ligulata; several of its corymbs are nearly a foot across. A new form of this very variable genus has flowers of a sulphury yellow. Messrs. Veitch's Pyrus japonica nivea well deserves a place in all good collections, contrasting strikingly as it does with the large deep crimson flowers of Pyrus Maulei superba. A Coburgia new to cultivation is just showing its brilliant buds, and a Beschorneria Decasteriana is pushing up its massive flower-stalk beset with crimson bracts; it is already 4 feet long and 2 inches thick, yet the flowers properly so called cannot yet be seen; the stalk will probably reach a height of 10 feet. As to rare plants, a few examples of Ranunculus Lyalli are under cultivation.

MAX LEICHTLIN

NOTES ON CURRENT TOPICS.

Scilla sibirica *v.* **Chionodoxa Luciliæ.**—It is puzzling to find people going into ecstacies over the Chionodoxa who have never in their lives taken the trouble to grow the old, but equally charming, if not more beautiful, Scilla sibirica and its allies; and yet this is the case. We have both in flower together. At a distance the one is not distinguishable from the other by the casual observer, and on nearer view most people prefer the Scilla with its more lustrous and far deeper and richer coloured flowers. A fully expanded bloom of the Chionodoxa gives one the impression of a partly washed-out flower of the Scilla which is less weedy in habit. Seeing that Chionodoxa is 300 per cent. dearer than the Scilla, we should at least advise buyers to invest in the latter as a substitute whether planted for effect or any other purpose. The pity is it does not multiply so fast as the Crocus; otherwise what a gem of a companion it would be.

Seedling Carnations of all sorts, one year old, and showing vigorous flower-stalks, at two shillings per dozen and less, and far cheaper to those who choose to raise their own plants, as they can do, should leave lovers of hardy plants without any excuse for not possessing abundance of these popular and attractive flowers. A Clove is a Clove in whatever form we find it, and we trust the day is at hand when growers shall raise their own Carnations as easily as we now do our Sweet Williams.

Peculiarities of roots.—What is it that prompts some people to deny and dismiss from their minds everything beyond their comprehension or experience? We once heard a living celebrity compare true philosophy to charity. It was, he said, "long-suffering, slow to believe, but open to conviction, and willing to investigate the most trifling and improbable things—believing or disbelieving only on proof." Why, then, should the idea that roots may have peculiarities as well as the tops be doubted or contradicted so emphatically? It is a profound mystery even now to physiologists why a seed, planted however deep and far from light, wrong side up or otherwise, unerringly turns its radicle downwards into the earth, and its branches upwards towards the surface. Why, then, should it be deemed an extraordinary or improbable thing for a root placed under exceptional artificial circumstances to prefer to grow in one direction more than another, as Vine roots are said to do? "No known power," says Lindley, "can overcome the tendency on the part of the embryo to elevate one portion in the air, and to bury the other in the earth," but we see and recognise a palpable fact, though we cannot explain it. So it was found by those who originally advocated inside and warmed borders for Vines—for which nothing was left undone to render everything perfect—that the Vines travelled outwards sometimes, leaving a rich inside border to take possession of a hungry gravel walk, or something of that kind; and so persistently did this happen that the cultivators were driven to the conclusion that the cause existed in some "inherent tendency" in the Vine only to be overcome by placing an actual barrier in the way of the roots. Under these circumstances it may be guessed how the confident opinions of those who have never wit-

nessed such things are received by those who have. And yet these opinionists designate all who differ from them ignoramuses, who do not know how to manage an inside border, and among this section is nearly every Grape grower of note in the kingdom, including the author of "Vines and Vine Culture."

Bottom-heat.—This, in the gardener's hands, may become an agent for either good or evil just as happens. Its effects, in the majority of cases, are so apparently beneficial in the extra expansion of growth which it induces, that probably many cultivators are deceived thereby, and err accordingly. Too much bottom-heat is given as a rule. It is useful in the propagation of many subjects, but bottom-heat, in the sense in which it is generally understood, is no more a normal necessity or condition of plant existence than the hot bath is of human life. About this season of the year it is more productive of mischief from being used in excess than many are aware of. In summer the danger is less, because less fire-heat is needed in any form. The effects of a disproportionate high root temperature is a thin and flabby state of the foliage—a kind of chlorosis condition that bodes ill for the plant before it has completed its season's growth. What are often regarded as the beneficial effects of bottom-heat are in reality due to the roots being plunged in the bed more than anything else, as plunging alone never fails to promote the health of any plant, and it may be doubted, if in stoves where the beds are wholly inside, extra bottom-heat from pipes is at all necessary, as the temperature of such beds is never lower than the mean temperature of the air of the house, and that, as a rule, is as high a root temperature as plants need or receive under the most favourable conditions in Nature. When, therefore, such subjects as Pines, Melons, Cucumbers, or stove plants are subjected to a steady bottom heat of perhaps 80° or 90° at this season, the disproportion between the top and bottom temperature is too great, and the result is that the roots are prompted to a degree of excitement not reciprocated by the tops, and thus disturbance of the equilibrium must and does tell in some way or other in the long run.

Pruning Orchids.—Unless the opponents of this practice can produce bulbs of Dendrobium nobile 4 feet long or thereabouts, they had better reserve their opinion in case, as in some other matters, they may have to modify it. A correspondent of the *Journal of Horticulture* sends flowering bulbs and speaks of them being 3 feet 4 inches long, 2 inches in circumference, and most abundantly bloomed, the result, he writes, of cutting off the bulbs for a number of years in succession. This writer says: "As I require the flowers to send away, the growths were cut off close to the pot with the blooms on them, when the young growth started from the base of the old pseudo-bulb that had been taken away. This time some of the growths were remarkably fine, being as much as 3 feet 4 inches long, though the plants had not been potted that year and have only been potted once since. This I consider a much better way of growing Dendrobium nobile than allowing the old growths to remain on the plants. Sometimes I cut all the growths off a plant as soon as the blooms are open; at other times the plants may have been in bloom a week or two before the blooms are wanted, but I always take the growths out as I require the flowers. My plants look clean and healthy, with no roots up the stems like those usually seen when the old growths are allowed to remain on the plants.—B., Sussex." Speaking of the bulbs in flower produced by this method of culture, the editor to whom they were sent says, "Finer examples we have never seen." Clearly the mysterious function of old withered bulbs of Dendrobiums has not been explained yet, but it does appear to be to support the younger growths.

Vines bleeding.—"Veritas" is wrong in saying I substituted in "some peculiar way" "gallons" for "quarts." The following is the printed extract *verbatim et literatim*: "From the time the Vine was pruned until the shoots had gained a length of a few inches between two or three gallons of sap were lost. It was a Foster's Seed ling." "Veritas" should "substitute" the "quarts" where the "gallons" first appeared two or three times. J. S. W.

NOTES OF THE WEEK.

International Health Exhibition.—This exhibition, which will be held at the Royal Horticultural Gardens at South Kensington, will, we learn, be opened by the President, H.R.H. the Prince of Wales, on Thursday, the 8th of May, at 3 p.m.

Effect of zinc on water.—In "Guy's Hospital Reports," Dr. Stevenson alludes to a generally accepted opinion that water stored in zinc or zinc-coated tanks is not affected by the zinc to any appreciable extent, and states that he has abundant evidence that water does, under certain conditions, act energetically upon zinc and galvanised iron. He mentions a case in which rain water passing from a reservoir through galvanised pipes was for many weeks turbid and milky in appearance, and contained a notable quantity of zinc in suspension and some in solution. Dr. Stevenson's experience is also confirmed by that of other writers.

New Palm house at Glasnevin.—Considerable progress has already been made with the new Palm house at Glasnevin. The stone basement, according to the *Irish Farmers' Gazette*, has reached the desired height, and early this week the contractors for the ironwork commenced operations briskly, so that very soon we shall see a capacious and elegant structure taking the place of the hideously ugly erection which hitherto, under the name of a Palm house, sheltered a noble collection of these aristocrats of the vegetable kingdom, and at the same time was a blot on the face of these beautiful gardens. The new rockwork has nearly reached completion, and is already stocked with plants. It presents a large and varied surface for their growth, and will form an additional feature of interest to the garden.

Echeveria agavoides.—An interesting example of this distinct and rare Echeveria may now be seen in Mr. Boller's nursery in the Harrow Road. It is aptly named, as it much resembles an Agave in miniature, and it is so neat and compact, as to at once attract attention. Anyone who cares for Cacti would be interested in the fine collection of these plants in this nursery, particularly just now when so many are developing fresh growth. Besides Cacti, Mr. Boller pays a deal of attention to the ornamental Palms for decorative purposes. The following few we singled out as being particularly noteworthy, viz., Latania borbonica, very effective and graceful and one that withstands hard treatment; Phœnix reclinata, Seaforthia elegans, Corypha australis, and Areca lutescens, which, though all well known, cannot be too highly recommended to those who desire to grow about half a dozen of the best Palms.

Spring exhibition at Holloway.—There is now to be seen in Mr. B. S. Williams' Nurseries, Upper Holloway, a grand display of spring flowering bulbs, Orchids, Imantophyllums, Cyclamen, Hyacinths, Tulips, &c; also a fine collection of forced Azaleas. The collection of Hyacinths and Tulips is very large, and there is a fine assortment of the new as well as old varieties of Lilies of the Valley. There are likewise some marvellous specimens with foliage in the same advanced state as the flower. Imantophyllums are well represented here, there being some gigantic specimens, notably Marie Reimers and Madame Van Houtte, two of the largest and finest flowered varieties we have seen. We noticed another very distinct and fine variety, which Mr. Williams calls concinnum, and which will be distributed this year. Its trusses are compact and large, and very striking in colour, which is crimson-scarlet. Amongst Cyclamens, Crimson King is a fine dark-coloured kind, and giganteum album is a decided advance in the large-flowered section. The varieties of Azalea mollis are well flowered, and range from yellow up to bright rose. Of Orchids, there is just now a fine display, consisting of Vandas, Cypripediums, Lycastes, Odontoglossums, Masdevallias, Oncidiums, Cattleyas, Lælias, and others. Amaryllises, too, are now in full bloom; amongst them we noticed some fine seedlings raised by Mr. Williams, who has now been growing this plant for upwards of thirty years. B. S. Williams is a fine white variety, and there are many others equally meritorious.

Books.

SCRIPTURE BOTANY.*

The botany of the Bible has always been an attractive study, so that, from Jerome downwards, a multitude of writers have given us a small library on that one subject, and we should have thought that there was not much need for another volume in our own day. Many English writers (to say nothing of the many foreign writers) have published good volumes illustrative of the botany of the Bible. Scholars have had the matter thoroughly worked out in Smith's "Dictionary of the Bible," while for the larger public there are the excellent popular works of Lady Calcott, Canon Tristram, Professor Balfour, Mr. Smith of Kew, and others. Mr. Grindon, however, is of opinion that there is still room for a new volume, and perhaps of others to follow. He considers that there is still much to provide for; that "the students of Scripture happily are numerous, various in tastes, and of many forms and degrees of refinement; and to some of these inquirers he hopes the book may be useful, and that to the rising generation, at all events, the book may serve as a guide to springs of enjoyments not previously perceived." In this estimate of his book we think Mr. Grindon too modest. The book is scarcely suited to "the rising generation," but to the more advanced student it will be welcome; and he will, before he has finished the book, acknowledge his thanks to an author who, if he has added nothing new to the many previous treatises on Bible botany, has at any rate given him a scholarly and exhaustive work, well arranged and pleasantly carried through. Mr. Grindon, indeed, seems especially qualified for such a work as this; to a good knowledge of the original language of the Bible, he adds an intimate acquaintance not only with the Greek and Latin classics, but with our old English literature also; he has a pleasant, easy style of writing and a reverence and love for his subject, and (a most essential qualification) he is a most trustworthy guide on all points of scientific botany, his scientific knowledge of botany being both accurate and extensive.

The book is not altogether a new one. Some readers will recognise in it the papers on the subject which appeared some years ago in the *Gardeners' Chronicle*, while other portions appeared in the *Intellectual Repository* and the *University Magazine*. But the whole has been so recast and brought under one distinct arrangement, that it may rank as a new book. The plan is a good one. Starting with some general chapter on the physical geography, the climate, and the flora of the Holy Land, it gives a short account of the commerce, agriculture, and gardens of Palestine, and then settles down to each plant individually. The arrangement of the plants is almost the same as that adopted by Mr. Grindon in his "Shakespeare Flora"; the plants are not arranged in their botanical alliances, nor alphabetically, but more according to their localities, as in woods, pastures, cultivated ground or in water, according to their uses as food plants, fruits, or weeds. In each case he discusses the full meaning of the original Hebrew or Greek word, and identifies it, as far as possible, with the plants of the country; then he gives a good botanical and historical account of the plant, and in almost every case he adds the moral or religious associations, which are always pleasantly put, though sometimes (we are inclined to think) a little too long. Altogether we must say that the publication of the book is fully justified, and it may be safely recommended to any biblical student; he will find it close reading, but it will repay him for his study. It has the advantage, too, of a good index.

* "Scripture Botany." By Leo H. Grindon. 8vo. London: Pitman & Co. 1883.

Flower Garden.

THE GREAT DAFFODIL.

Of the whole race of Daffodils whatsoever, this, our grand College Garden Daffodil, Narcissus maximus, is the most stately, and also the richest in colouring. In good seasons it attains a height of from 2 feet to 3 feet, its great trumpet-mouthed chalices being borne aloft on the tapering fluted stalks with bravery. That it is quite distinct from that usually imported from Holland and generally sold as N. maximus by the seedsmen I am fully convinced, and the tradition is that it was raised from imported seeds in the Dublin University Garden, from which place it certainly has for many years been distributed. The figure shows an average flower, natural size, and, as will be clearly seen, the broad expanded mouth to the crown is an especial feature. In the foliage also it is most distinct—so much so that this variety may be readily recognised almost as soon as the tips of its leaves appear above the soil. The leaves are narrow, rarely more than half-an-inch broad, and of a peculiar bluish green or glaucous tint, and they are also twisted in a peculiar way. So far, I am sorry to say, I have failed to obtain seeds from this grand variety, although I have used the pollen of many other kinds besides its own. If seeds of it could be obtained, one might hope that it would prove the best of parents to a still finer large-flowered race. Lovers of Daffodils who have not looked over Hale's "Eden," an illustrated gardening publication of the last century, should do so, as it contains some quaint lore anent seedling Daffodils.

F. W. B.

The great Daffodil (Narcissus maximus).

RAISING ANNUALS.

Few are the gardens in which some annuals are not grown, and many are the methods adopted for raising them; some, from want of accommodation, sow them in little patches where they are to flower. With this method I have been disappointed, as where the ground is stiff and heavy, some of the small-seeded kinds refused to vegetate, and those that did were pounced upon by slugs, which, I am sorry to say, are very numerous this spring. Another method is to sow the seed in store pots in the beginning of April, and place the pots in a cold pit or frame, keeping the lights close for a day or two, and, should the weather prove bright, shading, but taking care that each pot of seedlings is removed to a light position as soon as they appear above the soil. When large enough these may be placed, one or two or more, into small pots according to their respective kinds, and again placed in a close frame until they have taken root, when the lights should be entirely removed. This latter may appear to involve a good deal of trouble, but I am convinced that in the end all will be repaid, as the young plants may be planted like ordinary bedding plants, and will not feel the shift in the least. In no case, however, should they be allowed to become pot-bound, or failure will most assuredly be the result. Here, again, another obstacle may present itself to some, and that is want of pots. To those so placed I would recommend sowing in a frame in soil placed on a small bed of leaves. Sow in drills from 4 inches to 6 inches apart, setting the label at the end of each kind. As soon as the seedlings are up, ventilate by degrees until the lights can be drawn quite off. As soon as the seedlings are strong enough, they should be planted out, choosing a showery day for the operation. We invariably choose the beginning of April for the sowing of such seeds. To enumerate names would take up too much space, but the following are among the kinds commonly met with, viz.: Asters, Stocks, Candytufts, Chrysanthemums, Convolvuluses, Centaureas, Eschscholtzias, Godetias, Helianthuses, Helichrysums, Lupines, Marigolds, Nasturtiums, and Prince's Feather, all of which when mixed make a pretty bed of themselves, and are also most useful for filling vacant spaces in herbaceous beds and borders.

C. W. C.

PENTSTEMON MURRAYANUS.

This fine species of Pentstemon has been a favourite plant of mine during the last ten or twelve years. I have raised and flowered it again and again from seeds obtained from Mr. Thompson, of Ipswich, who has introduced most, if not all, of the species of Pentstemon grown in our English gardens. P. Murrayanus is a native of Texas, and, like some others of the genus, can scarcely be classed with perennials. At any rate, many species are in the habit of blooming themselves to death, and, therefore, practically acquire a biennial character which should be borne in mind. It is also somewhat capricious—in some seasons doing remarkably well under a certain system of culture, and again failing entirely; but when successful, it is so distinct and beautiful, that it is quite worth risking the trouble of raising it year by year. The plant is different in all respects from Chelone (Pentstemon) barbata and C. Torreyi, and is much finer. The deeply glaucous foliage somewhat resembles that of the narrow-leaved red Valerian (Centranthus angustifolius), and the connate bracts of the stem, forming little cups below the flower-stalks which collect the dew, give this species a peculiar character of its own. The singular tint of the flowers, which is neither scarlet nor pink, but a blending of the two, is also remarkably attractive, so that it rarely fails to win some admiring remark from the visitor who chances to see it in perfection. I have never known this Pentstemon to survive a winter in the open border, even in a high and dry soil, and have always taken care to give some plants the benefit of shelter in a cold greenhouse or frame. It answers best treated as a biennial, as its flower-spikes are then finer and more handsome; but when sown very early, it will even bloom in the same season. If seed can be obtained, it should be sown as soon as ripe, and the young plants will then be strong enough to bloom finely the following autumn. I have, however, never been able to save seed of my own growing, and in consequence prefer not to hurry the plants, but to wait patiently for bloom till the second year. P. Murrayanus makes a good pot plant when generously treated, and is one of those interesting subjects in which a true gardener delights, but which is too troublesome for the half-hearted. I have noticed several times in ungenial seasons that this Pentstemon is attacked by a disease resembling the "spot" found in Lilies, from which there seems to be no hope of recovery, and which is probably owing to a lack of summer heat. Another Pentstemon, seldom seen, but well worth growing, is the beautiful P. Cobæa. This is also of a biennial character and, like the last, rather delicate in constitution. Its very large white flowers, shaded with lilac or purple, are quite distinct from those of any other species, and it may also be distinguished by the glutinous character of its downy pubescence, which, unfortunately, is apt to attract and to capture small insects, at times greatly to its detriment. Most

Pentstemons are freely increased by cuttings, but though I have occasionally succeeded in striking P. Murrayanus, it does not in my experience grow readily by this means; both species are more easily propagated by seed, and both require the same cultural treatment, viz, protection in pots during winter and planting out in spring, when all danger of frost and cold winds, which are particularly injurious to them, is past. Now that hybrid Pentstemons are so much in favour, the different species are not grown as much as they should be, and those who wish to make acquaintance with the rarer and more distinct kinds, such as those just named and others, for example, P. Palmeri, P. heterophyllus, P. ovatus, &c., would do well to consult Mr. Thompson's catalogue, which is always full of interest for cultivators of an enterprising turn of mind. K. L. D.

PREPARING AURICULAS FOR EXHIBITION.

In February or even earlier in a season like the present the plants should be surface-dressed. To do this the old growers used to remove a very considerable portion of the top soil, replacing it with a compost which was far too rich, half of it at least being manure. Indeed, I have received plants from the north at blooming time that had been surface-dressed with this rich compost; not a single live root was to be found in it, and yet the old growers in Scotland and Lancashire fancy that their bloom would be worth nothing without it. My own experience has convinced me that rich top-dressings are a mistake, and that it would be better not to disturb the plants at all. All we do is to remove merely the surface soil to the depth of perhaps a quarter of an inch or half an inch, and replace it with the usual compost, with a trifle more manure added to it. The operation of surface dressing gives a good opportunity to remove all the offsets from the plants that are ready for removal, and I find them to do better when they are taken off in February than at any other time. We plant them in 2½-inch pots, one, two, or three in each, according as they are large or small. We place them in one of the frames, keeping the lights close over them for a few weeks, but it is not necessary to keep the lights so close over them early in the season as in summer. When all are surface-dressed, the pots in which they are growing are washed clean, and also the stages on which they are to be placed. The plants soon show signs of growth, and from this time until the flower trusses develop they are intensely interesting. They also require considerable attention, especially if it is intended to get the best of them into bloom on a certain date. If, as is often the case, the cultivator has nowhere to place his plants except in frames, the best plan under such circumstances is to place one frame with its back to the south, the other in an opposite direction; and if there are three frames, place the third behind a north wall. The earliest formed trusses, or the earliest blooming varieties, such as Campbell's Pizarro or Taylor's Glory, should be put into this frame; others that are likely to be too early should be placed in the frame facing the north. The late sorts and those that have a tendency not to open well should be placed in the early frame. The varieties requiring the warmest treatment are Apollo (Beeston) amongst green edges; George Lightbody (Headley), Alexander Meiklejohn (Kay), and Richard Headley (Lightbody) amongst grey edges. In the white-edged class Smiling Beauty (Heap) and True Briton (Hepworth) require a warm atmosphere in which to open their flowers well. In the self edged class there is but one very late, and it is a good one, viz, Duke of Argyle (Campbell). There is also another of Campbell's flowers that ought to be placed amongst the latter, viz., Lord Clyde; with these exceptions all the other selfs would be in time in a frame facing the north.

When the trusses are showing care must be taken that none of the plants suffer from want of water, and when water is being applied to them be careful also not to wet the leaves, especially those coated with farina. The best growers also thin out the flowers from trusses that are overburdened with them. Judges at exhibitions like to see the edge well defined and corresponding in width with the ground colour; faulty pips should be removed. Five pips will make a good truss; but seven, nine, or eleven are better. The trusses should be supported with neat sticks, and the surface of the pots ought to be covered neatly with green moss. All work connected with Auricula culture must be performed carefully; if the flowers are touched by the hand or sleeve of the coat, they get sadly injured. J. Douglas.

TRUMPET DAFFODILS.

When I threatened in a gardening journal some ten years ago that I would grow all the known forms of Trumpet Daffodil, including the large garden double, by development from the common wild N Pseudo-narcissus, Mr. Barr and others derided the idea, and challenged me to do it. I admit that I have failed to do it myself, but, working by proxy, I am far on the way to success. My cold soil in Cheshire is against me; most Daffodils degenerate in it; doubles revert to singles. I have never yet, owing to the prevalence of slugs and similar troubles, succeeded in raising any Daffodil from seed to flowering, but by the great kindness of many friends in different parts of the kingdom, some of whom live on soils favourable to the development and doubling of Daffodils, I have received and continue to receive most interesting flowers in every degree of size and colour and duplication, which, I am assured, are nothing but the wild Daffodil, improved spontaneously through a few generations of seed favoured by soil and climate.

I now give particulars of one case which came under my notice during the past week; the details are from a perfectly trustworthy source. I could illustrate them by analogous instances, and implicitly believe them. In one of the south-western counties is an orchard in which the present owners or tenants planted Daffodils fifteen years ago. These were of two kinds only, the large double Daffodil of gardens, and the common typical N. Pseudo-narcissus of the fields. The double Daffodils flourished and remained the same, but the small singles immediately began to rival their large neighbours, and educate themselves up to their level. They shed seed round in abundance, which grew and flowered; some at once emulated the doubling which they noticed in their big companions, and in a generation or two produced the ordinary small double Pseudo-narcissus of Devonshire; others tried to match their envied patterns in colour and size, and produced major forms, some having the self yellow of spurius, some the light perianth and yellow long trumpet of princeps, others the white perianth of bicolor. As time went on, these forms, too, began to double, and now there are ordinary flowers of Telamonius major amongst them, mixed up with others less typical, but such as may often be seen in gardens, varying in having the outer or perianth leaves both within and outside the trumpet lighter or darker. I will add no further comment on this, except that I have sent some of the flowers to Mr. Barr, others to the editor of The Garden, whilst others arrived too much withered for a second journey, and that I mean to tell no one the spot from which they come, and that I am no longer incredulous when good observers assert, as they have often done, that wild N. Pseudo-narcissus have turned to N. major var. Telamonius (not Talem) fl.-pl. in their gardens. In fact, I believe that all that is required to produce all the magni-coronatæ in Mr. Barr's catalogue from typical N. Pseudo-narcissus is a life as long as a raven's and a congenial soil.

Llandudno. C. Wolley Dod.

Sweet Peas.—Our earliest sowings of these will be in bloom by the end of April, and from them and another sowing which will be put in early in June we shall have abundance of Sweet Pea flowers until November. They are charming at all times, and should be in every garden. They are very easily grown; indeed, their culture is hardly worth saying anything about, as everybody succeeds with them. The treatment given to ordinary culinary Peas suits them admirably. If stakes cannot be had for them, they may be allowed to scramble on the ground, when they will form a tangled mass of lovely colour and fragrance. Mixed seed, which produces flowers of every hue, is very satisfactory, and although many might have the means of growing every kind by itself, to many this would not be so pleasing as a mixed mass.—J. M.

Single Dahlias from seed.—These are useful in a cut state, but they must be sown early, so as to get the plants strong by May, for our summers are too short to allow any lengthened flowering season before frost cuts them down. With strong roots, however, to begin with, and planted out very early and protected from spring frosts by some slight covering, they attain large proportions by the middle of July, and from that date until the middle of October yield a continuous supply of brilliant flowers.—H.

Is Hyacinthus candicans sweet-scented?—When this Hyacinth was first introduced I purchased it under the impression that its flowers were fragrant, but I was disappointed; I have not been able to trace the faintest degree of fragrance in them, although during the last ten years I have raised and flowered many hundred bulbs of it. The statement that it is sweet-scented is so often repeated in catalogues, that either I must have been unfortunate in not detecting its fragrance, or that it does in some cases produce flowers deserving of that appellation. If there are sweet-scented varieties of it I should be glad to know where they can be obtained.—J. C. C.

Lawn weeds.—During the last thirty years I have tried every mode of destroying these that has been suggested and, taking the result and cost of time into consideration, I have come to the conclusion that the best method of proceeding is, after the first cutting in the spring, to put as much salt on each weed through the palm of the hand as will distinctly cover it. In two or three days, depending on the weather, they will turn brown. Those weeds that have escaped can be distinctly seen, and the operation should be repeated. The weeds thus treated die, and in about three weeks the Grass will have grown, and there will not be a vestige of disturbance left. Two years ago I converted a rough pasture into a tennis ground for six courts. Naturally, the turf was a mass of rough weeds. It took three days to salt them, and the result was curiously successful. I had one lawn with more Daisies than Grass, and on September 2, 1881, I took up the turf, scratched the ground, relaid the turf upside down, scratched this also, well seeded it, sprinkled it with soil, and in one month it was green and hardly distinguishable from the other parts of the lawn. Similar trials have been made in each month from March and as late as August 12, but the earth gaped or cracked.—Berkshire.

SHORT NOTES.—FLOWER.

Climatic Narcissi.—Apropos of Daffodils, I must tell you that the variety of N. poeticus called ornatus is apparently "climatic," as bulbs of the ordinary wild poeticus brought from the Alps and planted here, in three years, as I am assured, assume the character and early blooming quality of N. p. ornatus, and certainly the blooms I see here are what I should call ornatus. Does it revert in our climate to the ordinary poeticus?—Edward H. Woodall, *Cannes.*

The common blue Cornflower is, I think, less grown than the majority of annuals, yet in a cut state none look more light or elegant, and very few last longer in flower. It even makes an effective small bed. If the seed is sown early in April where the plants are to flower, and the plants thinned out to 4 inches apart, they will give no further trouble during the summer.—J. C. C.

Lovee-lies-bleeding.—To form clumps in a mixed border, or for the back line of a ribbon border, this is a most useful plant. Its graceful drooping plumes of flowers are always acceptable, and in habit of growth it offers a strong contrast to the majority of summer flowers. It requires a rather rich soil, and does best when sown where it is to remain. The middle of April will be soon enough to sow seed. The plants should stand 9 inches apart to be effective.—J.

Chrysanthemum indorum fl.-pl.—This is a plant so much commended by writers in the different gardening papers, that the wonder is it does not find a place in every garden. It is best to treat it as an annual, sowing a little seed now, and planting out in deeply dug, fairly rich, light soil in the open. It is a plant that does best in the open, where it can enjoy plenty of sunshine, and the plants should be a yard apart. The result is that they form very fine and dense bushes, and flower with amazing freedom, yielding hundreds of blossoms. It is such an excellent subject to cut from, that it is surprising it cannot be found in gardens where one would naturally look for it. One great value attaching to the flowers is that they can be wired for bouquets and vases.—R. D.

Primroses and Polyanthuses.—All the hardy kinds of these may be sown almost at any time, but the best is March and April, in boxes, in a cool frame or handlight. The seedlings come up irregularly, but all that do grow will make strong flowering plants by autumn. The seed should be sown in a light, rich soil, be barely covered, and should be kept on the moist side and cool. Our seed boxes are set on the ground, covered by a small glass sash, and are constantly shaded from bright sunshine. As soon as the plants are fairly up, the sash is taken off, and in May or June they are pricked out in rows in good soil, where they remain till October, when they are planted out. Seed is best for getting up a stock soon, and if a few good packets are sown, they will provide thousands of plants. Only good strains should be propagated.—J.

Phlox Drummondi.—This well-known garden annual has been wonderfully improved of late years, and has become exceedingly popular. It is not one of those fleeting annuals that produce a flush of flower and are soon over, like the Candytuft, for example, but possesses all the qualifications of a good bedder, which means that it flowers during the whole season. The colours of the flowers are various—crimson, purple, intense scarlet, pure white, pink, lilac, and other shades. Attempts have been made with considerable success to perpetuate the best kinds, and some cultivators propagate the plant by cuttings, like Verbenas, but cuttings to do well must be put in in August. Seed may be sown now in a box in slight heat, and the plants, if pricked or potted off afterwards, will plant out successfully in May. This Phlox is of easy culture.—J. S.

New and old Mignonettes.—For a long time people have been content with one sort of Mignonette, an old, free flowering, and very fragrant sort, the size of the flowers depending a good deal on culture. We have now, however, got by selection about a dozen different kinds, some of which are a decided improvement on the old variety in certain respects. Amongst the best is the new Spiral, a free flowering sort that produces nice-sized heads of flower. Pyramidalis is a branching variety that produces very large heads of flower, but it is not a free grower; and, considering the purpose for which Mignonette is grown, I do not think it a useful kind. Grandiflora, gigantea, and other sorts resemble pyramidalis. Covent Garden Favourite is another good variety resembling the Spiral and better than the common kind in the flower. All sorts should be sown outdoors in April, and the seed should be red-leaded where birds are troublesome.—S.

Gaultheria trichophylla.—A correspondent, "S. M.," has sent us a plant collected on the Himalayas, which we find to be Gaultheria trichophylla. Our correspondent writes as follows respecting it: "I found at a place on the Cashmere Mountains, at an elevation of 13,000 feet, a quantity of a small plant like Thyme, with sky-blue seed vessels about the size of a large currant, the inside of which was white and pulpy, and contained in the centre some small seeds." This is one of the pretty little evergreen trailing species of Gaultheria which are frequently met with on the Himalayan Alps from Cashmere to Sikkim, and of which G. nummularioides is cultivated in gardens in this country. G. trichophylla is smaller in all its parts than nummularioides, and its foliage is less hairy; the name trichophylla refers to the rather long ciliæ which clothe the margins of the minute leaves, whose upper and under surfaces are quite smooth and glabrous. Thriving naturally under the conditions suitable to the better-known G. nummularioides, G. trichophylla may be treated in this country like that species, which does well in a pot or pan in a moist, cool frame, or in a peaty bed in a sheltered position out of doors. When well grown, the purple-blue berries of this plant, and no doubt of G. trichophylla also, are very ornamental, and make good companions for the orange-berried Nertera depressa.—B.

Seedling Pentstemons are capital plants for furnishing a supply of cut blooms. If sown early, and the seedlings are picked off in boxes, so as to get them to make nice little bushy plants by May, they may be planted out in beds about a foot apart each way, and in autumn will produce some fine spikes of flower, and make excellent plants the second season. If saved from a good selection, the produce will not only be fine, but well varied in colour and marking. Sprays of Pentstemons are extremely pretty when cut and well arranged indoors, the blooms being prettily spotted like those of the Foxglove. In some localities, Pentstemons are liable to suffer from exceptional visitations of frost, and, as a precaution, cuttings of them should be inserted in cold frames in the autumn, so as to insure a supply if the old plants get injured; but Pentstemons are readily increased by means of seed.—J. G., *Hants.*

Rose Garden.

ROSES IN MARCH.

So far Roses seem to have escaped with but little injury from the last week's biting weather; this is the more remarkable, as this is almost our first taste of winter after a long spell of what may be termed spring or even summer-like weather. So strikingly mild has it been, that several Roses, including Gloire de Dijon and Maréchal Niel, were cut in the open air on the 15th of last month. All the unpruned Roses, unless it be a few of the Ayrshire and other climbers, are also and have been for some weeks in full leafage. Even the Banksian, a variety seldom in great haste to start into growth, is so far advanced as to show its myriad bunches of bloom. Nor are the Roses only abnormally early, but unusually strong. Seldom have they looked better in May than last month. They are not only within measurable distance of the blooming season, but, judging by condition, within four or five weeks of it. No one can tell what may happen in that time, but were a return of the weather we had through most of February and March to recur and continue, no one can doubt the earliness of the Rose season, nor the superior quality of the Rose harvests of 1884. The term harvests is used advisedly. For supposing the first bloom a month in advance of the normal time, a second might be reaped in August, a third in October and November. But this, of course, is speculation, and may or not be realised. What is certain now is that the pruning of Roses must be set about at once and completed without delay. The waste of force through superfluous growth has already been more than sufficient to satisfy the most enthusiastic advocate of the decoy theory, that consists in sacrificing all the first growths the better to ensure the safety of the later ones. Carried much further, the Roses will be so drained dry of vital force, that but little will be left for the filling up or sustentation of later and lower buds or shoots. Hence the absolute need of immediate pruning. If delayed much longer, the locking of the door after the horse is stolen is wisdom itself compared to the folly of putting off pruning till the major portion of the vital force of the Roses has already been expended. The strength of the overgrown Roses strews the ground behind the pruner's knife, and it takes months, perhaps the entire season, for the plant to recover itself.

And yet in the face of all this we have rosarians counselling not pruning for a month or six weeks longer. Very much, no doubt, depends on climate, most of all on condition; but when young shoots get from 4 inches to 6 inches, or even 7 inches long, pruning becomes a necessity unless it is dispensed with altogether for that season. And in not a few cases, such, for example, as that of the hardier Tea Roses, such as Gloire de Dijon, Rêve d'Or, Safrano, Homère, &c, on walls, non-pruning may often prove the best course. With slight protection, and at times without any, these early Roses come to perfection, and no one needs to be told how much more valuable Tea or other Roses are in April and May than in June and July. And what of the effects of these precocious bloomings on the quality of the bloom and the future well-doing of the plants. These: the flowers will be smaller, but more numerous, as ten or even twenty to one. Now, for many purposes quantities of Roses are of far more use than quality or mere size. More than this; for button-holes and vase and general decorative purposes small Roses are preferable to large blooms; the latter carry all before them at flower shows and receive the cold shoulder almost everywhere else. The fat blooms are too massive—heavy for bouquets, wreaths, or other artistic purposes. Observe a lady in search of a lovely Rose for her hair, or half-a-dozen for a graceful wreath for her dress; she flits from flower to flower as a bee in search of honey, and passes all the big Roses by, choosing such tapering buds as those of Devoniensis or Niphetos in preference to all others.

Even such massive Roses as Maréchal Niel may be forced into delicacy and gracefulness by the excessive competition of mere numbers. Who can doubt that for many purposes the most graceful buds of this fine Rose are also by far the most useful. More early Roses and of more useful forms and sizes—these would be some of the advantages of non-pruning of Tea Roses on walls, provided the weather permitted them to grow into Roses. But on the other hand, the weather is equally destructive to pruned as to unpruned Roses. It is even more, for the portion pruned off is a night-cap as well as a safety-valve. It keeps the Roses warm as well as late, nor can the amount of protection afforded by the top be judged of by its mere bulk, though that is often very considerable. But the top is posted at the spot where its protective powers are rendered the most potent, and accounts to a great extent for the greater safety of unpruned than pruned Roses. And hence should the worst happen that can happen, and the unpruned Roses have their promising crop of bloom destroyed, the plants will be less severely hit than those that have been pruned. Of course Roses grown on walls for exhibition purposes will be pruned. The concentration of force is necessary to reach the elevated dimensions demanded by show standards. But shows come but seldom, even to those who make them a business, whereas Roses are wanted for decorative purposes and other uses every day of the year. As a rule, too, the pruning of Tea Roses on walls does seem excessive, involving a tremendous loss of wall space as well as of Roses. Tea Roses climb the wall rather with the speed of the snail than that of the hare; one sees more bricks than Roses year after year. But what will be the effect of the non or long pruning on the Rose plants? This will depend very much on their after treatment. Few things would be easier than to manipulate the tops of the Roses after their first blooming so that the plants should rather gain than lose growing force. Early efforts must needs summon the roots to early growth, and keep them growing with abnormal vigour while the blooming season continues. Hence at the end of it the Rose plant would have far more roots, and these roots would be in a more active state than if there had been no early bloom. It follows that were some or most of their shoots cut boldly away so soon as the first flush of blossoming was over or the early Rose harvest was gathered, the plants would immediately break into renewed vigour, and form vigorous growth at the most favourable season of the year for the development of vigour in the rose-

wood, and the ensuring of its more perfect maturity, and, as a matter of fact, this is found to be the case. The growth, as well as the pruning of Tea Roses on walls on a large scale, may yet be said to be in its infancy. These suggestions and gleanings from experience are not advanced dogmatically as the best that can be adopted, but rather as suggestions to those who feel with me that the question of Rose pruning is not yet thrashed out by any means, and that in the future there will probably be less pruning and far more variety in the time and method of it than there is at present. D. T. Fish.

CLIMBING DEVONIENSIS ROSE.

Amongst really good Roses with scandent growth this stands out conspicuously on account of its luxuriance, and it is only where unlimited space is given it to cover that it develops its true character. Confined to a small space, and consequently severely pruned to keep it within bounds, it does not flower freely. When hard pruned, the whole business of the plant appears to be retaliation for the treatment which it has to endure; the more it is pruned, the more it will grow into long, thick, fleshy wood, from which it is useless to expect many flowers. So far as my observation goes, we must go to Devonshire to see this Rose in its true character. One notable example of it I can remember seeing at Dawlish, where it was covering a large space on the wall of a villa residence. There it grew in the most luxuriant manner possible, enjoying a happy freedom of growth not often allowed it, but which it evidently ought to receive. This plant was producing a fine display of flowers, and was in the most perfect health. One glance at this Rose was sufficient to convince anyone that, to cultivate it successfully and secure a fair proportion of flowers according to the space covered, it must be planted in a good soil in a warm and sheltered position, and be allowed to grow in a free and easy manner, with only just the strongest branches nailed to the wall, and the others allowed to grow in their own way. Then they will produce Roses in abundance I have tried to cultivate this Rose under glass in a house that is not heated and where there is plenty of space; but its rampart growth necessitated such severe pruning, that but comparatively few flowers were obtained from the space occupied by it. The size of the flower and the exquisite fragrance that belongs to the old variety are also present in this climbing one. Some five years ago I saw in a garden at Exeter a grand example of the old Devoniensis Rose. It had been planted against the outside wall of a greenhouse, and, having put forth a shoot stronger than the rest, it was taken under the wall plate and trained inside the house, where it throve in the most satisfactory manner, and in three or four years had covered several yards of space on the wall. When I saw it it was in perfect health, and had during that year produced more than 200 flowers, and this just from simply affording it space and a few shreds and nails. The roots being outside were able to take care of themselves. J. C. C.

Roses all the year round.—During the present mild winter I have noticed that some of the older varieties of Roses in cultivation have kept on flowering continuously the whole winter through, and especially noticeable have been Gloire de Dijon and the old pink China. These are great favourites here as wall climbers, and on south aspects they have been aglow with beautiful blossoms, the overhanging roofs affording shelter and protection. In the Isle of Wight Gloire de Dijon is a prominent climber on nearly every house, and lately its great cream-coloured blossoms have formed striking features in those pretty gardens that adorn the suburbs of Ryde and other coast towns. Of the old pink China Rose, I may mention that it is very largely grown by market gardeners. Although we cannot hope to rival our American cousins in the prices which they get for cut flowers, yet we are by no means behind them in the eagerness with which our townspeople buy up any flowers within their reach, and notably Roses, which always seem fresh, fragrant, and welcome. Roses for button-hole and other bouquets and for vases give a cheerful look to even a humble home. Amongst the best for an amateur desirous of having an all-the-year-round supply of fragrant buds must be named Gloire de Dijon and the pink China.—J. G., *Gosport*.

Rose Lady Mary Fitzwilliam.—We have just cut our first bloom of this lovely Hybrid Tea, and were agreeably surprised to find that it is not without scent. It is far from being strongly scented, but what little there is partakes more of the scent of the Hybrid Perpetuals than of the Teas. The colour of this Rose somewhat resembles that of a highly-coloured Catherine Mermet, and the blooms are large and full. It appears to be a sturdy grower, and flowers freely.—W. I.

Large Roses.—As these are considered by some to be the best, I name a few of the largest as they occur to me; but it may be proper to remark that I do not share in the opinion that the largest Roses are always the best. There are a few Roses, notable for their fine form as well as size, that are really admissible in any collection, but there is no need to question the correctness of anyone's taste. The Rose family is a large one, and there is ample room for selection; only Hybrid Perpetuals are referred to in the following list: Abel Grand, pale pink, a fine Rose; Alfred Colomb, bright carmine; Baroness A. de Rothschild, rose, shaded with white; Bessie Johnson, blush; Camille Bernardin, crimson; Comtesse Henriette, a new Rose with a vigorous growth, bright rose in colour; Duchesse de Vallombrosa, pink, shading to white; Edouard Morren, carmine; Emily Laxton, bright cherry; Etienne Levet, rose; Fisher Holmes, rich crimson; Gaston Leveque, bright red; Harrison Weir, dark crimson; Jean Soupert, crimson; Jules Margottin, bright carmine; Madame Montet, rose; Marquise de Castellane, bright rose; Paul Neyron, deep rose; Royal Standard, satiny rose; Souvenir de M. Berthier, fine red; Thyra Hamerich, flesh colour; and Triomphe de France, bright carmine.—J. C. C.

NOTES.

The green-petalled Snowdrop.—This is a very modest and unassuming little Snowdrop sent to me by a friend as the true Galanthus virescens, and it is so distinct that some may like to know how it differs from the common G. nivalis. It has smaller flowers, or, at any rate, the sepals are more slender, and the petals are entirely green from the base to the tip, with the exception of a thin white border. As a very distinct and rather late flowering variety of the common Snowdrop, it well deserves a place in all good gardens. It is, however, by no means abundant, nor do I see it in any bulb catalogue now before me. A few bulbs of the broad-leaved or Crimean Snowdrop planted late are still in great beauty in a sheltered nook, and their blossoms are finer than those were on old-established bulbs which flowered earlier in the season. Can anyone tell me at what date Galanthus plicatus was introduced to English gardens? I know a garden in which it is now abundant, and the original bulbs therein were brought by an officer as a present for his sister on his return from the Russian campaign in 1855 or 1856. Well grown, it is one of the best of all the Snowdrops.

A pretty stove Iris.—All the Maricas are interesting stove plants of Iris-like habit, and Marica cærulea is one of the most beautiful of the whole group when in blossom. The sepals are pure white, barred with brown at the base, the petals being rich velvety blue or purple, with paler or white markings. Unfortunately, as in the case with the Tiger Flower, each blossom only endures fresh for a single day, and then withers up for ever. This plant is also interesting, inasmuch as its flower-stems become viviparous, producing each a young plant after the flowers fade; hence its propagation is of the easiest, and if grown as a basket plant the dangling flower-stems, each with a young plant near its apex, attract notice by their singularity. Another good plant for a cool greenhouse is Morœa fimbriata (or Iris chinensis, as it is also called), which, in addition to a fresh and graceful evergreen habit, bears panicles of very dainty lilac blossoms in great profusion. Here we repot the Iris every year and find that so treated it blooms quite freely in small pots. As a window plant ont of the usual way, this Iris deserves notice, a dry atmosphere suiting it exactly, and shelter from frost is all the heat it really requires.

The dwarf Daffodils.—Of all the Daffodils the dwarf kinds especially trouble amateurs, and often appear in gardens under wrong names. The most abundant of the three here figured

The three small Daffodils—Narcissus minor, nanus, and minimus.

is N. nanus, which grows freely, increases rapidly in most soils, and forms a pretty edging to beds and borders along with Snowdrops and Squills. It is the middle flower in our sketch, and is readily distinguished from N. minor by its perianth segments being as broad again as in that variety. N. minor, the upper flower illustrated, has an elegantly shaped tube, narrow or linear perianth segments, and an expanded or trumpet-mouthed crown. Every season I receive dozens of flowers of N. nanus with the query, "Is this N minor?" and in some cases small flowers of both N. minor and N. nanus are sent with the enquiry as to which of them "is true minimus." N. minimus is of all Daffodils the smallest, and is represented at the bottom of the group. It flowers at 2 inches above the soil, and is the rarest of the three forms to which we here allude. I believe N. nanus to be a small form of our common wild English Daffodil, but N. minor and N. minimus seem more tender, and are doubtless from Southern Europe.

The Tenby Daffodil.—This Daffodil—found wild near Tenby, in South Wales—is always a great favourite of mine. It is now a foot high, and its flowers are (Feb. 27) just expanding, a stage in which I think them most beautiful. It

is here, as elsewhere, one of the earliest of all Daffodils to bloom, and is, of all others, the most robust and dapper in its habit, the flowers just overtopping the erect glaucous leaves and having a trim neatness of make quite their own. Although first known from the Tenby locality, it has recently been sent to me from meadows in England, Ireland, and Scotland, but in all cases from the old sites of religious houses, so that we may infer that the plant has naturalised itself, but that it is not a true native. It is so dwarf and floriferous that, for forcing in pots, I consider it one of the best and a good companion for N. princeps and N. Horsfieldi—both also very distinct and useful

Daffodil flowers half expanded—the period at which they should be cut for expansion in water.

as grown in this way and, as I find from experience, amenable to gentle forcing in the same pots year after year, when liberally treated, until the leaves die down, and then rested, like indoor Amaryllids. This variety is characterised by its short perianth segments being broadly imbricate, and by the shortened corona having a trumpet-shaped crenulated 6-lobed mouth.

When to cut your Daffodils for indoor decoration or for posting to friends is an important matter, and well worthy of a little thoughtful consideration. You may send fifty or sixty Daffodil buds in a comparatively small box for a few pence. They pack readily if cut in the stage shown in our illustration, and travel much more safely than if further advanced, added to which advantages is the main one that the buds, when placed in water on reaching their destination, open out as fresh and fair as if allowed to open out on their parent plants; far more so indeed, since indoors they are safe from rude winds and cold rains. As a fact, indeed, flower buds cut in this way open out fresher and attain a larger size than would have been the case had they remained uncut, and the same is true of Iris, Gladiolus, Amaryllis, Crocus, Snowdrops—indeed of nearly all the indigenous plants now grown in our gardens. We have sent Water Lily buds a journey of 200 miles, and when these were gently opened and placed floating in water, they were as fresh as if just gathered from a reedy pool. All who really love flowers and like their friends to receive their floral offerings at their freshest and best, all indeed who are interested in garden blossoms for artistic or for decorative uses, cannot do better than cut their Daffodils in the stages here shown. VERONICA.

FRUIT GARDEN.

FRUIT PROSPECTS FOR 1884.

It is early to write of these; still, as there can be no fruit without buds, it is not too early to announce that in so far as fruit buds can promise a full fruit basket for this year, that promise is already given. Seldom or never have fruit buds been more closely crowded together on fruit trees of all sorts than this season. Apricots are already in full bloom, and the trees are literally white with the promised plenty of golden fruit. Peach blossoms are opening fast, and they are also strong and plentiful. Pears are on the move, and though the bloom on these varies much with different varieties, the general average of fruit blossoms is high. Cherries are crowded with bloom, as are also Plums, while the most valuable of all fruit crops, Apples, looks most precocious. As the fruit buds swell more and more, the entire tree seems covered with them, to the exclusion of wood buds, which are far less promising. Apricots and Peaches are rather earlier than usual, but none of the other fruits are so early as might have been expected considering the mildness of the season. This partly arises from the apparent wetness and semi-sourness of the ground. Considering the small rainfall we have had recently, it seems astonishing that the land continues so wet. Probably this is very largely owing to the absence of frost, which not only ameliorates the soil, but also dries it by attracting its moisture to the surface and leaving it there to be dried by sun and air. Be that as it may, the comparative lateness of the Apple and other fruit trees notwithstanding the mildness of the season, is a fact for which fruit growers should be abundantly thankful. The failure of the Plum crop last year is likely to be followed by a break-down crop this, weather and birds permitting. The buds are so sweet, and bullfinches so numerous, that they are generally sent to earth rather than permitted to reach plumhood, and this process of clearing the promising Plum trees, repeated year after year in perpetuity, has compelled me to reckon bullfinches among the fruit-grower's most formidable foes. True, such birds are not large, and if they condescended to eat the buds bodily, there would be hope of filling and satisfying them, and yet having a few buds left and grown into Plums. But they do nothing of the sort. They send the buds off in showers at the rate of from fifteen to twenty in a minute, and on examining the buds afterwards it is impossible to see what they have eaten—it is so little. To the naked eye the buds seem as perfect as before. The only difference is that a moment before they were on the highway towards becoming Gages, Jeffersons, Golden Drops, or other Plums; now they strew the ground as so much useless litter, while the birds are even now away to pastures new—that is another Plum tree, which they denude of its flower buds as the first. Not one ever follows the Plum buds to the ground, nor touches or tastes a bud after it has fallen, and it would be difficult throughout all natural phenomena to find a more prodigal example of reckless, and what seems wanton, waste than that exhibited by the doings of the bullfinches among fruit trees in general, and Plum trees in particular. After the Plums are cleared, the Apples follow, and on these two valuable fruits all bud-eating birds seem to expend their full destructive forces.

D. T. F.

NOTES ON STRAWBERRY CULTURE.

Early crops.—Surely "W." (p. 186) must have made a slip of the pen when he wrote that ripe Strawberries in April last cost but little to get. As compared with those obtained in February and March, I grant the expense of firing is not so great, but to have a crop of ripe fruit by the middle of April there must be a considerable outlay for firing. The plants must he started by the middle of January at the latest, and they have to be brought along through some of the coldest, if not quite the darkest, months in the year. The month of March, with its cold, drying winds, often proves very trying and expensive to deal with, for it is easier to keep up a growing heat with 20° still frost than with half that amount when accompanied by a parching wind. I certainly think that many little amateurs would find much pleasure in growing a few pot Strawberries, but if they wish to do so inexpensively, they must be content with getting the fruit ripe by the middle or latter end of May. By growing an early kind and by utilising sun heat in the way of closing early in the afternoon, ripe fruit may be ready by that time, even if only a little fire is occasionally used to keep up the night temperature. Very much, of course, depends on locality, but we find here, twenty miles south of London, that even such an early kind as Marguerite does not ripen before June in cold frames, even when well attended to in the matter of ventilation and covered up regularly at night. It therefore seems little short of wonderful that Strawberries "more than sufficient for dessert" should have been gathered from a cold orchard house in March. Perhaps March is a misprint for May; at any rate the statement ought not to be allowed to pass unchallenged. Exaggerations such as this can only do harm by discouraging and disappointing beginners.

Wintering pot plants.—It would appear that there are still some who recommend stacking pot Strawberries on their sides until required for forcing, but it is one that ought not to be adopted until all other means of protection are exhausted. The enforced horizontal position is most unnatural, and no opportunity is afforded of remedying undue dryness at the roots. Sooner than stack plants in manner for three months of the year I would plunge them in the open ground in some sheltered place, and allow them to take their chance. A friend of mine who grows for market once told me that his one year's experience of this method of storing pot plants was quite enough for him, and the appearance of those thus wintered and such as were kept in frames was very great, enough to make a difference of quite one-fourth in the crop. There is really but little excuse for stacking plants on their sides one above the other, as if cold frames cannot be given up to them—and there are few places where Strawberries are forced where this accommodation does not exist—it is very easy to erect a temporary shelter with boards. The objection which many urge against wintering them in frames is that they are liable to get too dry; but if they do, it is the fault of the grower. I have never had much labour in this respect, as the plants not being housed before the first week in November, which is quite early enough for well-rooted ones, they seldom needed looking at more than once or twice through the winter, taking care, however, to store them away in a moist condition. I have never troubled to pull off the sashes, but kept them well tilted behind nigh tand day, unless there were more than 10° of frost or in a time of very frosty drying winds. Plants cared for thus look as green and fresh in March as when first stored away, and the fibrous roots show signs of healthy activity. It stands to reason that when every leaf and root is preserved intact through the

winter, so much care in watering is not needed when the plants are placed in heat; and here I may add that the preservation of the leaves in winter in a great measure depends upon the culture in autumn, for if the plants want for food in September, the foliage generally turns yellow and decays later on, whereas when well fed it remains green and persistent until the young leaves appear.

Value of a crop.—It is very evident that weight and price alone cannot determine the worth of a crop of Strawberries grown under glass. The cost of production must be considered, and this in the case of early produce is always a serious item, and, indeed, is so great as to deter market growers in a general way from getting ripe fruit before the middle of April. If market growers had the trade in their own hands, it would be a different affair, but, unfortunately, they have to compete with those who have not inaptly been termed "noble market gardeners." The surplus produce from the gardens of noblemen and gentlemen is sufficient to meet the demand, and as fruiterers get this on their own terms, they are independent of those who grow for a living. "It is that which comes from private gardens which spoils the sale of your fruit," said a Centre Row fruiterer to me once, and I have frequently had the opportunity of verifying the assertion. But it is not a few pounds of fruit at a high price that pays the grower, but rather the good crop of fine fruit grown economically. Whoever can grow a good crop at but moderate outlay will find fruit culture pay fairly well, but this is a problem which many fail to solve. It is, however, the same in flower and plant culture generally; the art of growing any one thing is not learnt in a season, and many a bitter disappointment will be likely to be experienced before the way of growing a paying crop is attained. It is probably for this reason that market growers as a body are uncommunicative; they have to often a hard fight before they acquire the necessary knowledge, and when they have got it they think their best interests served by keeping that knowledge to themselves. No one can justly blame them, for competition is fierce, and if any one thing is thought to be paying rather better than others, there are to be found plenty eager and ready to embark in its culture.

Open-air crops.—It will have been noted that the amount of land under Strawberry cultivation has very largely increased during the last few years, and we hear of a single grower sending as much as four tons of fruit to market in one day. Ten years ago it would have been thought impossible to have disposed of such a large quantity in one day, and it is a sign that the consumption of fruit in some form or other is becoming very universal in this country. The dearness of butter and cheapness of sugar act probably in favour of fruit growers, as favouring the ready sale of jam, and Mr. Gladstone only showed his readiness to interpret the signs of the times when he recommended agriculturists to direct their attention to the manufacture of this article, for, depend upon it, jam making will be one of the most important industries in this country, and with wheat at £11 per load and other corn crops and cereals at correspondingly low prices, English farmers will have to turn their attention to the production of more profitable crops. Time will show, but I am of opinion that fruit growing in this country is yet in its infancy. No doubt the favourable seasons experienced during the last few years have had the effect of increasing the area of land under Strawberry culture, for it is a curious fact that whilst for the last half decade we have had scarcely one good year for Apples and hardy fruits generally, the Strawberry has almost entirely escaped their fate. It seems strange that seasons, either good or the reverse, work in cyles; but I remember that a few years back year after year the Strawberry blossom was very much cut off in May, so much so that it was by no means uncommon to hear of acres of plants being ploughed up. Such adverse years have a deterrent effect, but we have had nothing like that for some years past: there has been either a moderately good or a heavy crop; and although when crops generally are heavy the prices run low, growers generally get a pull on the early gatherings, and there is a lot of fruit to sell, it amounts in the long run to a good sum, although the price per pound may be very low. Where fruit can be had early or late, there the Strawberry grower gets the best chance, as he can in a great measure avoid having much fruit just when the main crop generally is being marketed. When Mr. Gladstone advised Scotch cultivators to pay more attention to the Strawberry, supporting his argument by citing the fact that in one district at least of Scotland this fruit does very well, he probably was not aware that Scotch growers have in one respect great advantages over the majority or their English brethren. That coldness of climate which is a drawback in many things enables them to obtain a command of the English markets when the southern growers have finished their season, and I should imagine that Strawberry growing in Scotland is as profitable as anywhere. I do not know how long Strawberries have been grown for the English market in Scotland, but I think the culture of that fruit on an extensive scale is an industry of comparative late establishment. Taking all things into consideration, I do not think we have any need to despair of the profitable use of land in this country, for if "one gate shuts, another opens;" and if one crop ceases to pay, some other will in due time be found to take its place. J. Cornhill.

GRAPE CULTURE.

This is a busy time with all who have gardens, and it often happens at such times that something has to wait "till its turn comes;" in fact, important operations are frequently deferred in order that other work apparently calling for priority may be attended to. No work, however, connected with Grape culture should be or need be delayed a day, or at any rate not long enough to be injurious. Each operation, whether it be watering, disbudding, thinning the bunches or berries, tying down and stopping the laterals, should be done at a certain time. Such work does not really take up much time if carried on in the right way. How often do we hear that it is by close attention to apparently trivial matters that great successes have been achieved—a truism nowhere more strongly exemplified than in Grape culture.

Disbudding.—The importance of this is too often overlooked. To allow a Vine, whether vigorous or otherwise, to partially perfect considerably greater numbers of shoots, as well as bunches, than are really required is simply a waste of strength which might well be concentrated on a given number of laterals and bunches respectively. In each case all, or nearly all, not required should be removed directly they are sufficiently advanced to admit of a judicious selection—the former by disbudding and the surplus bunches by pinching them off. Supposing the rods to be from 3 feet to 4 feet apart (the latter distance being best), and the spurs 15 inches apart, short, and alternating, one lateral is sufficient for each spur; but in case of any wide blanks two laterals should be left on those spurs immediately above and below it on the same side, and these should be so laid in as to cover the space. One bunch at the most should be left to each lateral, and these may be further reduced if the bunches are above the average weight, or say 1½ lbs. In the case of a light crop only should two bunches be reserved on a single lateral, but this is seldom necessary where the Vines receive ordinarily fair treatment. Very small bunches and berries have nothing to recommend them, and the latter especially cannot well be too large. Therefore, in order to finish the crop in hand well, and preserve the vigour of the Vines, be satisfied with a moderately heavy weight of Grapes. I do not recommend light cropping where the Vines are in good health, as little or nothing is gained thereby, but over-cropping is a great and general evil, and involves a depreciation in the value of the current crop, as well as permanent injury to the Vine. Fifteen well-finished bunches on a rod of about 12 feet in length are really of greater marketable value than 20 bunches of the same average weight, but which, owing to there being five bunches too many, are imperfectly finished. Early disbudding and thinning out the bunches tend to husband the strength of the Vine.

Stopping the laterals, too, when this can be done with the finger and thumb is another step in the same direction. The knife ought never to be used till such time as it may be necessary or advisable to remove some of the semi-ripened sub-laterals. Directly the laterals have pushed a few joints beyond the bunch retained, and this is generally nearest the rod, as being the largest, they should be stopped. Whether it shall be at the first, second, or third joint beyond the bunch ought to depend upon the distances between the rods. The aim should be to secure as many early, well-developed leaves as the space will admit of without any crowding, as it is these leaves and not a number of rambling weakly shoots with puny foliage, that act best as respirators and sap elaborators for the Vine. Two of the best Grape growers with whom I am acquainted adopt the plan of stopping at the fourth, fifth, or sixth joint beyond the bunches, subsequently reducing the sub-laterals as they form, with the exception of a few reserved and stopped near the base; otherwise the basal buds intended for the production of next year's fruiting laterals might be induced to push prematurely. The reverse of this practice of leaving as many leaves beyond the bunches as the space will properly admit of is most generally in vogue, but I am convinced from my own experience, as well as from that of others, that the exceptions to the rule are porsuing the best method of stopping. In a few cases it may be advisable to allow the sub-laterals to extend freely. For instance, if Vines have been newly planted or partially lifted in the process of renovation, as much leafage as can be well developed in full light should be encouraged, serving as it does to stimulate a vigorous root action. I also make an exception in favour of the plan of preserving a long sub-lateral beyond the bunches of Madresfield Court, this apparently acting as a preventive of cracking.

Tying down the laterals.—This is by no means an operation to be carelessly performed, especially where the Vines are allowed to break naturally, and as a consequence are oftentimes extra strong and more liable to be pulled out of their sockets. The longer it can be deferred, always provided the shoots do not touch the glass, the better, as then there is less danger of a few of the shoots breaking off a few hours after tying down has apparently been safely accomplished. A modern writer and successful Grape grower recommends that the trellis for the Vines be not less than 2 feet (he has no objection to 4 feet) from the glass, this among other advantages claimed enabling the grower to defer tying down till all danger of snapping is over. This may be said to be when the bunches are near the flowering period or, better still, after they have flowered. Probably the writer is the only man in the country who has adopted the plan of fixing the trellis so far from the glass, thus deferring the tying, and there are few vineries where it could be adopted. It must be, and oftentimes is, modified, not by lowering the trellis, but by lowering the rods, so as to give a greater depth of head room to the laterals. Even in that case it is frequently necessary to slightly tie down the laterals before the risk of injury from contact with the glass is incurred. Later on the rods may safely be tied up nearly or close to the trellis, and the laterals also be safely brought down. As it happens, the trellises in a considerable number, perhaps in the majority, of vineries connected with small gardens instead of being at least 15 inches from the glass are nearer 9 inches from it, this necessitating early tying down, as well as subsequently proving most injurious to the leaves, which must inevitably become closely pressed to the glass. Wherever it is absolutely necessary to tie down the laterals early, disbudding, as above advised, must not be too

vigorously practised, otherwise where any of the laterals "fly," *i.e.*, become separated from the main rods, there will be a blank not easily obviated. Neither must the attempt be made to tie down strong laterals at once. They should be brought down gradually and at intervals of a few days, the ties being made so as to admit of the ends fastened to the wires being easily unfastened and made use of again. I prefer to perform the operation of tying down the laterals either during dull weather or at a time when they are not slightly flagging or are limp from the effects of bright sunshine, or otherwise we may be tempted to strain too tightly, the consequence being when they regain rigidity, some of them may be pulled out of their sockets. This breaking off of the laterals is very annoying, especially when, as it often happens, they are bearing the best bunches in the house.

W. I. M.

MANURING FRUIT TREES.

It is singular how long some fallacies retain their hold, even after they have been disproved by facts, and of these, one of the most mischievous is the belief that fruit trees and bushes are liable to injury rather than benefit from the application of manure. All sorts of diseases, such as canker and other ailments to which fruit trees are liable, are set down as the result of applying manure to the roots; whereas, in nine cases out of ten, it arises from poverty of the soil, causing the roots to run down into the bad subsoil. I am continually hearing complaints from owners of fruit trees as to their unsatisfactory condition, and on examination have invariably found scarcely any surface roots or fibres of any kind, nothing but large, thong-like roots, that run right down into the subsoil. On inquiry I have usually found that manuring or top-dressing had not been practised for many years, their owners having come to the conclusion that such practices were dangerous. I do not say that manure will prove to be a cure for fruit-tree ailments of all kinds, but I will briefly detail a few facts that have come under my observation at various times, to prove that starvation of the roots is a far more prolific source of injury than abundant feeding of the surface roots, both with solid and liquid manures, and growers must form their own conclusions as to the best course to pursue. In the first place, I may mention that

Fruit trees grown in pots show us how trees may be kept in perfect health for years by simply giving them rich surface dressings annually. Even stone fruits (such as Peaches, Plums, and Cherries), that are supposed to be the first to suffer from manure in the soil, are kept in far better health in the small area in which their roots are confined by high feeding than one usually finds them in positions where they rarely get any manure, either solid or liquid. I have frequently plunged pot trees of various kinds in beds of manure, and allowed them to root through into it the entire season without a trace of disease appearing in the wood or fruit. In the case of wall and trained trees, such as cordons, espaliers, pyramids, and bushes, I can positively assert that the best I ever saw, not only as regards healthy wood, but clear-skinned, high-class fruit, had the soil, as far as the roots extended, covered with good manure annually, and no crop of any kind was allowed to be near enough to rob the roots of their supply of nourishment. In fact, planted in good kitchen garden soil, trees usually make plenty of growth the first year or two; it is after they begin to carry crops of fruit that they need rich feeding on the surface to keep the fibrous roots at work where the beneficent influence of sun and air can reach them. It should also be borne in mind that trained trees are wholly under artificial circumstances, and, therefore, need especial care to guard them from injury; if the tops were allowed to grow naturally, they would form a leafy canopy, and screen the roots from the scorching rays of the sun, and the falling leaves in autumn would form a friendly shelter in winter, and also enrich the soil as they get drawn into it by worms; but all these benefits are denied to trained fruit trees. Even the fallen leaves are gathered up, on the plea of tidiness, and bare clean raked surface soil is more the rule than the exception. The surface under such circumstances gets as hard and uninviting to tender rootlets as a brick. But with a coating of manure on the surface, all violent and sudden changes are avoided, and the roots finding moisture and food soon fill the surface with a network of fibres, producing hard well-ripened wood full of fruit buds. Fibrous roots and bearing wood go together, while gross tap roots strike down into the ungenial subsoil, from being unable to find nourishment on the surface, and produce gross watery shoots that fail to ripen. If any blossoms are produced by such wood, they fail to set. Year after year these watery shoots are cut off, wasting the energy of the tree to no purpose; unripened wood is undoubtedly the most fruitful source of canker. Severe frosts split the sap vessels, causing dead or dying branches, and these sappy shoots are set down as the result of over-luxuriance; but it is of a kind that yields but very poor results. When through neglect trees have been allowed to sent their roots down too deeply, the best remedy is to lift them carefully and replant, spreading the roots out near the surface, and finally mulching with some good half decayed manure. The most fruitful trees I ever had received a good coat of manure in spring every year, and by the following winter it had nearly all disappeared. There is no fear of fruitful trees getting over-luxuriant, for the crops they bear are the best remedy for superabundant energy. Once get trees into a fruit-bearing state, and but little attention will keep them in a satisfactory condition.

Orchard trees are the most important, for on them depends the market supply of home-grown fruit, and their fruitful or unfruitful state in nine cases out of ten is entirely dependent on the attention which they receive as regards manuring. In the fruit-growing parts of Kent, where large orchards of standard trees planted on Grass land is the rule, it is a well-established fact that if the Grass is cut for hay and carried away, the trees soon become unfruitful and die out; while, on the contrary, if the Grass is fed off, so that the nutriment is returned to the roots in the shape of manure, the trees keep fruitful and healthy. I have seen some of the most Moss-grown, miserable specimens of starved orchard trees restored to fruitful condition by making the ground beneath them the winter quarters of sheep and pigs, feeding them the same time as if they were in the farmyard with roots and corn. The finest old specimens of Apple and Pear trees are generally those in an orchard next to the homestead that is used as a run for calves, sheep, pigs, and poultry the whole year round. In these orchards the turf is short, and, being full of nutriment, the trees keep healthy and prolific for an indefinite period. Ashes, garden refuse, or any kind of road scrapings, or even scavengers' rubbish may be utilised for increasing our supply of orchard fruits. They should be spread roughly on the surface in winter, and in spring harrowed and rolled down firmly. The result will soon be a marked improvement in the size and quality of the crop. Difference of opinion prevails as to pruning or non-pruning trees, some adopting one system and some another; but, be that as it may, I never knew fruit trees continue to yield good crops for any length of time unless the roots were supplied with manure in some form or other.

J. Groom.

Gosport.

Forced Strawberries.—"W." says (p. 186) "From rows of plants set close together the whole length of a cold Peach case I have seen magnificent British Queen and other Strawberries gathered in greater quantities than they could be used for dessert in a large establishment during the greater part of March and April." Would "W." kindly say from what part of England he writes, as it would be interesting to know in what county Strawberries can be ripened in March in a cold house? Towards the close of the third paragraph he says: "A plant in a pot will bear from twenty to thirty berries of good size. It will show many more, but that number is as much as should be allowed." Would he further oblige me by telling me the name of the Strawberry he grows that produces so many fruits? I am not a great traveller, but I would not mind going a long way to see thirty good sized berries on one plant.—J. C. C.

INSIDE V. OUTSIDE VINE BORDERS.

"J. S. W." now says there is no necessity for his going to examine the Vine borders at Hutton Hall, and this after writing several letters to Mr. McIndoe, stipulating that if he went he should require to overhaul the outside borders from one side to the other and lay bare the roots, doing it, as he says, as carefully as he could, and saying he should want a man or two to assist him. Mr. McIndoe—accepting "J. S. W.'s" promise that he did not want to do any unreasonable damage—gave him permission to investigate them and the assistance he required. Why "J. S. W." has come to the conclusion that there is no necessity for his going your readers can judge for themselves. Mr. McIndoe, in his first letter to me on the subject, which appeared in the The Garden Feb. 16, and which I again repeat was quite unsolicited, said the roots were few and far between in the outside borders, which is clearly correct; otherwise he would not have consented to the borders being "overhauled from one side to the other." I was scarcely prepared for "J. S. W." allowing his case to collapse in this way, as in these borders he would have found conclusive evidence against assertions which he has put forth. As to "J. S. W.'s" objections that these outside borders are not a case in point simply because Mr. McIndoe did not state in his first letter that they were only begun seven years ago and not finished until three years later, those conversant with Vine growing will see that this is simply hair-splitting; to make them by additions is the ordinary way of procedure, and when the first portion was made the roots at once had a chance to enter it. With reference to the Wynyard Vines, their evidence is even more conclusive in support of what proper treatment will do in inducing inside rooting, for in their case after having full possession of outside borders Mr. Jones succeeded in getting them to root inside to a much greater extent than existed outside. "J. S. W.'s" assertion that the Wynyard case had broken down because there might be a difference of two or three years in the age I understood the Vines to be is too finely drawn to have any weight with unprejudiced people. The case stands thus: "J. S. W." asserts that his Vine roots will not keep inside when they can get out; whereas there is indisputable proof that Vine roots in general having a chance of both borders prefer the inside to the out. "J. S. W." merely tells us what the result of his practice is, while others show results in the shape of grand fruit. Let me ask "J. S. W." to show Grapes grown on his Vines confined to inside borders at some one of the places where the growers I have mentioned exhibit. If he will do so, and his are as good as theirs, he will do more to bring others to his views than any amount of unsupported assertion will ever effect.

T. Baines.

Fashionable hand bouquet.—Messrs. Cypher, of Cheltenham, excel in bouquet making, and are very rarely beaten when they compete with them at the various flower shows which they attend. I cannot describe the exact arrangement of one of their bouquets which I recently examined, but it was composed of Maréchal Niel Roses, Lilies of the Valley, white Camellias, Ixora, Spiræa japonica, Odontoglossum Alexandræ, Dendrobium Wardianum D. Devonianum, Cattleya Trianæ, Phalænopis Schilleriana, and P. Stuartiana. In shape it was flat and at least 15 inches in diameter, and every flower used appeared to be wanted, which cannot be said of too many bouquets, over-crowding being the prevailing fault. The bouquet under notice was valued at

four guineas, and, considering the quality of the flowers employed, the price was less extravagant than at first it may appear to be.—W. I.

Ferns.

BEST CULTIVATED FERNS.

(*Continued from p.* 108.)

Marattia.—This genus is composed of highly ornamental robust-growing evergreen pseudo-Ferns, which, although not forming any stems, generally attain very large dimensions, as their stately fronds are produced from very large fleshy crowns similar to those of Angiopteris, from which they are readily distinguished by having the spore cases consolidated into bivalve sori, along which they form two opposite lines; while in the latter, the spore cases, which are also placed in two opposite lines, are distinct and separable. Most of the known species have bi or tripinnate fronds with articulated pinnules, and are all of a more or less thick fleshy substance, and rendered most attractive by the peculiar character of the succulent appendages which surround the base of the stalks, which are also articulated, and which often assume the appearance of abnormal fronds. All of them being swamp-loving plants, they grow all the better if potted in a substantial compost, and their pots partially placed in water. A mixture consisting of about equal parts roughly broken peat, loam, and river sand is one in which they grow most luxuriantly, especially if given a good amount of heat. I have, however, seen M. elegans stand on a cold rockery for several years, and indeed make very good use of its time during the summer months; but it is, I believe, the only Marattia which will succeed equally well under cold and warm treatment. Another peculiarity of this genus is that it produces most of the edible Ferns known in cultivation. In New Zealand as well as in the West Indies and in Mexico the succulent crowns of the different species indigenous of these countries are used by the natives as an article of food either boiled, roasted, or baked. The Marattias also possess an immense advantage over most other Ferns, inasmuch as if they accidentally are allowed to get dry at the roots, their fronds, being articulated, hang down and get quite flabby, a state in which they have the faculty of remaining a comparatively long time without sustaining much damage. It is, however, advisable when detected in that condition to give them water at the roots at once, when they will speedily regain their former stiffness without showing the least trace of having suffered. They are readily propagated by laying the basal scales of the fronds on a bed of constantly moist material, such as Moss, where they will be found to emit roots most freely, and produce on each side of the scales little bulbous growths which later on develop into plants similar to the parent.

M. alata.—A very handsome West Indian species of highly ornamental habit and strikingly distinct characters. Its magnificent fronds, which grow from 3 feet to 5 feet in length, are bipinnate when in a young state, but tripinnate when the plant has attained its full development. Its numerous little pinnules, sometimes entire, but generally dentate on the margins, are quite unique in the genus, and the same remark also applies to the rachis, which throughout its entire length is deeply winged. This is one of the few species producing spores freely. Unfortunately, these seem to require for their germination some kind of treatment apparently unknown yet to our cultivators, as they have been tried at different periods in different ways and on diverse sorts of materials, but have always proved a failure, never reaching above the prothallum stage, in which state some of them once remained three years, gradually spreading, though not showing any sign of fronds whatever, until at last they fell a prey to a fungoid growth, which in a very little time destroyed them completely. Stove.

M. cicutæfolia.—This robust-growing Brazilian species has strictly bipinnate fronds produced from a globose rhizome and borne on stout round stalks, of a dark green colour, whose lower part is entirely covered with brownish chaffy scales. These fronds, which sometimes attain 6 feet to 7 feet in height, stand in an almost erect position, with pinnæ opposite and long narrow pinnules prominently serrated at their edges. The whole plant is of a very dark green colour. Stove.

M. Cooperi.—A bold and essentially distinct species from New Caledonia, and one which although unsurpassed for decoration in a warm conservatory, where it is most effective, still remains comparatively rare in cultivation. Its magnificent massively decompound fronds rise from between two horny-looking appendages of a very rough nature, and are borne on succulent blackish round stalks of a somewhat dull and wrinkled appearance, contrasting singularly with the smooth or shiny characters of all the other species. They grow to 5 feet or even 6 feet high and are bipinnate in young specimens, but tripinnate in plants that have attained their full development, with pinnules large, of an oblong form, and pointed at their apex; these are deeply, but irregularly dentate on the margins, of a leathery texture and very dark green colour. Of all the Marattias in cultivation it is perhaps the one most subject to the ravages of thrips and scale, but it can be kept clean with very little trouble and at little expense, as by its nature it is easily washed, and it also stands fumigation without suffering in the least. Stove.

M. elegans.—This is an easily-grown and highly decorative plant found abundantly in Norfolk Island and New Zealand alike, and one which can be used with great advantage in the cool conservatory all the year round or in subtropical work during the summer months, where it produces quite an unique effect. Its gigantic bitripinnately divided fronds, borne on stout, light green, round stalks, assume a much more horizontal position than in most other plants of the same genus. They often attain 7 feet or 8 feet in height, and are divided into broad pinnules of a bright shining green colour and slightly serrated at the edges. This most useful species does equally well either in the cool or in the warm house.

M. fraxinea, a noble-looking species from Southern India, is of somewhat dwarf growth when compared with nearly all the other kinds, as it seldom measures more than from 3 feet to 4 feet in height. Its splendid bipinnate, ample fronds, produced from a large globose rhizome, have broad, slightly undulated pinnules, which seldom become pinnate again; these are articulate, of a very dark shining green colour, and differ from those of other species by their peculiar long terminal acuminations as well as by their partial rachis, which is often winged towards the apex. Stove.

M. Kaulfussi.—This tropical American species is totally distinct in habit as well as in general appearance from any other cultivated kind. Its beautifully decompound fronds, which generally measure from 4 feet to 5 feet high, are borne on round stalks of very light green colour, totally deprived of scales, and in an almost perpendicular position, the leafy portion of it being gracefully recumbent. They are tripinnate with numerous deeply dentate small pinnules closely set along the broadly winged rachis and rachides, which from place to place also produce long silvery hair-like scales standing erect on the upper part of the whole fronds, which are of a most refreshing pale green colour. Stove.

M. laxa.—A very fine and highly ornamental Mexican species of robust growth, distinct from most other Marattias through its airy, light appearance, for although its gigantic pinnate fronds are always of large dimensions and borne on stout, fleshy stalks of a light colour, and whose base is thickly covered with grey chaffy scales, its handsome pinnæ, nearly 2 feet long, and its numerous opposite pinnules, which often measure from 6 inches to 7 inches long by fully 1 inch in breadth, are set very loose and have a peculiar and pleasant deflexed character, which gives the whole plant a light and graceful bearing different from other much more massive species. The pinnules, deeply serrated at the edges, are of a rich, dark green colour. Stove.

M. purpurascens (ascensionis).—This dwarfest growing of all known Marattias is a native of the island of Ascension. It is particularly striking on account of its very compact habit and the peculiar very heavy dark green colour of its bipinnate, or sometimes tripinnate, fronds, which seldom exceed 2 feet in height. These rise from between two succulent and leafy stipulæform appendages attached to their base, as is the case in M. Cooperi, but of a smoother nature. The pinnules in this curious and interesting species are broad and undulate, but not serrated on the margins. It makes a much better plant more adapted for pot culture than any other species of the same genus. Stove.

Pellæa.

Garden Flora.

PLATE 434.

MAGNOLIA SOULANGEANA NIGRA.*

No one unacquainted with the early flowering Magnolias could, from a mere description, form anything like a correct idea of the splendid appearance presented by large specimens in full flower of such species as the Yulan (M. conspicua) and the more recently introduced M. stellata. At Kew there are several fine bushes of the former, which for some time have, from a distance, seemed as if covered with a mantle of snow. At Syon House, however, there are far larger specimens, one of which, literally covered with flowers, measures no less than 25 feet in height with a spread of branches of 34 feet. In such a season as the present one, no unkind frost having come to mar the snowy purity of the numberless blossoms, a sight like that afforded by the trees above mentioned is not one which is likely to be readily forgotten by anyone who loves a garden. Of the second species, M. stellata, the largest examples in this country exist in the Coombe Wood nurseries of Messrs. Veitch, in which establishment this lovely Japanese shrub first found a home in Britain. Next to M. conspicua this seems the earliest bloomer, and a good estimate of its value as a lawn or shrubbery plant may be formed by referring to the coloured plate which was issued with The Garden, Vol. XIII., p. 572, under the name of M. Halleana. I had the pleasure of seeing this charming shrub at Coombe Wood a week ago, and the beauty of its pink-tinted buds and white narrow-petalled sweet-scented flowers can hardly be exaggerated. The year 1884 is bound to be a somewhat eventful one for Magnolias, and is certain to be a memorable one in the garden literature of so magnificent a genus, for has not the Indian M. Campbelli at last developed its glorious flowers in the open air at Lakelands, in County Cork? A fine bloom of this species has been sent to Kew, and a figure prepared from it will appear by-and-by in the *Botanical Magazine*. It is to be hoped that due advantage of such an opportunity will be taken by the hybridist, and that the large size and fine colour of this superb species may be combined with the free-flowering qualities and general hardiness of M. conspicua. Remarkable results could hardly fail to be attained by successful crosses between M. Campbelli and M. conspicua or M. Soulangeana.

The plate accompanying these notes represents a fine hybrid or variety which has been grown for a number of years at Coombe Wood under the name of M. Soulangeana nigra. After studying

* Drawn in Messrs. Veitch's nursery, Coombe Wood, May 9, 1883.

the Magnolias for the account of the genus which appeared in The Garden of December 8, 1883, I came to the conclusion that the plant herewith figured was a variety of the purple-flowered Magnolia (M. obovata), or a hybrid of which that species was one of the parents. On enquiry at Coombe Wood the other day I did not obtain any very definite information, but it was believed that the original plant was one which had been brought from Japan by the late Mr. John Gould Veitch, and if the hybrid origin is correct, there is nothing improbable in such a statement, for both the Yulan (M. conspicua)—presumably the other parent—and the purple-flowered Magnolia (M. obovata) have been cultivated by the Chinese and Japanese from time immemorial. Natural hybrids have occurred in European gardens, and no doubt, both before and after the function of the pollen was discovered and artificial hybridisation resorted to, these have originated in a wild state. In any case, whether hybrid or variety, M. Soulangeana nigra is a grand garden plant.

Royal Gardens, Kew. G. Nicholson.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

Wild Daffodils and their garden relatives are now some of our most valuable plants for indoor decoration. About a hundred flowers of the common single garden kind (N. Pseudo-narcissus) placed in a large china bowl with leaves here and there have a fine appearance. They stand upright in bold masses, supported by Moss below the water; the heads stand at various heights, the stalks being of different lengths, and all touching the bottom. Such a mass of delicate yellow is cheerful in a living room. A bold group of the great golden Daffodil (N. maximus) in an upright jar of dark blue porcelain also looks well; they are cut their full length of 22 inches. In a broad, shallow bowl are profusely flowered sprays of scarlet Japan Quince and Almond blossom; it stands high, and is well seen against an ebony cabinet. Another china bowl, large and deep, is filled with an important mass of blood-red Wallflowers; they are at their best when only the lower flowers are expanded, leaving a good space of the brown-purple buds in the centre—the whole year gives us few such feasts of rich colour as this bowl of Wallflowers. From the greenhouse there are Tea Roses Madame Falcot and Souverir d'un Ami. In an entrance hall stands a large white Indian Azalea, a mass of bloom about 3 feet through, not trained in the stiff pyramidal shape so commonly seen, but grown as a graceful and naturally-shaped bush; it is accompanied by plants of Aralia Sieboldi.

FLOWER GARDEN.

General work.—In order to get all extraneous work out of hand, we are as rapidly as possible finishing up Laurel and hedge cutting, applying mulchings to recently moved trees and shrubs, and edging and regravelling roads and walks. These done, mowing and the general preservation of neatness will constitute the whole of what we term our "far-afield" duties. Local ones consist in affording beds of spring flowers timely attention; Hyacinths must be tied, and the less hardy flowers protected from the sharp frosts that generally prevail at this time. Where any of the beds are vacant, summer bedding arrangements may be determined, and the edgings and ground-works of hardy plants got out. Herniaria, Cerastiums, Sedums, Saxifrages, Thymes, Violas, Pansies, and small shrubs are a few of the kinds the planting of which we hope soon to finish. As used here in the formation of upright edgings, 4 inches high, Herniaria glabra makes the most perfect green fretwork wall that can be conceived, and naturally grows so dwarf and dense, that it requires no attention to keep it in form. As edgings of Echeverias and Sempervivums have become so common, and look so formal and artificial, and as for such purposes there are so many better plants, their use in this way should be discontinued, but as a ground-work for taller succulents they are in every way appropriate, and when so used and allowed to flower, which they do profusely, succulents may safely be classed among the most quaint, yet gay, of all summer bedders, and in all weathers effective.

Bedding plants.—Alternantheras are growing so freely, that abundance of cuttings may now be had from them at any time, and the hotbed mode of propagation described in a former paper is by far the best way to strike them, the frames being moved or thrown quite open as soon as the plants have become well established. Coleuses and Iresines may still be struck, and those cramped in cutting pots may be potted off. These are both so long in starting when first planted out, that, with a view to immediate effect, the aim should be to get the plants large before planting-out time. As increased space will daily now be needed for the tender kinds of seedlings, all sorts that will stand a degree or two of frost should be put out into pits or sheltered spots. Lobelias, Verbenas, and Petunias we put in turf pits, and cover up with straw burdles or felt frames. Calceolarias, Gnaphalium lanatum, and Abutilons are placed at the foot of the fruit walls, where they have the benefit of the wall covering. Most kinds of Pelargoniums are also quite safe under the same conditions. The tricolor section must, however, yet have glass shelter, but be given abundance of air on all favourable occasions. Seedlings of Solanums, Wigandias, Daturas, single Dahlias, and others sown a few weeks ago will now be quite ready to pot off, and when done place them in a close, warm atmosphere, and shade them for a few days, till the roots have started in the new soil. Castor-oils should always be sown singly in pots, as they are bad subjects to handle in the seedling state. There is yet ample time if sown now to have good plants by the end of May; those sown earlier will be ready to remove to a cooler atmosphere, to be grown on in plenty of light, otherwise the growth becomes attenuated, and the plants liable to be severely crippled when first planted out. The same remarks apply to Tobaccos, Ferulas, Acacia lophantha, and Grevillea robusta. In mild weather draw the lights entirely off frames in which seedling Stocks, Asters, Phlox Drummondi, Everlastings, and others of the annual and biennial sections are growing, and prick them off or thin them out as soon as they can be handled; even if the surplus seedlings should be destroyed it is better than that all should be injured by overcrowding.

PROPAGATING.

Cyanophyllums.—Any of these that have lost their leaves during the winter, or that have become too tall, should be cut down and the tops inserted as cuttings. If put in now they will root quickly; the old plant will break out freely, and yield a goodly number of cuttings, which, if it be required to increase the stock, should be taken off and struck as soon as they attain sufficient strength. In preparing the tops leave about three pairs of leaves, and cut them off at the joint immediately below the bottom leaf; then insert them in pots of sandy soil and plunge them in a close case in a bottom-heat of from 75° to 85°. Before plunging them give a good watering to settle the soil, and keep them afterwards moderately moist till rooted, which will soon take place, especially if in a vigorous condition. It will be necessary to shade during sunshine, the object being to keep the leaves in as perfect condition as possible.

Rhododendrons of the greenhouse section, such as Princess Royal, Alexandra, and Helena, besides the newer kinds called Taylori, Duchess of Edinburgh, Duchess of Teck, and others, will, if in good condition, by this time have made new shoots, which will root without much difficulty and form useful plants. As these shoots, which should be about half ripened, consist of a cluster of leaves with a good length of bare stem below them, they form when taken off ready-made cuttings, but in removing them always leave two or three buds on the plant, in order to give it the means of furnishing itself with new growth. Sometimes the shoot removed is too long to be used in its entirety; in that case, it may be cut to the required length, but the buds at the base hasten the rooting process, and should be left on if possible. The soil most suitable for such cuttings is fine sandy peat, with a liberal admixture of crocks broken very small or pounded charcoal. In this they will root far more readily than in peat and sand alone, the young roots evincing a great partiality for the broken crocks by clinging closely around them. Use small, clean, well-drained pots for the purpose, and insert the cuttings firmly; then give them a good watering, and place them in a close case in a temperature of from 65° to 75°; water and shade them as may be required; if too damp, give air for a little time. A sharp outlook must be kept for thrips, which, if once a lodgment is gained, will increase rapidly in the confined atmosphere, and greatly disfigure the leaves.

Phloxes and Pentstemons may, where scarce, be propagated now in the same way as Chrysanthemums, viz., as the young shoots come up cut them off and make cuttings of them, which should, however, if possible, be put where there is a little heat—say on a gentle hotbed. If the plants are in pots they should be kept close a few days before the cuttings are taken off. Cuttings struck in this way make good little flowering specimens the first season, but of course the above method will only need to be used for scarce kinds; but where large masses exist division is the best mode of propagation.

ORCHIDS.

East India house.—Allusion was made recently to shading the occupants of this house, and as the season advances the importance of protecting the plants from sudden bursts of sunshine will be evident. This house is now quite gay with flowering plants, and exposure to the sun for half an hour makes sad work of the delicate tints of the Moth Orchids. The kind of shading is of more importance than some cultivators are aware of. Last year we used a thicker shading than usual; it cost 11d. a yard, double width, but it seems the material was jute, and not at all such as can be recommended. It was torn into shreds by the wind before the end of the summer, lasting not quite one season, instead of two, as it ought to have done. We are using this year a much thinner material, costing a shilling a yard, made entirely of flax. Our blinds are rolled up and let down more than a dozen times a day sometimes, which causes them to wear out rather faster than some people's who do not take so much trouble. We fancy the best position for these houses is to run east and west, so that all the shade-loving plants can be placed on the north side. Even there shading material must be provided for them, although it need not be used so often as that provided for the southern aspect. We placed the Odontoglossum Roezli, the rose-scented Odontoglossum, near the glass on the sunny side, and also the heat-loving Saccolabiums, Dendrobium formosum, and all the East Indian species that require heat. Pescatoreas, Rolleas, and Batemannias should not be neglected; very few growers can keep them in health for many years in succession, but to do so with any measure of success, they require to be kept moist in the coolest and most shady part of the house. It seems to be always the rainy season in their native habitat, and they are to be found in shady woods. Plants of this kind must, in the first place, be potted in potsherds, with a little charcoal, to start them, and afterwards a very thin layer of turfy peat, Sphagnum, and drainage over it. Some growers have recommended the use of leaf mould or rather partially decayed leaves to be mixed with it. As a general rule, the cultivator who has valuable plants under his care will try to find out the best position in the house for the individual specimens, and plants that may require extra shade

should have some thin tiffany nailed over the glass permanently above where they are placed.

Cattleya house.—Great vigilance is necessary at this time to prevent the plants being injured by woodlice or slugs. The roots are now pushing out from the base of the flowering bulbs of Cattleyas, and a stray slug would do much mischief in a single night. We look over them every night with a lamp, also the first thing in the morning. Carrots and Potatoes sliced are laid round the plants to attract them. Now also the flower-spikes of Odontoglossum vexillarium are pushing up; these are a prey to slugs, and the tender rootlets issuing from the base of the last formed pseudo-bulbs are very attractive to the woodlouse; constant attention will save the plants. Keep a very sharp look out for the first appearance of yellow thrips; this pest will disappear if it is attacked on its first appearance, and will not show itself again if the cultural directions are perfect. Odontoglossum citrosmum that has recently been repotted is now pushing out its flower-spikes with the new growths. O. hastilabium is in the same stage, and slugs are very fond of the stout succulent flower-stems in their early stages. O. Phalænopsis is a troublesome species to deal with; it must be placed near the glass in a sunny part of this house, and when making its growths requires a large supply of water. Another class of Orchids that delights in water during the growing season are Cœlogynes. Recently potted plants will have their bulbs shrivelled a little; but with a moist atmosphere and plenty of water they soon plump up again. C. barbata should be constantly wet, and requires syringing overhead during hot dry weather; many of the nearly allied species require similar treatment. Cymbidium eburneum is now finely in flower and must not get dry at the roots. We found a plant of this fine Orchid in an ordinary stove where the plants were neglected; it was growing in a pasty mass of yellow loam and doing remarkably well, the leaves as green as Grass. A good moist growing atmosphere must now be kept up, with the temperature seldom below 55° at night. The shading ought not to be used unless it is absolutely necessary. It is wanted merely to keep the sun from burning the plants.

Cool house.—The importance of light for this section was forcibly brought up in conversation with one of our most eminent growers the other day. He told us that he was certain it was a mistake to build a cool house with a north aspect, as it is usually built behind back walls of vineries or other structures. If, said he, you build the house in this position, the back wall must not be of brick, but of glass. This we thought an excellent suggestion, and might be the means of admitting more light to the Vines as well as to the cool Orchid houses. We have always recommended the north aspect for cool Orchids since Mr. Ward grew such handsome specimens from the smallest plants for the late Mr. F. G. Wilkins, The Poplars, Leyton. Those plants have never been surpassed, and seldom equalled. Masdevallias object to such a house during the winter months; they would succeed better if placed at the cool end of a Cattleya house. A good grower of cool Orchids told us that he always started the imported plants in the warmest house, and as soon as they started to grow they were placed in the cool compartment. Cattleya citrina will succeed fairly well in this house suspended near the glass. Importations of this species are now offered for sale. The plants should be placed in shallow pans, or tied to blocks of teak or bits of Tree Fern with their heads downwards This species does not seem to remain in good health for many years together. We saw it recently in Mr. Walter Cobb's garden, at Sydenham, growing very freely in shallow pans suspended from the roof of a house where Lycaste Skinneri was doing well. It requires more sunlight than the usual run of cool Orchids. This house will also require more moisture to be evaporated from the paths and stages to aid in starting the plants into a healthy growth. On all favourable occasions let the ventilators be opened as freely as the circumstances of the case will admit of. Of course the plants must not be exposed to strong currents of air. Whenever it is possible we keep the ventilators open at night to a limited extent; and they are opened further whenever the temperature rises above 50° or 55°. At this time 50° is the minimum night temperature. If any plants require re-potting, this operation ought to be completed without any delay. In regular Orchid-growing establishments arrangements are always made to re-pot the plants without taking them out of doors to the potting shed. Rather than take the plants through these cutting east winds to a potting shed we would pot the plants in the houses where they are growing. In parting clumps of Masdevallia, it is better to separate the plants from each other with the fingers than to use a knife to cut them.

INDOOR PLANTS.

Heaths.—If the different varieties of soft-wooded winter-flowering Heaths, such as hyemalis, were cut back freely after blooming they will now have started into growth, and should be potted at once. Pots 2 inches larger than those they are already in will in most cases be sufficient; no disturbance of the roots should be attempted; merely remove the crocks from the bottom of the ball. Stock of this kind is often pot-bound, and therefore the new soil must be rammed more than ordinarily solid; otherwise in watering the water will be sure to pass through the new material, leaving the old ball dry. A mistaken impression often exists as to the time Heaths generally should be potted. Early in the spring, before the weather gets hot, or in the early autumn after the dry, parching season is over, are the safest times for repotting, and where any portions of the younger description of stock are suffering from want of root room, we should not hesitate to move them now, even though their blooming season is approaching, as if the potting is managed with the care it should be, so as not to injure or disturb the roots, the flowering will be little interfered with. The principal thing is to see that each plant has the soil well moistened before being shifted, and to place them for two or three weeks afterwards in a pit or house with only a little air given at the roof or one side, so as to avoid the drying effects of a thorough draught, for although Heaths are essentially air-loving plants, and will not succeed for any length of time with a deficiency of it, yet for the short period named, until the roots begin to move, no harm will be done. A word as to the description of soil suitable for the different sections of these plants. The hard, black, hungry peat that used at one time to be all but exclusively used for Heaths in general is anything but the best, and its use alone should be confined to the slowest growing, hardest-wooded varieties. All the freer growing kinds will make much better growth in peat of softer texture, which contains much more vegetable fibre, and is usually brown in colour. This seldom has much sand naturally in it, and consequently in its preparation proportionately more must be added.

Hard-wooded greenhouse plants.—In potting these, commence with the freest growing sorts, such as Genistas, Acacias, Boronias, Eriostemons, Polygalas, Clianthus, and others of a like description, giving them pot room proportionate to the more or less naturally vigorous habit of the respective kinds It may be well to remind those who may not have had much experience with plants of this character that they will not bear partial removal of the old soil in the operation of potting, and that unless they have sufficient pot room they soon get naked and deficient of foliage at the bottom, a condition which makes them more eyesores than ornament.

Vallotas.—These handsome late summer-flowering plants will now be making growth, and, where required, larger pots should be given them: yet discrimination here is required, for, in common with most bulbous subjects of a similar character, they do not succeed well if over-potted. Vallotas may be increased by the quantities of offsets which they produce, and which, if allowed to remain attached to the old bulbs, soon impoverish and overcrowd them. It is therefore well at this season to remove all the little bulbs, putting them in small pots about 1 inch apart just within the rim like cuttings, and using, as in the case of old bulbs, good holding loam with a little sand, making it firm, as they do not succeed with light potting. An ordinary greenhouse temperature is sufficient during the growing season, but, like a good many kindred species, these Vallotas enjoy a few degrees more warmth during this and the following month, if at the same time they are accommodated with a light position, otherwise the extra heat would induce over-lengthening of the leaves.

Brugmansias.—Few plants are more easily managed than the Daturas, or rather Brugmansias, yet they are not so generally cultivated as they deserve to be. Cuttings put in now in the ordinary way and placed in a little warmth will soon strike, and make nice flowering plants in a year, forming beautiful objects when in flower in conservatories, halls, and similar places. They also come freely from seed, which, if sown at the present time and placed in a little warmth, will soon germinate, after which, when large enough, the seedlings must be put singly in 3-inch or 4-inch pots, giving them more space as the season advances. Old plants that require more room should now have a shift, using pots or tubs, regulating the size of these by the extent available for the plants, as they will bloom fairly well in 15-inch pots; still, so confined, the size and quantity of the flowers are much less than is attainable with more root space. Large plants that were cut back after blooming, and that have made some growth, should now be repotted, giving them good turfy loam with some sand added, and as soon as they begin to make free growth, manure water ought to be given regularly.

Double Primulas.—The flowering will have somewhat weakened the plants, and it is better to now pinch out the bloom-stems as they appear; this is the more necessary where an increase of the stock is required. Where large plants exist these may now be divided, separating the crowns and inserting them singly in small pots, placing them in an intermediate heat, and so far confined under propagating glasses as is requisite to prevent flagging, but no more than this, as if kept so close as some things require damping off will follow.

FRUIT.

Peaches and Nectarines.—Now the sun is gaining strength, timely ventilation, good syringing with tepid, soft water, and liberal supplies of warm, diluted liquid will be imperative. Let the night heat range about 58° when mild. Stop the fires early on bright mornings, and syringe as the temperature begins to rise. Give a little air when it touches 65°, gradually increase it until 75° is attained, with a free circulation, reduce in like manner, and finally close at 70° with a copious syringing. Although we have often drawn attention to the importance of mulching inside borders, we must again urge the necessity of getting the surface roots well covered with short manure for the twofold purpose of exciting them into activity, as well as for giving off atmospheric moisture, so much needed by the tender foliage through the hottest part of the day. All the base shoots having been neatly hoed down, pinch in intermediate growths to form spurs and avoid laying in more wood than is wanted to furnish the tree and carry next year's crop. Allow weak growths to have freedom, and balance the flow of sap by stopping those which are likely to become gross, and tie them down to the trellis. Look well to mid-season and late houses, and see that trees having their roots in external borders do not suffer from want of water. It does not often happen that outside borders get dry before midsummer; but this has been an exceptionally dry spring, and radiation under a powerful sun being very great, a good covering with old lime rubbish, followed by a little long litter, while admitting warmth will prevent the escape of moisture from the surface roots.

Keep late houses fully ventilated until the fruit is set, and syringe freely when the petals begin to fall. If the ripening is to be delayed until late in the season, retard as much as possible through the early stages, when a low night temperature is so beneficial to all kinds of stone fruit.

Figs.—If the early pot trees started in November have been kept in a bottom-heat of 70° the fruit will now be swelling rapidly, and, favoured by one of the most genial winters on record, some of the most forward fruits may be expected to ripen early in April. With a continuance of favourable external conditions allow the temperature to range from 60° to 65° at night, 70° to 75° by day, and 80° to 85° after closing with sun. Give air at 70°, gradually increase it as the day advances, and economise fire heat by closing early. Syringe well twice a day, otherwise the foliage will soon be infested with spider, and keep the roots well supplied with diluted liquid or guano water until the fruit begins to ripen, when more air and a drier atmosphere will be necessary, but even then a liberal supply of water must be given to the roots, as anything approaching a check would cause the trees to cast all the best fruit. As Figs in pots or internal borders make very quick growth, see that stopping, thinning, and tying receive regular attention, and carefully guard against getting the young shoots crowded, as it is simply impossible that closely-shaded fruit can have colour or flavour, and a flavourless Fig is the most insipid fruit imaginable. Trained trees in succession houses will require mulching with good manure and liberal watering. Ventilate freely through the early part of the day to keep the young growths short-jointed and fruitful. Thin out the spurs and tie in leading shoots where there is room for extension. Trees in late houses may be pruned and tied in to the trellis, as there is now little danger of damage from frost, but unless the structure is supplied with hot-water pipes it will be well to retard for the present by ventilating pretty freely on all suitable occasions.

Strawberries.—As ripe fruit is gathered let old plants be destroyed or removed quite away from the houses, and thoroughly cleanse the shelves before they are again occupied with the succeeding batch. Where exposed shelves in vineries and Peach houses are occupied with plants in various stages of growth, incessant syringing and watering will be needful if they are to be removed without leaving a legacy of red spider behind them, for which a heavy price will have to be paid before the end of the season. Good forced Strawberries are always a great acquisition to the dessert; but it is not known to every employer who is told he may grow everything in two or three small houses that his tasteless Strawberries are often the cause of his Grapes remaining red and his Peaches ripening prematurely, when a properly constructed house would give comfort and satisfaction to employer and employed. Where proper arrangements do not exist a long season of ripe fruit may be secured by allowing a quantity of plants to set, swell, and ripen if need be, in the pits in which they are wintered, and by planting north borders with some of the best late kinds, including Oxonian, Elton, and Frogmore Late Pine. Where British Queen is grown for coming in through May and June, remove all weak trusses and blooms, and fertilise the finest. Keep the plants near the glass with plenty of air; tie the fruit to sticks when set; feed and syringe well. In low, damp gardens, or imperfectly ventilated pits and houses, some kinds, notably President, Paxton, and Napier, are subject to mildew, which soon spoils the fruit. The best remedy is good cultivation, abundant ventilation, and frequent syringing with clear sulphur water. Forced plants of Vicomtesse Héricart de Thury will require protection from frost until they are sufficiently hardened for planting out. If placed on a west border they will sometimes give a few dishes of fruit after late kinds on north borders are over.

Cucumbers.—If old plants cannot be dispensed with, thoroughly renovate the beds by forking out as much of the sour soil as can be taken away without injuring the roots, and replace with good rich turf and lime rubble. If worms have got into the pots or beds this operation will afford a favourable opportunity to apply lime water for their destruction, as Cucumbers cannot succeed where the soil is exhausted by these pests. Woodlice, very often the cause of canker at the surface of the soil, may also be greatly reduced by the application of boiling water, as they beat a hasty escape to the edges of the pits for temporary shelter. Continue to cut the plants over until all the old foliage is renewed, then train thinly and keep the foliage clean by syringing with warm soft water, light cropping, and early closing with solar heat and moisture. If it is needed, spring-sown plants may now be allowed to carry a few fruit; but light cropping is imperative. Ventilate freely through the early part of the day to keep the foliage firm and healthy, and avoid shading as much as possible, or altogether where the fruit is not affected by the sun. In light houses the fruit of Telegraph is very liable to morning scalding; but a thin shade for a short time until the fruit is dry and early ventilation will always correct this evil.

Manure beds.—Although plants in frames have had a favourable time of it, linings will now require regular renovation to maintain a steady minimum of 70°, and good dry covering must not be neglected. Add a little fresh soil as the roots protrude, peg down the young shoots, train thinly, and rub off all male blossoms up to the time their services are needed. Be guided by the weather in the application of water; if bright and fine and the heat is strong overhead watering about 2.30 p.m. will do good, but for the present the wetting of the foliage must be conducted with great caution.

KITCHEN GARDEN.

Doubtless many will have Snow's Broccoli sown on the plea that second sowings form a good succession, but this is a mistaken idea. If this Broccoli is sown just now, or any time before this, it grows quite out of all character—becomes large, soft, and succulent, and the first sharp frost prostrates the foliage, leaving the heart unprotected. If sown the first week in May it will be fit for cutting the first week in November, and the plants will be close to the ground and have much the same appearance as Walcheren Broccoli. Onions, Carrots, and a few Turnips may now be sown. We are at present briskly employed in planting our main crop of late Potatoes, consisting of Beauty of Hebron, Schoolmaster, and Patterson's Victoria chiefly. The Champion, but for that objectionable deep eye, would be largely planted. So far as flavour goes it is excellent. Early plants of Celery will now or soon be ready to prick out. A slight hotbed is the best place for them, but they will do well in boxes under glass. Early Cauliflowers will also now require attention in the way of pricking out, in order to obtain good plants for the second batch of this indispensable vegetable. Onions may be sown; the two varieties which we grow are White Spanish and James's Long-keeping; the latter we are now supplying firm, and not shot in the least. The main crop of Carrots may also be sown now.

Tritonia aurea.—This, when grown in pots, is often seen in a poor, wretched condition; it is very subject to red spider, which gets on the leaves, and not only disfigures them, but quite spoils the plant's growth. When planted out, this insect seldom attacks it; and not only does the foliage remain free and clean, but the plants are always much stronger, and produce more than double the bloom. The flower-spikes are of great value for cutting, as, besides being so light and elegant looking, the flowers are unique in form and colour, and continue to open in water. As the bulbs of Tritonia aurea are not quite hardy, it is necessary to plant in a warm, sheltered place, the most suitable situation being close up against the foot of a south wall, or immediately in front of a greenhouse or other glass structure, as there the soil gets a little warmed from the pipes inside, which prevents frost penetrating and killing or injuring the plants. To make sure of keeping frost out, and having the bulbs safer, it is a good plan, before winter sets in, to mulch the ground above them with Cocoa-nut fibre or half-rotten leaves, as both are capital non-conductors, and frost must be very sharp indeed to find its way through a few inches of either. In planting the Tritonia—which may be done from pots at any time, or early in spring, if the roots are at rest—plenty of sand should be used, which, from insuring quick drainage around the bulbs, saves them from rot—a malady to which they are subject when allowed to come in contact with the wet earth while lying dormant in winter.—S. D.

RECENT PLANT PORTRAITS.

Stanhopea tigrina grandiflora (*Revue de l'Horticulture Belge* for March).—A very handsome form of this curious and highly perfumed family of Orchids. A single flower only is shown in the plate, and even this had to be somewhat reduced from its natural size. The markings of this variety are very distinct and handsome, and four or five of its fine flowers are produced on each bunch.

Schlumbergera Lindeni (*Belgique Horticole* for May, 1883).—A fine triple plate of this very rare Bromeliad, which has handsomely marbled foliage and produces inconspicuous greenish flowers of minute size on a tall branching stem reaching from 11 feet to 12 feet in height. It is a native of North Peru, and bloomed first in Europe in the establishment of M. Linden, at Gheot, after whom it is named by Prof. Morren.

Begonia Lubbersi (*Belgique Horticole* for June, 1883).—A fine variety introduced by chance from Brazil on the stem of a Tree Fern into the Brussels Botanic Garden. It has handsome pointed foliage of a deep olive-green, distinctly mottled with irregular white spots, and bears large and handsome pure white flowers.

Canistrum roseum (*Belgique Horticole* for July, 1883).—A double plate of this rather handsome Brazilian Bromeliad, with large pale rose-coloured flowers.

Canna liliflora (*Revue Horticole* for March 16).—A variety with white flowers, resembling those of a deformed and imperfect common white Lily; of but indifferent merit.

Kalanchoe farinacea (Regel's *Gartenflora*, plate 1143).—A plant belonging to the Crassula family, with thick, fleshy concave leaves resembling those of Rochea falcata, only with rounded ovoid form, and of a greyish white colour. The flower is produced in large and handsome bunches borne on short foot-stalks, but well raised above the foliage. It is a bright orange in colour and tubular in form, much resembling that of some of the Bouvardias. A conspicuous and ornamental plant.

Tulipa Ostrowskiana and T. triphylla (Regel's *Gartenflora*, plate 1144).—Two bright and pretty Tulips of Dr. Regel's introduction. The first named is the handsomer and more conspicuous of the two, with good sized bright red flowers. The other has much smaller flowers, the inner petals of which are yellow, the outer ones orange.

Vriesia hieroglyphica (*Illustration Horticole*, plate 514).—A fine double plate of this very handsome Bromeliad, also known under the various names of Massangea hieroglyphica, Tillandsia tigrina, and Massangea tigrina; which if any is the most correct of these names cannot be determined till it flowers, which it has not yet done under cultivation. It is a native of Brazil and comes apparently quite true from seed, which most variegated plants do not; a fine lot of eighteen-month-old seedlings raised by Messrs. Linden, of Ghent, with from 10 to 12 leaves each, are now beginning to show their true character.

Dahlia coccinea var. Paragon (*Illustration Horticole*, plate 515).—This is so well known to all readers of The Garden, that mere mention

of the fact of this fine old single Dahlia having been figured will suffice.

Begonia Comtesse Louise Erdody (*Illustration Horticole*, plate 516).—A prettily marbled and rose-shaded variety of the foliage or Rex section of this family, which was raised by crossing the older variety, A. Von Humboldt, with B. argenteo cupreata. W. E. G.

Trees and Shrubs.

TREES BORDERING THE NORTHERN PACIFIC RAILROAD.

In going westward from Lake Superior the arborescent vegetation ceases near Brainerd, the last trees being white Pine, Banks's Pine, Larch, white Birch, white Maple and Aspen. Thence to the Rocky Mountains a continuous sheet of herbaceous vegetation covers the surface, and no trees are seen except Cottonwoods (Populus monilifera) along the Missouri. The first ranges of the Rocky Mountains on this route along the Yellowstone River and in the Park are covered sparsely or densely with trees, the higher summits and ridges with Pinus flexilis, Abies grandis, and Tsuga Douglasi, while the foot-hills, and in some cases the levels, are thickly set with Pinus contorta and its variety, Murrayana. This latter is regarded by some as a distinct species (P. Murrayana), but it is only an upland form, which is larger and more spreading. Both varieties, however, grow in proximity in many parts of Oregon and Northern California. In the lowlands of the Park are dense thickets of dwarf Willow and here and there a tree of Populus angustifolia and Pinus ponderosa. The divide west of Helena is covered with scattered trees of Douglas's Spruce, which here reaches a height of 100 feet. In the gorges which head in the mountains there are a few trees, often of good size, of Pinus ponderosa, but they are here out of place and belong properly to the arid country between the Rocky Mountains and the Cascade Range.

In the valley of Clark's Fork and about Pend Oreille Lake the forest growth is quite strong; the rocky cliffs and ridges are set with Douglas's and Menzie's Spruces, while the lowlands sustain a crowded growth of slender trees belonging to three species which are characteristic of the Western flora, probably not crossing the divide. These are Pinus monticola, Larix occidentalis, and Thuja gigantea. Of these, the first has altogether the habit of our white Pine in trunk, foliage and branches, but is at once distinguished by its longer and more slender cones. In the Cascade Mountains this species occurs sparingly over a large area, but I have never seen it elsewhere in such abundance as on Clark's Fork. The same is true of the Larix; larger trees than any found here are scattered over the eastern slope of the mountains of Oregon, but they are comparatively rare. The Thuja extends from the sources to the mouth of the Columbia, constantly increasing in size, in the Rocky Mountains never attaining more than one-half the dimensions it reaches on the lower river. As we descend the valley of Clark's Fork the western Hemlock (Tsuga Mertensiana) begins to make its appearance; at first as shrubs or low trees simulating exactly the Hemlock of the Eastern States, from which this has only a varietal difference. On the lower Columbia it grows, like many other conifers, to be a majestic tree. Between the last ranges of the Rocky Mountains, near Pend'Oreille Lake and the Cascades, the prevailing and almost the only tree is Pinus ponderosa. It scarcely forms forests here, but is scattered over the country in considerable abundance and attains a large size.

Passing the gorge of the Columbia, we come into the dense forests of the Pacific coast proper, where the number and magnitude of the trees is greater than I have seen in any eastern or even tropical region. The trees of several kinds here reach an altitude of 300 feet, and often stand so near together that all undergrowth is absent, and the horseman makes his way through them with difficulty. On the lowlands the Douglas Spruce and the Western Arbor-vitæ are the most abundant. Locally, the Hemlock is common, and along the rivers the North-western Cottonwood (Populus trichocarpa) stands thick and attains a large size. Along the smaller streams and in swampy places the Oregon Ash (Fraxinus oregana) and the Arborescens Alder (Alnus rhombifolia) occur in considerable numbers and attain about equal size, *i.e.*, a diameter of 1 foot and a height of 50 feet or 60 feet. Scattered through this lowland forest are the two common Maples of the West (Acer macrophyllum and A. circinnatum). Of these, the first grows sometimes to the height of 80 feet, with a diameter of trunk of 12 inches to 15 inches, and on young plants the leaves sometimes attain a breadth of a foot or more. The Vine Maple is a peculiar feature in the forests of the Lower Columbia, Puget Sound, and Vancouver's Island. It never becomes more than 6 inches in diameter, and several trunks usually spring from the same root; these are very slender, droop, and, frequently reaching the ground, take root at the summit. Where these interlacing trunks are numerous, they form a thicket which is almost impenetrable.

On the higher and more rocky portions of the country the Western Balsam Fir (Abies grandis) and its congeners (A. nobilis and A. amabilis) are locally numerous, and attain great size, *i.e.*, reach a height of from 150 feet to 200 feet, and a trunk diameter of 5 feet to 7 feet. With these, which form a distinct sub-genus, are the omnipresent Douglas Spruce and Menzies Spruce, formerly known as Abies Menziesi, but now generally called A. sitchensis. Still higher, and reaching to the line of perpetual snow, are Pinus flexilis var. albicaulis and Tsuga Pattoniana, the latter the most beautiful of all conifers. Less common than the preceding conifers, but locally abundant in the country bordering the Lower Columbia and Puget Sound, are two Cypresses (Chamæcyparis Lawsoniana and C. nutkaensis). Of these the first, sometimes called the Ginger Pine, from the fragrance of its wood, is much admired and cultivated for its beauty and esteemed for the excellence of the timber which it furnishes. Scarcely less interesting to the botanist is the Western Yew (Taxus brevifolia), a tree often 40 feet to 60 feet in height growing sparingly in the lower portions of Oregon and Washington. Three species of Juniper are scattered over the dryer and more rocky parts of the country bordering the Columbia, viz., Juniperus occidentalis in the foothills of the Cascades, often an erect tree 40 feet to 50 feet in height; J. utahensis, low and spreading in the interior; and J. communis, generally distributed and closely resembling in foliage, fruit, and mode of growth the Eastern and European plant.

Among the great conifers of the Pacific coast, two of the most gigantic and valuable, the Sugar Pine (Pinus Lambertiana) and the Redwood (Sequoia sempervirens) approach, and the first reaches the line of the North Pacific Railroad, though their habitat is more southern, and both are important elements in the resources of the country from which it will derive much of its business. Of these the Sugar Pine—nearly related to the Eastern White Pine by habit, foliage, cones, and wood—is the monarch of the genus, frequently reaching a height of 300 feet, with a diameter of from 10 feet to 15 feet. This grows chiefly in the Sierra Nevada and Cascade Mountains throughout Oregon and California. The Redwood is even larger. It is found only along the coast, and about Port Orford forms forests, which surpass in the average dimensions of the trees any others I have seen. The timber furnished by both these great trees is excellent; and, like the White Pine of the East, they are suffering such wholesale destruction as promises soon to exhaust the supply they furnish The next in intrinsic value as timber trees, and from their abundance having even greater economic importance, are the Douglas and Menzies Spruces, the White Fir (Abies grandis), and the Western White Cedar (Thuja gigantea). These form the basis of the timber industry of the Puget Sound region, and supply all the great saw-mills, some of which cut 250,000 feet per day. The timber furnished by these trees is good.

With the array of magnificent conifers which flourish in the moist and equable climate of the North Pacific coast, the poverty of the angiospermous flora is in striking contrast. Two Maples, two Poplars—one on the high and the other on low grounds—one Ash, and one Alder, have been enumerated. To these should be added two arborescent Willows (Salix lasiandra and S. longifolia), one Oak of little value, and two other hard-wood trees, and the list is complete. On the last-mentioned trees I have made the following notes: In the open grounds of the Willamette Valley, Puget Sound, and Vancouver's Island Garry's Oak (Quercus Garryana) is not uncommon. It is usually of moderate size and of a peculiar straggling and misshapen growth; occasionally trees of 3 feet or 4 feet in diameter are met with, but the shape is so irregular and the wood so brittle that it has little value as a timber tree. In the forests of both Oregon and Washington Territory two trees are sometimes seen that are sure to attract the attention of the eastern botanist. One of these which grows on the higher grounds is the Oregon Chinquapin (Castanopsis chrysophylla), generally a shrub, but sometimes reaching an altitude of 50 feet or 60 feet, and conspicuous from the golden pubescence of the under side of the leaf. The other tree to which I refer is the Madrona (Arbutus Menziesi). This is a small tree, but one much admired; the foliage is persistent and rich, the leaves oblong or lanceolate with serrated edges, and the fruit, which grows in clusters, is red, and somewhat resembles that of the Mountain Ash, but is less abundant and grows in more open panicles.—*Torrey Club Bulletin.*

Erythrina Crista-galli.—Both for greenhouse decoration and planted outdoors in some sheltered corner this plant is very effective when loaded with its clusters of coral-red flowers. The most satisfactory way in which to grow it is to plant it out early in the summer in rich soil. Its roots may be left in the ground during winter if covered over with some dry material to protect them from frost; but a better way is to lift them in autumn and store them in a cool house or pit, planting them out the following May.—W. C.

The variegated Elder.—This is a very accommodating plant. It will grow in almost any kind of soil or position, and what surprises me most is, it does not object to the dust in summer of a public highway where the traffic is continuous. I have marked the behaviour of two of these shrubs for the past four years They are planted on each side of the entrance gate of a villa residence, and form a bower over it, their variegated foliage forming an agreeable contrast with surrounding objects. A useful property belonging to this plant is that it will bear cutting into any form; but what pruning it requires should be done some time before the end of January, as summer pruning would disfigure its appearance.—J. C. C.

Forsythia suspensa.—This may be regarded as a successor to the justly popular Jasminum nudiflorum, for when used as a wall plant, this Forsythia is in early spring a mass of golden blossoms, which open before the expansion of the foliage. Another point in its favour is its rapid growth, and the fact that it will grow well in almost anything, and bloom satisfactorily also, provided it is so situated that the wood can get well ripened. If it is desired to keep it within certain limits, the shoots should be at once cut back after flowering, when new ones will be pushed forth that will grow to a good length and flower as well as ever the following season. F. viridissima is quite a bush, with Willow-like leaves and golden blossoms, but as a rule scarcely so free flowering as F. suspensa. F. Fortunei appears to be the same as F. suspensa. These Forsythias are well suited for greenhouse or conservatory decoration early in the year. For this purpose they may be either grown in pots or planted in the open ground and taken up in the autumn. Though of quite a rambling habit, F. suspensa makes a pretty plant for this purpose; if supported by a stake, the long elegant shoots depend therefrom in all directions,

and form when in flower quite a golden fountain. As these Forsythias flower so early when out of doors, no forcing in the ordinary sense of the term is needed to get them in bloom at a time when they are very valuable, all that is required being the shelter and protection of the greenhouse. They are readily propagated by cuttings taken during the winter and put in the open ground, or by half-ripened shoots put in a frame during summer.—Alpha.

A MOUNTAIN LAKE IN CALIFORNIA.

Happily for lovers of plants and trees of the hardier sort, the earth has many cold places even in regions supposed to be much warmer and milder than ours. California, generally, has a delicious climate; near the sea and on the plains the temperature is most agreeable, and even during the great heat in the hottest time of the year is not so oppressive as on the Atlantic coast or in the Eastern States; but, as in many another fair land, the mountains rise up here and soon get into as cold a region as our own hills and those of Europe generally, and thus we get a noble hardy flora suitable for colder countries. The pretty Donner Lake shown in our illustration is one of those in the upper portion of the Californian sierra, and the illustration is a very good view of it. Brightly embosomed in noble hills, all clad with the finer Californian Pines, high up among those hills all round the lake delightful alpine plants occupy the ground wherever it is bare between the groves of Pine or above the land where they grow. These alpine plants are quite different to those we see in Europe. Various genera are stunted and dwarfed here into tiny cushions, particularly the Phlox and Pentstemon and bushes of Heath-like character. Ferns are also abundant round this lake in moist and rocky nooks, and by the little rivulets. In dry and very sunny spots species of a more "wiry" character occur. The writer found three or four species at that time new to this country. Although the climate is cold, and snow falls early and falls deep, the sun shines throughout the winter, and in summer is very warm and glowing. About the summits of these hills the noble Piceas, which are now in our gardens and pleasure grounds, grow very finely, and specimens of the handsomest of them may be seen cut down by scores for the lumberman's use. But perhaps the most beautiful thing to be seen in winter is the stems of the large Firs clothed with a deep fringe of golden Moss of true, rich, fringy gold, and growing up one side of the tree for perhaps 100 feet—a lovely sight! I had only the privilege of visiting the neighbourhood when it was covered with snow, but can imagine nothing more interesting than a stay on these hills in summer-time. Then the alpine plants flower, and it is a delightful region for botanising. I remember Dr. Kellog used to camp out hereabouts; and the climate is so fine, that a bed of Spruce boughs in the open air was quite agreeable. The charm to the English traveller, apart from the golden air, is seeing in all their robust vigour trees he has learned to admire at home, though pigmies to what they are in their native land, and also finding everywhere on the hills an alpine flora quite different from what he has been accustomed to in Europe.

J. H.

The Donner Lake, Sierra of California.

Fern frond insects (*T. H. Gambier*).—I imagine from your description that the insects on your plants are a species of snowy fly (Aleurodes), but without seeing a specimen it is impossible to say so with certainty. If it is what you think, the eggs are the larvæ or chrysalides. This insect may certainly be considered a pest, but it is not so injurious as thrips or aphides. Tobacco smoke will kill them or most insecticides. If you syringe the plants with one of the latter, be sure the undersides of the leaves are well wetted.—G. S. S.

Indoor Garden.

IMPROVED CHINESE PRIMULAS.

For general usefulness few plants equal Chinese Primulas, and they have been so improved of late years, that the flowers are nearly double the size of those which we used to see; and not only are they larger, but they have greater substance and more variety as regards colour. This change has been brought about by careful hybridisation, and those who would keep up the standard of the kinds which they have can only do so by selection and saving seed from any that show superior qualities. Where Primulas set their seed most freely is on a light, airy shelf in a warm house. If it is desired to cross one sort with another, the right mode of procedure is to slit up the tubes of the flowers to be operated on, and carefully remove the anthers therein. This should be done as soon as the blooms are expanded and before the pollen is ripe, or the object sought to be obtained stands a chance of being defeated. To fertilise the flowers so prepared it is only necessary to use the pollen from any others, which may easily be done by serving them in the same way and using a camel's-hair brush to convey it from the one to the other, just touching the stigma with it. In a short time after the seed-pods will begin to swell and continue doing so till they get to a size nearly as large as marbles. As great demands are made on the plants while the swelling of the seed is going on, they must be well attended to with water during dry weather, and it is advisable to give them increased help by alternate applications of weak liquid manure. As soon as the seed is ripe, which may be

known by the dark colour of the pods, it should be gathered and laid in shallow pans and placed in some dry, airy situation to harden, when it is ready for storing.

The time to sow has now arrived. Drain a pot or pan, and fill it with finely sifted light soil, consisting principally of peat or leaf-mould, to which a good sprinkling of sand should be added. When the soil is pressed down, made level, and watered, the seed should be scattered thinly over it and then slightly covered, and over the pot or pan should be put a pane of glass. This will save the necessity for any further watering till the seed germinates, which it soon will do if placed in a Cucumber or Melon bed or in a warm stove. As soon as the plants make their appearance the glass must be tilted or removed to prevent what is called drawing, and in order to further prevent this the pot or pan containing the seedlings should be set on a light shelf. As soon as large enough to handle, they should be pricked off to keep them sturdy and strong. The soil most suitable to do this in is a mixture of peat or leaf-mould and loam in equal parts, with a good sprinkling of sand added to keep the whole open. To get the plants into free growth, a gentle moist heat is necessary, the temperature most suitable being one from about 55° to 60°. For potting off singly, 3-inch pots are quite large enough, and the same mixture of soil as that mentioned above is the best for the purpose. At the next shift, which should take place immediately they have filled the first pots with roots, it is advisable to add a little rotten cow manure, but it ought to be well pulverised in order that the blending of it and the soil may be regular.

Summer treatment.—Although Primulas do well during their early stages in houses, they succeed best in summer grown in cold frames, which, if possible, should be so placed that they stand in naturally shaded positions; then they get full light, and there is no occasion to have mats or other screens on the glass. What the plants like is a cool damp bottom to stand on; this may be the earth floor, which should be covered with a layer of coal ashes to keep down the worms, as without some deterrent of that kind these pests are very troublesome by getting into the pots, where they perforate the soil and channel it through. To make sure of a moist genial atmosphere during hot, dry weather, it is necessary to sprinkle the plants overhead occasionally, which should be done towards evening. If extra large plants are needed, the best should be picked out and potted in 7-inch pots, and when they have filled these with roots they may be well fed with weak liquid manure. This is best made by steeping soot and cow or sheep manure in water, as these afford a stimulant that Primulas greatly like. During autumn and winter the best place for the plants is a light house, where, if the temperature is kept at about 50°, they will send up their flowers and open them in perfection.

Double kinds require a little more heat than single sorts, and both require great care in watering, for if the crowns be continually wetted, the leaves rot at their axils. A little charcoal dust will sometimes arrest this evil, but if it shows itself the plants are difficult to propagate. This, in the case of the doubles, can only be done by means of cuttings, or rather division of the crowns, which may be pulled apart and separated directly after the plants have done blooming. Before this division is carried out, it is advisable to keep the plants rather dry for a short time that they may be less sappy and more mature, a state in which there is little or no risk from loss when the separation is made. In severing the crowns, care should be taken to secure to each portion as much root as can be got, and those pieces that have not any should be trimmed by removing dead or loose parts at the base, when they will be ready for potting. Small pots suit best, and the soil ought to consist of about half sand, and if the cuttings or divisions are potted in that, and kept close under a hand-light in any warm house, they will soon strike afresh and begin to grow, when they will take a little water, and in a short time be ready for shifting. Their after treatment may be much the same as that already touched on for the singles, and if green fly shows itself on either, smoking with tobacco must be at once resorted to, or the plants will be spoiled. S. D.

PROPAGATING FICUS ELASTICA.

5174.—This plant will be found to strike readily from shoot cuttings and also from eyes. The points of the shoots should be taken off at about the third joint, removing the leaf at the lowest joint and retaining the two above; put them singly in small pots in sand, or a mixture of half sand and loam or sand and peat. They are not particular as to soil; kept close, moist, and shaded in a temperature of 65° or 70°, they will soon root, after which inure them to more air and give pots a couple of sizes larger as soon as they have got plenty of roots. It can be propagated easily from eyes with a leaf attached, but when to be so increased the treatment in preparing the eyes requires to be different from that of most things that can be increased in this way. After the points of the shoots have been taken off to make cuttings, the plants must be kept in a growing temperature until the leading eyes get plump and almost ready to burst; then take them off as near the joint as possible, inserting them singly with the leaf attached in little pots, and treating them in other respects like the shoot-cuttings; in this way the eyes will soon make shoots and emit roots; then pot on as with the cuttings made from the leading shoots. After the first lot of back eyes have been dealt with others will follow, which when plump may be taken off and treated similarly; by this means a considerable stock can soon be secured, especially if the old plants are liberally dealt with in the matter of encouraging growth by enough root room and sufficient sustenance. If the eyes are taken off before they have got plump in the way described, they will be long before they make shoot-growth, and in some cases not at all.—T. Baines.

—— In answer to "G. A. S." (p. 241), allow me to say that Ficus elastica may be propagated by means of cuttings, taken any time during the growing season, but the spring months are to be preferred, as they then root in a shorter time than later on; besides which plants struck thus early can get well established before winter. In establishments in which large numbers are propagated annually the cuttings are mostly obtained from large plants kept solely for supplying them, and from which every available shoot is taken once a year. The shoots should be removed just as they become somewhat woody. Lengths of from 4 inches to 6 inches are suitable sizes for cuttings, and as soon as possible after being taken off they should be potted singly in small well-drained pots of sandy soil. By well-drained pots I do not mean half filling them with broken crocks, for, as small pots only are used, it is necessary to get the base of the cutting nearly to the bottom of them, and that could not be done if too many broken crocks were used. A good method is to have some crocks and charcoal broken up about the size of Peas, and well mixed together, so that when the cutting is put in the pot and rests on the drainage material a few of these pieces of crock and charcoal may be put in before the soil is added. Owing to this drainage material clustering round the bottom of the cutting, perfect drainage is secured, and the action of rooting is thereby assisted. The soil which we use is peat, loam, and sand in equal parts, the whole being passed through a sieve with a quarter of an inch mesh. After the cuttings are inserted they should be secured to a small stick, otherwise, from the weight of their foliage, they are, if moved, liable to topple over. They should then have a good watering, and be placed in a propagating case or plunged in a gentle bottom-heat therein if it can be obtained. The propagating case must be kept at a stove temperature whether the cuttings have been grown in a stove or intermediate house. Cuttings taken from a plant grown in a stove will root much quicker and with greater certainty than those taken from a plant that has been in a cool temperature; in that case, the better way to proceed is, if the stock plant is not too large, to place it in the stove two or three weeks before the cuttings are taken off; they will then root much quicker than if that had not been done.

Another way of propagating this Ficus is by means of single eyes, which with care and attention root freely. If the shoots are long, the upper part can be fashioned into a cutting and the lower cut up into as many pieces as there are leaves. The stem should be severed immediately above each eye, thus leaving the part below to be inserted in the soil. These eyes are put in exactly in the same way as cuttings and, like them, are secured to a small stick. When putting them in, the stem should be buried up to the base of the leaf. In tying up these leaves, the matting should first be secured to the stick, otherwise it will probably slip down and allow the leaf to sway about. A method which I have seen employed with very satisfactory results is to put in new Cocoa-nut refuse as a plunging material in the propagating case and stick the cuttings therein without pots. By this means, the space at command is economised, but in potting off greater care is necessary, as in Cocoa refuse roots are very delicate. In any case the weaker shoots strike more readily than the stouter ones; therefore supposing the plant to be in a position where its beauty could ill be spared, it would perhaps be possible to take from it a few of the best shoots for propagating without disfiguring it. In the event of there being no propagating cases available, the cuttings may be kept close by placing them under a bell-glass. Under the most favourable conditions they will take from a month to six weeks to root, and often much longer than that. Like most other subjects, cuttings taken from plants grown without stimulants, such as soot water, manure water, and the various substances sold for hastening growth, strike better than those taken from plants that have been liberally fed.—T.

Azalea Mrs. Buist.—When this Azalea gets better known and has had time to attain a good size, it will be found to be a most valuable plant for many purposes. In habit of growth, and indeed in all respects but in the colour of the flowers, it is an exact counterpart of amœna. Its white flowers, whether on the plant or cut, cannot fail to please. It is unfortunately a slow grower, but as it possesses so many good qualities, we can afford to put up with that failing.—J. C. C.

The Urn Flower (Urceolina aurea).—The attention that is now being directed to the different kinds of Eucharis may perhaps lead to other equally beautiful stove bulbous plants receiving more care than has hitherto been bestowed on them. Such an one—both distinct and handsome—is the Urn Flower, which, when growing, bears some resemblance to an Eucharis; but the flowers, which are produced in a pendulous umbel, are, as the name implies, urn-shaped. The blossoms are a bright golden yellow, tipped with pea-green—colours which form a pleasing contrast. This Urceolina blooms generally during autumn, at a time when flowers are getting scarce, and this, combined with its distinctness and easy culture, should ensure its increased cultivation.—H. P.

SHORT NOTES.—INDOOR.

Large Cinerarias.—I see that Cinerarias with blooms 2½ inches in diameter have just been certificated. I noticed last week in Mr. G. H. Nelson's gardens at Warwick flowers larger than these, being, in fact, as nearly as possible 3 inches across. Still they were rather coarse, and not nearly so beautiful as other somewhat smaller blooms which Mr. Moorhouse had grown with great success.—E., *Warwick.*

Vriesia Duvaliana.—M. Morren, the well known authority on Bromeliads, has bestowed this name on a plant introduced by M. Duval, of Versailles, which was at first thought to be identical with V. Paraibaia, but is now found to be quite distinct, having shorter, narrower, more bronzy foliage, and bearing a longer flower-spike. It is described as being a charming plant. It comes from Brazil.—J. C. B.

Carnation Andalusia.—This is one of the freest flowering varieties with which I am acquainted. We have half a dozen plants of it growing in a span-roofed greenhouse, which have been supplying us with their beautiful clear lemon-coloured flowers for weeks, and still they are full of flower buds, which will produce a number of flowers for a considerable time to come.—W. C.

5176.—**Candollea tetrandra.**—The following extract from the *Botanical Register* may help "A. C.": "C. tetrandra is a greenhouse plant, and will grow freely in almost any sort of soil, but it appears to thrive best in a compost consisting of peat, loam, and sand, in equal proportions. It will bloom freely in a pot, but where that can be accomplished it will do much better planted out in a bed. Whether potted or planted out, the neck of the plant should be a little elevated, otherwise it is likely to suffer from damp in winter. Water should be liberally given during the summer months, and plenty of air at all times when the weather permits, applying no fire heat except to keep off frost. It is easily propagated by cuttings under ordinary treatment." This was written in 1843, when plants of Candollea flowered for the first time at Chiswick. The Candollea is a rare plant even now, but pretty enough notwithstanding its being out of favour. Its flowers are yellow and large, and are very similar to those of Hibbertia dentata, its half brother, whilst in habit it comes near H. volubilis. At Kew there are two species of Candollea grown, viz., C. tetrandra and C. cuneiformis; the latter is small flowered and has a habit like that of Daphne Mezereum. They are natives of Swan River, Australia.—B.

LECTURE ON THE NARCISSUS.*

Introduction.—Having been years ago (1868) a student in the then extensive and beautiful gardens at Chiswick, it gives me all the more pleasure to read a short paper here to-day. My subject is the Narcissus, or "Flower of March," the Daffodil that "comes before the swallow dares." Tennyson seems undecided whether to make the Daffodil belong to blustering March or to showery April. We all remember his "Roaring Moon of Daffodils," but in a still prettier passage he sings of

> A rosy blonde, and in a college gown,
> That clad her like an April Daffodilly.

Around us here to-day is, without a doubt, by far the finest collection of Narcissus blossoms ever brought together in one place—a veritable "field of the cloth of gold," even more brilliant than that one in particular which old chroniclers have described so well; and the result of this gathering is a focussing, as it were, of all the golden beauty which Daffodil cups may contain. Speaking of Daffodil colour reminds me that this is by no means an ordinary flower show. No prizes are offered to-day unless, indeed, it be that "crown of wild Olive" which the Greeks prized more than gold. We have here to-day an exhibition of flowers which have come to us for very love, and not for the sake of money prizes—an exhibition which proves that devotion to Flora as a queen among us is as yet a living truth, and that among or around the hearts of all true gardeners there is woven "a thread of twisted gold."

History.—It is generally believed that the earliest, or at least one of the earliest, species of this genus to attract the attention of the wise men and poets of Greece first, and of Italy afterwards, was our garden favourite of to-day, Narcissus poeticus; hence, no doubt, its popular name of the Poet's Narcissus. Both Narcissus poeticus and Narcissus Tazetta (Little Cupped Italian or Polyanthus Narcissus) are mentioned by Dioscorides. Virgil also alludes to an "empurpled Narcissus," and although the exact plant is doubtful, yet it is by many believed that it was some form of N. poeticus which he had in view. Of far more moment to ourselves now is the great central fact that the Narcissi of our own gardens are as lovely here to-day as they were when the poets of Greece and Italy first sang their praises. Nearly all early writers agree in treating this flower as an emblem of that beautiful youth whose name it bears. He is said to have slighted the nymph Echo in favour of his own shadow, and Nemesis changed him into this blossom as a punishment for his self-esteem. It is a deep-laid myth, and a pretty one as often told to us by the poets, and in one of the best of English translations we are informed that the attendant nymphs were interested—

> And looking for his corse, they only found
> A rising stalk with yellow blossoms crowned.

According to Shakespeare, Proserpina let fall the Daffodil flowers she had been gathering when seized by Pluto, but as Prof. Mahaffy informed me some time ago, the earliest accounts of this myth tell us a little too much, the flowers being therein spoken of as black Narcissus, hence we must believe, or at least suppose, that some other flower was originally intended. It may have been some Fritillary which had pleased Proserpina, since even at so late a date as 1629 we find John Parkinson in his "Paradisus" alluding to Fritillarias as Chequered Daffodils. No doubt like Lily, Rose, and Violet, the names Daffodil and Narcissus had a much wider meaning and application in olden times than we give them to-day. For example, Canon Ellacombe, in his "Plant Lore of Shakespeare (p. 57), tells us that the Rose of Sharon was the large yellow Narcissus common in Palestine and the East generally, of which Mahomet said, "He that has two cakes of bread let him sell one of them for some flowers of the Narcissus, for bread is food for the body, but Narcissus is the food of the soul." The name Daffodil is said by some scholars to be "simply the old English word 'affodyle,' which signifies that which cometh early." Dr. Prior, however, no mean authority, looks upon it as a corruption of the Latin Asphodelus, and thus it may be identical with the Asphodel. He further tells us that the name Daffodil "was subsequently confused with that of another flower, the so-called Sapharoun," or Saffron Lily. By alliteration the Sapharoun Lily, on becoming blended with Affodilly, became, by a sort of mutual compromise, Daffadowndilly, in which form it is used by Spenser in the lines, "Thy sommer proude with Daffodillies dight," and "Strowe the green round with Daffadowndillies." Daffodil and Asphodel have, however, long been distinct enough in popular parlance; but there was at one time a danger of confounding them, since Markham, in his "English House Wife" (1637), says, "You must be careful that you take not Daffodil for Asphodel." Among the many local or country names for the Daffodil, the most common now-a-days are Lent Bellflower, Lenten Rose, Lent Lily, Trumpet, Trumpet flower, and Chalice flower. Culpepper calls it Lide Lily, because it flowereth in March, which month in some counties is called "Lide," "Lide" itself, like Lent, being an equivalent for the spring season. Popular names have fit uses, but unless very carefully applied they are apt to lead us astray sometimes, and so we must always remember that the popular name Daffodil in all its forms, excepting the Hooped Petticoat or Rush-leaved Daffodil, which is different, is applied only to the varieties of that very variable native plant, Narcissus Pseudo-narcissus, the wild Daffodil of our meadows and Northern Europe, or the False or Spurious Daffodil of Parkinson, who so called it doubtless to distinguish it from the other flat-leaved or true Narcissi, of which Narcissus poeticus and Narcissus Tazetta may be taken as good types.

Popular names of the sections. — All varieties of Narcissus Pseudo-narcissus, then, whether native or foreign, may be called Flat-leaved or Trumpet Daffodils.

All forms of Narcissus Bulbocodium (the Corbularias of some gardens) may be called Hooped Petticoat or Rush-leaved Daffodils.

Jonquil is another popular name, belonging by right to Narcissus Jonquilla, but it may be applied to any true Narcissus having narrow bright green or Rush-like leaves.

The Poet's Narcissi are all those which have pure white perianth segments and a distinct red or purple rim to the shallow yellowish corona or crown.

Polyanthus Narcissi are, properly speaking, all forms of Narcissus Tazetta.

The Peerless Narcissi are all those of the N. incomparabilis type in the genus, and the Primrose Peerless is Narcissus biflorus.

Hence these popular names, which confuse us so much when loosely applied, if used rightly and carefully serve to distinguish for us the different well-marked sections of this beautiful genus.

Structure of the Narcissi.—Let us now turn to the structure and botany of the Narcissus as it is know to us to-day. The species of Narcissi (for even Daffodils are, strictly speaking, Narcissi, although only the large-trunked Narcissi are Daffodils) form a genus of bulbous plants belonging to the natural order or group Amaryllidaceæ, of which the Amaryllis is the type. But

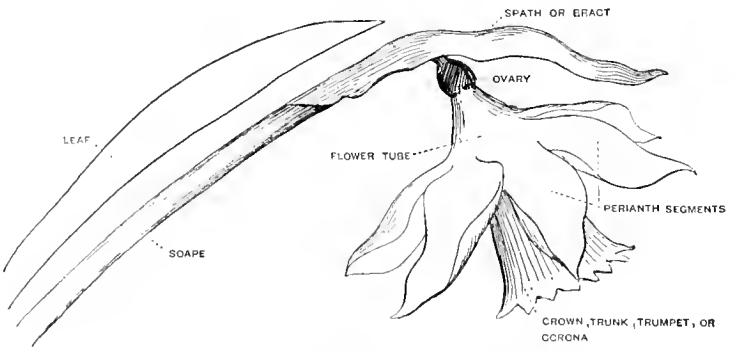


Fig. 1.—Daffodil, showing different parts of the flower.

our Narcissi differ from Amaryllis proper in having a crown or corona, and thus they represent for us here in Europe not the Amaryllis itself, but the Eucharis and Hymenocallis of the New World. At the same time the structure and origin of the crown seem different. In Eucharis the corona is formed by the cohesion of the flattened filaments of the anthers, which themselves are joined to and protrude beyond the crown they form. In Narcissus, however, the corona appears to be a prolongation of the tubular portion of the flower. A Narcissus flower, when examined, is found to possess an inferior ovary situated at the base of a cylindrical or obconical tube. From varying localities along this tube spring six perianth divisions (in two series), and beyond these a cup or crown is prolonged, as shown above.

Daffodils *versus* Narcissi.—Now we find among the Narcissi generally two well-marked

* Delivered before the Royal Horticultural Society at South Kensington, April 1, 1884, by Mr. F. W. Burbidge, F.L.S., Curator, Trinity College Botanic Gardens, Dublin, and formerly of the Royal Gardens and Herbarium, Kew.

and distinct variations in their flowers. In the Daffodils, for example, the six stamens are of equal length, and have the same point of insertion low down near the obconical tube as here shown:—

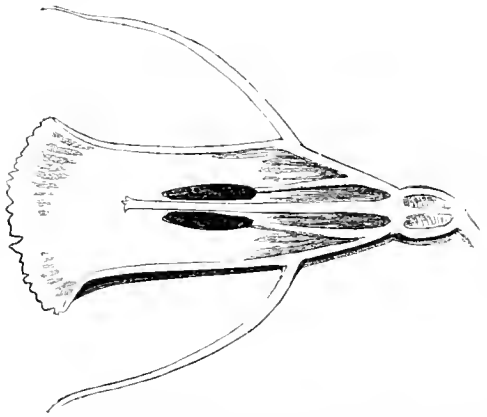


Fig. 2.—Section of Daffodil showing stamens in one series.

When a flower of the true or Poet's Narcissus is examined, however, we find some marked differences, as shown in this diagram:—

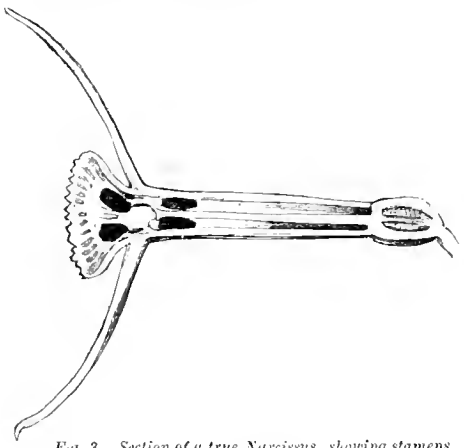


Fig. 3.—Section of a true Narcissus, showing stamens in two series

It will be observed that the tube is here very much longer and quite cylindrical, and when we make a section of the flower we find the six stamens are divided into two sets of three each, and that each set has its own locality or point of insertion—three near the mouth and the other three much further down, midway between crown and ovary. These structural variations are especially fitted for insect fertilisation; and, as we shall soon find, these two distinct forms are not unfrequently cross-fertilised in a wild state, and often in our gardens, or perhaps it may be in gardens their progeny has been more carefully preserved. Before I leave this part of my subject I wish to point out that nearly all the variations in form of which a Narcissus flower is capable are owing to the sliding, as it were, of the whorl of perianth segments along the tube of the flower. Thus we find that the length of the cup or crown and the length of the tube always, or nearly always, vary in inverse proportion, just as I have shown them to do in figs. 1 and 3. It is well to get the essential differences of these two species well fixed in our minds, as we thus get a clear light in which to see the part each species has borne in the production of garden hybrids and seedlings. I ought to point out here that some superficial distinctions are produced by the manner and degree of expansion usual to the perianth division. In the Hooped Petticoat (Narcissus Bulbocodium), for example, the perianth divisions are narrow and inconspicuous, lying, as they do, in the same plane with the coronal margins. In the common Daffodil the perianth lobes are broader and more expanded. In N. incomparabilis and in N. poeticus they are expanded at right angles to the tube, and so become star-like; so also in the little cupped Italian, or Narcissus Tazetta group, while in the case of the "bonnie" gem Narcissus triandrus we get a very distinct Cyclamen-like blossom, seeing that the perianth lobes are sharply reflexed or turned back, so that they may be parallel with the pendent flower-tube.

The colour of Narcissi.—In colour the Narcissi are not so variable as many other bulbed flowers. We get all shades of yellow and of white in the perianth. One species, N. viridiflorus, known to Parkinson, and recently re-introduced by Mr. George Maw, has greenish blossoms. Among the N. incomparabilis varieties we find cups richly tinted with orange-red; so also in some forms of N. Tazetta, while N. poeticus has a red or purple rim to the crown. "Everybody knows that the common Daffodil has an extinguisher-shaped deep yellow corona an inch or more in length, while the cup of the Poet's Narcissus is flat and shallow, yellow also, but having a dark reddish purple rim around its margin. Now, in the hybrid N. incomparabilis and many of its seedling forms we find the outer edge of the cup suffused with reddish orange, which is just the tint obtainable by mixing deep yellow and reddish purple on the palette."—*Burb. "Cult. Plants,"* 1875, p. 125.)

Species of Narcissus.—We must now pass in review the species of the genus, and afterwards refer to their classification.

Nomenclature.—We have in all about twenty species of Narcissus which are known to exist in a wild state; these are distributed as follows:—

Species	*Native Countries.*
N. Pseudo-narcissus ..	Sweden, England, Portugal, Spain Italy, Transylvania.
Bulbocodium	Spain, Portugal, France S.W. to Bordeaux, N. Africa.
incomparabilis ..	Spain, S.W. France, Tyrol.
Macleayi	Not wild.
dubius	S. France (Toulon, Marseilles, Avignon, Nice).
poeuliformis	(montanus) not wild.
odorus	Spain, S. France, Italy, Dalmatia.
juncifolius	Spain and S. France.
triandrus	Spain.
calathinus	Isle of Glenans, Brittany.
Tazetta	S. Europe, Cashmere, N. India, China, Japan
pachybolbus	Algeria (? N. Tazetta var.)
biflorus	France, Switzerland, Italy, Tyrol.
poeticus	S. Europe, France to Greece.
Broussoneti	Mogadore (Africa).
canariensis	Canary Islands
intermedius	Spain, S. France, Balearic Islands.
gracilis	Not wild
Jonquilla	Spain, S. France, Italy to Dalmatia.
jonquilloides	(Wilkom Fl. Hisp.) Spain.
viridiflorus	Spain and Barbary.
elegans	Italy, Sicily, Algiers.
serotinus	Spain, S. Europe, Barbary States, Greece and Palestine.

Doubtful species.—I may here mention that among generally acknowledged species there are two or three which have never been found wild. These are N. Macleayi, N. (montanus) poculiformis, and N. gracilis. It is questionable if these are really species, my own opinion being that they are old and well-marked garden hybrids or seedlings. N. pachybolbus and N. canariensis should, I think, be considered as outlying geographical forms of N. Tazetta. N. jonquilloides of the "Flora Hispanica" (Wilkom) I have not seen alive, but in the plate it resembles N. intermedius. N. calathinus must now be referred to N. triandrus Others, again, which really do exist wild without a doubt have also had their exact counterparts produced in gardens. Thus, on the authority of Dean Herbert and others, N. incomparabilis and N. odorous, both well known as wild in Southern Europe, have been produced in gardens by hybridisation.

Early culture.—Most of the species of Narcissus were known to the early English gardeners, more particularly to John Parkinson, who figures and describes 96 species and varieties in 1629.

Geography.—Nearly all these kinds are found wild in Europe. Spain and the south of France seem to be the head-quarters of the genus, but a few are found in Northern Africa. N. Tazetta is most ubiquitous, growing all over Southern Europe and Northern Africa, and then going off at a tangent through Persia, Cashmere, and India, as far east as China and Japan.

Classification.—Parkinson seems to have been the first to attempt any classification, and he is very particular that we should distinguish Daffodils from Narcissi proper, and is equally careful lest we should confound the flat-leaved with the Rush-leaved kinds. At a more recent date Salisbury, Haworth, and Herbert all worked among these flowers, but their methods of classification, although most interesting to garden students, are now botanically obsolete. We are indebted to Mr. J. G. Baker, of Kew, for a clear and useful system of grouping, published in 1869, and it is this system, with a few modifications, I wish to introduce. Mr. Baker's plan depends on the relative length which naturally exists between the perianth segments as contrasted with the cup or corona, and I have divided these three main divisions into flat-leaved and Rush-leaved groups. The three main divisions, as characterised by the varying size of their cups or crowns, may be thus popularised:—

Large-trunked.
Group I. Magnicoronatæ, or "Coffee-cup" Section

Medium-cupped.
Group II. Mediocoronatæ, or "Tea-cup" Section.

Small-crowned.
Group III. Parvicoronatæ, or "Tea-saucer" Section.

CLASSIFICATION OF THE GENUS.

Group I.
Magnicoronatæ
Crown as long, or longer than the perianth divisions.

Trumpet Daffodil.	Hoop-Petticoat Daffodil.
a. Flat-leaved.	*b. Rush-leaved*
N. Pseudo-narcissus vars.	N. Bulbocodium vars.

a. Flat-leaved.

N. Pseudo-narcissus.—The type of this species is the common Daffodil of English meadows and orchards, and of this type there are innumerable forms, ranging from the tiny N. minimus up to N. maximus, which is the tallest and largest of its race. All the varieties have flat, glaucous leaves.

b. Rush-leaved.

N. Bulbocodium.—The type of this species is N. Bulbocodium, the Rush-leaved or Hoop-petticoat Daffodil of Southern Europe. There are many varieties, all easily recognised by the expanded crinoline-like corona, narrow perianth segments, declinate stamens, and green, Rush-like leaves.

Group II.
Mediocoronatæ.
Crown half or rarely three quarters as long as the perianth divisions.

Medium-cupped Narcissus

a. Flat-leaved.	*b. Rush-leaved.*
N. incomparabilis	N. odorus
Macleayi	juncifolius
dubius	triandrus
montanus	calathinus

a Flat-leaved

N. incomparabilis.—1 flowered; leaf half an inch broad; glaucous.

N. Macleayi.—1 to 2 flowered; leaves broad, greenish; crown bright yellow, three quarters as long as the spreading white perianth segments Hybrid (?).

N. dubius.—Many-flowered, with flattish, glaucous leaves; perianth segments 3 lines to 5 lines long; cup 3 lines deep

N. montanus.—1 to 2-flowered, all white; crown half as long as the perianth divisions; flower dog-eared, but 3 inches to 4 inches in diameter.

b. Rush leaved.

N. odorus (Campernelle Jonquil).—All yellow, 2 to 5-flowered, with bright green, Rush-like leaves.

N. juncifolius.—1 to 5-flowered; much smaller than N. odorus, with a flattish corona.

N. triandrus.—1 to 6-flowered; perianth divisions reflexed like a Cyclamen flower.

N. calathinus.—1 to 2-flowered, with reflexed segments like the last, perhaps only a geographical form of it having larger flowers.

Group III
Parvicoronatæ
Crown less than half as long as the perianth divisions.

Small-crowned Narcissus.

a. Flat-leaved	*b. Rush-leaved*
N. Tazetta	N. intermedius
pachybolbus	gracilis
biflorus	Jonquilla
poeticus	jonquilloides
Broussoneti	viridiflorus
canariensis	elegans
	serotinus

a. Flat-leaved.

N. Tazetta.—Many-flowered, with flat glaucous leaves; very variable.
N. pachybolbus.
N. biflorus —1 to 3 flowered ; flowers like N. poeticus ; creamy white, cup pure yellow.
N. poeticus.—1-flowered ; white, with a purple or red edge to the crown.
N. Broussoneti.—Crown nearly suppressed.
N. canariensis.

b. Rush-leaved.

N. intermedius —A many-flowered yellow N. Tazetta with Rush leaves.
N. gracilis.—1 to 2 flowered ; flowers pale yellow, as large as N. poeticus.
N. jonquilla.—Many-flowered ; flowers deep yellow, very fragrant.
N. jonquilloides.—(Wilkom Fl. Hisp.).

c. Autumn-flowering.

N. viridiflorus.—Many-flowered ; perianth greenish.
N. elegans —1 to 3 flowered, pure white.
N. serotinus.—Flowers after the leaves very like the last, but with broader perianth segments.

Hybrid and seedling Narcissi.—When we come to speak of Narcissus hybrids it is a matter of regret that the workers in this fertile field have left us scarcely any data or notes of how their numerous seedling and hybrid forms were produced. Dean Herbert (in the "Royal Horticultural Society's Journal," vol. ii., p. 1) has told us more than anyone ; and the late Mr. W. Backhouse, of St. John's, Walsingham (who raised the Empress and Emperor Daffodils), contributed an interesting paper on the subject to the *Gardeners' Chronicle* for June 10, 1865. The late Mr. Leeds, of Longford Bridge, Manchester, who raised more new kinds than anyone else, gave us no information whatever, nor did the late John Horsfield, the Lancashire weaver, who raised the bicolor Horsfieldi Daffodil, decidedly one of the most robust and beautiful of its race. The late Mr. Nelson, of Aldborough, raised a few varieties of especial merit, notably the noble sulphur Daffodil named Gertrude Jekyll, and a white form of the dwarf Daffodil (N. nanus) Mr. Nelson kindly told me by letter only a few days before his death that cross-fertilisation was not resorted to. So M. S. de Graaff, of Leyden, informs me that his fine new kinds are seedlings or wind-fertilised hybrids. These remarks corroborate what Mr. Backhouse wrote in the *Gardeners' Chronicle* twenty years ago (June 10, 1865), when, speaking of artificial crosses between the Daffodil and Poet's Narcissus, he says, "Seeds I have sown from plants not artificially fertilised produce the same result, some showing the Daffodil and others the N. poeticus type." The moral here would seem to be, Raise seedlings—hybrids if you can—but raise seedlings.

Here is a list of all known type hybrids so far as we at present know them :—

HYBRID NARCISSI.

PARENTS.			HYBRIDS.
Pseudo-narcissus	×	poeticus	incomparabilis
,,	×	Jonquilla	odorus
,,	×	Tazetta	Macleayi
Jonquilla	×	,,	gracilis and tenuior
,,	×	,,	intermedius and jonquilloides
poeticus	×	Macleayi	Nelsoni in variety
,,	×	Pseudo-narciss.	Barri ,,
,,	×	,,	Burbidgei ,,
incomparabilis	×	,,	Humei ,,
montanus	×	,,	Leedsi ,,
incomparabilis	×	,, moschatus	Milneri ,,
poeticus	×	,, muticus	Bernardi ,,
Macleayi	×	,, ,,	tridymus ,,
Tazetta	×	poculiformis	Mastersianus

Derivative hybrids —Some of these hybrids have again yielded seedlings, so that the variations now observable are of the most divergent and perplexing kind ; so much so indeed that some have complained that there is too much sameness among the newer kinds of Narcissi. This much is true of Roses or Auriculas, indeed of nearly all garden flowers, and after all it is easy to use one's eyes on a day like this, noting the most beautiful from one's own standpoint, and resolutely avoiding those which do not please our taste. To my mind the delicate chromatic scale—the subtleties of form and of colour which these new seedlings afford us are most beautiful, and a garden tastefully planted with them would afford its owner beauty of a most satisfying kind, even if it did not prove a "joy for ever." Of the poetry of the Narcissus I shall say nothing, since in the first place I am sure it is in your hearts, or at least you may find it in your libraries. But I have a few words to say in conclusion on the cultivation of these beautiful flowers.

The culture of all the Daffodils, and of nearly all the Narcissi, is not difficult. Most of them are robust enough to increase in beauty from year to year if planted at the proper season in well-tilled soil. Some of the dwarf and tender species, as N. triandrus, N juncifolius, N. Bulbocodium (especially the paler forms), N. viridiflorus, N. elegans, and N. serotinus, succeed best in pots in a cool house or frame. The white race of Daffodils also do best on a warm sunny border, but the yellow and bicolor Daffodils, and nearly all the hybrid kinds, will luxuriate in the open-air border almost anywhere. The proper time to transplant Narcissi generally is June, July, or August. They may be dug up as soon as the foliage has withered away, and if re-planted immediately in good, well-drained soil they do not suffer much, if any, by removal. It is a good plan to mulch well with rotten manure just before flowering time, and if you want very fine fresh flowers for show or for decorative uses cut them whilst they are in the bud stage, and place them in water indoors to expand. I may add that if you post flowers to your friends, pack them in the bud stage. You can thus send many buds, which will each and all open fresh and fair if immediately on their arrival they are placed in water.

An interesting discussion followed the reading of this paper. Mr. Shirley Hibberd read a short, but instructive paper as a supplement to Mr. Burbidge's. He was of opinion that the list of so-called species should be considerably curtailed, there being at present considerable difficulty in defining their limits, inasmuch as one runs into the other by imperceptible gradations. He should, he said, classify the twenty-three so-called species into five distinct types, which he should call—1, the Basket Daffodils, or those in which the corona was very large compared with the other parts of the flower, as in the Corbularias ; 2, Trumpet Daffodils, including the common Pseudo-narcissus and its allies ; 3, the Chalice Daffodils, or those of the incomparabilis group ; 4, the Cup Daffodils, or those belonging to the Polyanthus or Tazetta section ; and 5, the Cymbal Daffodils, the poeticus varieties comprising all having very small coronas. He considered that these should form the main types, and that every known species or variety should be ranged under these heads.

Mr. H. J. Elwes attacked the present system of applying to hybrids and mere garden varieties long Latin names, which, he argued, were not only unscientific, but tended to add to the confusion which already exists in the nomenclature of the now almost innumerable sorts of Narcissi in gardens. He maintained that to mere varieties, whether of hybrid origin or natural seedlings, should be given simple popular names, in the same way as Hyacinths and other florists' flowers are named. He thought that one of the chief objects of the present meeting should be to arrest, if possible, the practice of Latin naming, and he hoped that the result of the conference would be the suppression of such long Latin names as incomparabilis Leedsi expansus aureo-tinctus and others equally objectionable.

Mr. J. G. Baker, of the Royal Gardens, Kew, who has made Narcissi a special study, and written a monograph of the genus so long ago as 1869, said he agreed with Mr. Hibberd that the number of species should be reduced as much as possible, and that several now ranking as true species he should class only as sub-species. Out of the two dozen or so of species of which Mr. Burbidge had given a list, he should be inclined to eliminate say five, and these he should rank as sub-species. The principal consideration, he said, with regard to the classification of Narcissi was to have fixed starting-points—*i.e.*, clear ideas as to genus, sub-genus, species, sub-species, variety, and form. This, he said, constituted the basis of Daffodil nomenclature. The fewer types or primary species the better, but these should be as clearly defined as possible, although he was well aware how nearly allied many of the so-called species were to each other. He agreed with Mr. Elwes that something ought to be done to check the present practice of applying Latin names to garden varieties, although, he said, Mr. Barr, in whose catalogue they occur, was not wholly to blame for it, inasmuch as it was followed by early students of Narcissi, such as Haworth, Herbert, and others, and Mr. Barr was only endeavouring in many cases to reconcile plants with the descriptions of varieties to which Latin names had already been given. He took the opportunity to publicly acknowledge the great assistance he had received in the study of Narcissi from Mr. Burbidge, who had so faithfully pourtrayed the various forms, and stated that without these drawings classification would have been more difficult. He also desired to acknowledge the help which he had received from Mr. Barr, who, he said, had done more than anyone else in this country with regard to collecting and distributing the Narcissi, and who possessed the richest collection known of the various species and varieties.

Mr. Barr defended his practice of giving Latin names to Narcissi on the grounds that he was only doing, as Mr. Baker said, what others had done before him, his aim being to identify varieties known in gardens at the present time with those described under Latin names in Haworth's "Monograph." He contended also that Latin names were more expressive of the peculiar characteristics of the varieties than mere popular names. At the same time, he said he was quite willing to strike out the Latin names in his catalogue and apply popular ones to garden varieties and hybrids.

M. Krelage, of Haarlem, complained of the inconvenience arising in the bulb trade from the employment of the present system of Daffodil naming. He was of opinion that only the species, sub-species, and well marked wild varieties should have Latin names, and that it should be the aim of the conference to reduce the synonyms as much as possible, as much trouble and annoyance were caused through several names having been given to one variety.

Mr. Brockbank said it was remarkable that no reference whatever had been made by Mr. Burbidge, or Mr. Hibberd, or by any of the speakers to the subject of double Daffodils. It seemed as if they were altogether ignored, and this appeared to arise from the popular belief that they were simply "monstrosities," and not true varieties. He thought, however, that they were well worthy of better treatment, and that they would have to be included in the discussion. He had recently been investigating the subject of the seeding of the double Daffodils, and was now able to prove that, so far as the Trumpet varieties were concerned, they retained the stamens and pistils in every stage, and that, even in the most double forms, the ovaries frequently contained seeds. In a single meadow in which the Lent Lily occurred, both single and double, the evidence was quite conclusive that the increase of the doubles was by seeking. He had not investigated the Jonquils and the incomparabilis varieties, but it seemed likely that, in such a flower as N. capax, the stamens and pistils might be wanting, as it looked as if the perianth segments only were doubled and the tube and central organs were wanting.

Mr. Baker confirmed these views, and, taking a double Trumpet Daffodil cut through the centre, showed that it retained all the organs of reproduction, and that it was quite possible for seed to be produced thereby.

Among others who took part in the discussion were Mr. Frank Miles, who regarded the subject from an artist's point of view, and Mr. G. F. Wilson, who offered a few observations respecting culture, and strongly recommended the more extended use of the Tazetta section in warm localities. Mr. Engleheart gave some interesting facts with regard to the development of the Pseudo-narcissi varieties from the common English Daffodil, which on the whole agreed with Mr. Wolley Dod's note on the subject published in another column.

At the close of the discussion Mr. Elwes proposed and Mr. Hibberd seconded the following resolution: "That in the opinion of this conference, garden varieties of Narcissi, whether hybrids or natural seedlings, should receive simple and popular names, and not Latin ones as adopted by botanists." The resolution was put to the meeting and carried unanimously. It was then suggested by the chairman, Prof. Foster, that a committee should be formed for the purpose of going through the whole of the collections shown, in order to revise the nomenclature agreeably to the terms of the resolution. Accordingly, a committee was formed consisting of the following, viz.: Messrs. Baker, Barr, Burbidge, Brockbank, Elwes, Goldring, Krelage, Loder, Moore, Perry, Walker, and Wallace, who on the following day commenced their work, the result of which will in due time be published in the form of a report.

The conservatory was well filled with Narcissi and other flowers, the contributors being for the most part from the neighbourhood of London, though one collection of Narcissi was brought by M. Krelage from Holland; another came from Mr. Llewelyn, in South Wales; while others came from Mr. Brockbank, Manchester; Mr. Loder, Floore, Weedon; Mr. Elwes, Cirencester; Captain Nelson, Godalming; Mr. Moore, Glasnevin Botanic Garden, Dublin; and Mr. G. F. Wilson, Weybridge. The large collections were contributed by Messrs. Barr, who filled one side of the conservatory; Messrs. Veitch, who had a very fine collection of the most beautiful and distinct varieties; Mr. Ware, Tottenham, whose large group included both common and rare. A smaller collection came from the New Plant and Bulb Company, Colchester, and an excellent collection tastefully arranged with foliage (the only example in this way in the show) was shown by Mr. Barron, from the Chiswick Garden. These, together with Mr. Walker's fine collection, mentioned elsewhere, made up the bulk of the display, which also included bouquets and other floral arrangements in Daffodils.

PLANTS IN FLOWER.

Double Daffodils.—I send you a bunch of Daffodils naturalised in fields near here, as I never remember seeing them so fine as this season.—C. M. Owen, *Knockmullen, Gorey.*

*** Very fine indeed, some of the flower-stems being 2 feet in length. The variety is the common double Daffodil (Narcissus Telamonius fl.-pl.)—Ed.

Rudgea macrophylla.—This is now flowering with me in a young state. Some plants of it propagated two years ago are now bearing fine heads of pure white bloom. It is a very beautiful plant and one which is seldom seen, but it should be in every collection of stove plants.—C. P., *Bowdon.*

Crocus imperialis, from Messrs. Hooper, is one of the finest forms of the Spring Crocus (C. vernus) we have seen. In sunshine, when the flowers are expanded, the flowers measure 4½ inches across. The colour is a bright purple flaked with white, while the exterior is washed with a deeper hue. The tassel-like tuft of stigmas, being a bright orange, forms a fine contrast with the purple.

Clianthus puniceus.—I observe that Colonel Stuart Wortley mentions this as being now in flower under glass at Kew. I have one here a mass of bloom on a south wall without any protection whatever. I gathered Anemone fulgens from the open border on the 21st February, cut Maréchal Niel Roses from a cold house on 20th March, and there are at this moment a few Schizostylis coccinea still in bloom.—Devon.

The red Maple.—Mr. William Paul sends from his tree nursery at Waltham Cross flowering twigs of two forms of this highly ornamental Maple (Acer rubrum). The colour of the flowers of one is several shades deeper red than that of the other—the ordinary form, and if the dark variety is permanent it will be a valuable addition to spring flowering trees.

Andromeda floribunda.—In the Rev. C. F. Chawner's grounds, The Rectory, Bletchingley, there is a very fine bush of Andromeda floribunda now beautifully in flower. It was planted forty years ago in a sheltered nook near Portugal Laurels, and is now 7 feet in height and 12 feet in diameter. One seldom meets with such a fine specimen of this Andromeda.—C. Green.

Muscari racemosum.—Of this new Grape Hyacinth Messrs. Backhouse send us some flower-spikes, which show it to be distinct from numerous others in cultivation, both as regards colour and habit of growth. In colour it most resembles the pale blue form of M. botryoides named pallens, but the spike is looser and more conical. It is no doubt quite as hardy as the rest of the species.

White Apennine Anemone.—We hardly know which to admire most—the original Apennine Anemone, with its lovely soft blue flowers, or its white variety, tinted outside with purplish blue. Both are beautiful spring flowers that one cannot afford to be without. Mr. Kingsmill sends us some fine blooms of the white variety, together with the yellow A. ranunculoides with rich yellow Buttercup-like blossoms. This, too, is a pretty species, and not at all common.

Bee Orchis.—Among a gathering of spring flowers from Mr. Kingsmill is a fine spike of this interesting and pretty Orchis (Ophrys apifera) produced in a frame. The flowers sent are much finer than usual, a circumstance doubtless attributable to frame culture. It would be interesting to know from Mr. Kingsmill the treatment by which this and other hardy Orchids are produced so fine in his garden at Eastcott, from which Orchises generally considered difficult to manage are often sent to us.

The Florentine Iris.—One hardly expects to see this beautiful Iris in flower so early in the season, but Mr. Kingsmill brings us a fine bloom of it. Such a common Iris would scarcely be worth notice in the time of Irises, but at this season it is particularly noteworthy, pure whites being so uncommon among early spring flowers. Associated with it come buds and flowers of the Algerian Iris (I. stylosa), which has been in flower uninterruptedly since October.

Perpetual-flowering Carnations. — A beautiful gathering of greenhouse Carnations has reached us from Mr. C. Warden, Clarendon Park, Salisbury, who is evidently a master in the art of growing these beautiful and valuable flowers. Mr. Warden states that he grows a great variety of these Carnations, and that the sorts which he sends are some of the best. These include Andalusia, a beautiful primrose-yellow; Empress of Germany, very large white, flaked here and there with crimson; Alegatière, a very rich rosy carmine, almost a scarlet; and Fairy Queen, Peach blossom, very soft and pleasing.

Double Crown Anemones.—We have received from various correspondents this season numerous gatherings of Anemone coronaria, but we have not seen any variety among them similar to one which Mr. Woodall has sent us from Cannes this week. Its flowers are double, but the doubleness is different from that of ordinary double sorts. Within an outer fringe of large petals is enclosed a dense tuft of short petals, which appear to be stamens transformed into petals. The whole flower is of a beautiful soft salmon-pink, a colour not often seen, even among the multitudinous forms that exist of this Anemone.

Hydrangea Thomas Hogg.—A fine head of bloom of this beautiful plant has been sent to us by Mr. Balchin, Hassock's Nurseries, near Brighton. Instead of being of the usual pink or bluish colour, the flowers in this case are pure white and very handsome. A specimen of a sport from this variety has also been sent by Mr. Balchin. It has semi-double flowers, and the leaves are more deeply toothed than in the type. The chief point in growing this white Hydrangea is to produce the flowers perfectly white; otherwise, if they are greenish, as they often are, half their beauty is lost. This Hydrangea was figured in The Garden, Vol. XV., p. 58.

Dahlia excelsa.—Of this rare plant Mr. Green sends us some fine flowering specimens from Sir George Macleay's garden at Pendell Court. One would scarcely recognise it as a Dahlia, so different is it from our ordinary autumn Dahlia. The flowers, which are about 4 inches across, have an outer row of broad petals of a pleasing rosy lilac tint. These surround a central tuft of small short petals of the same colour; in fact, the flower is perfectly double, but very different from an ordinary double Dahlia. Like D. imperialis, this is a tall growing species, and one which requires to be grown to a large size before it flowers. Hence it is only suitable for large houses. At Pendell Court it is planted out in a border of rich soil in a cool house with Brugmansias and other plants of a similar degree of hardiness, and when in bloom it is strikingly effective, being so unlike the ordinary run of hothouse plants. Mr. Green also sends flowering sprays of Aster (Enrybia) argophyllus, an Australian shrub, which bears dense clusters of unattractive flowers, but worth growing on account of the musky perfume of its leaves when rubbed. This is also grown at Pendell Court in a cool greenhouse.

Erythroniums.—The New Plant and Bulb Company have sent us a few flowers of choice bulbous plants, which include a bright yellow Dog's-tooth Violet, which Mr. Baker regards as the typical E. grandiflorum. It is a beautiful flower as bright a yellow as E. americanum, but the flowers are larger and have red stamens. The variety albiflorum also sent has creamy white flowers with a ring of red at the base. Among other plants from Colchester are Chionodoxa, Tulipa Biebersteiniana, a miniature variety of T. sylvestris with small yellow flowers; Iris persica, and the curious Snake's-head Iris, I. tuberosa, with singular green flowers blotched with black; and a fine spike of Orchis Robertiana, one of the showiest of terrestrial Orchises.

Clematis indivisa lobata.—Some elegant flowering sprays of this beautiful New Zealand Clematis from Mr. Bennett, Bessborough, Cork, show what a lovely plant it is at this season for adorning the roof or draping the pillars of a conservatory. Its star-like flowers, which measure about 2 inches across, are pure white, save the clusters of pink-tipped stamens in the centre. It is a plant that only needs protection in order to grow and flower it to perfection, and its long, slender sprays are invaluable in a cut state. Mr. Bennett also sends a variety of Azalea amœna, named Candwelli, of a different shade of colour from that of the original, and also flowers of a remarkably fine variety of Cattleya Trianæ, large in size, excellent in form, and altogether one of the richest coloured we have yet seen.

Abutilon venosum.—In order to show what a noble plant this Abutilon is when well grown, Mr. Green sends us some finely-flowered specimens from Sir George Macleay's garden, at Pendell Court, Bletchingley. This Abutilon is widely different from the ordinary greenhouse Abutilons, the flowers being fully twice their size, though of much the same form. In colour they are a rich orange-yellow traversed by a network of crimson veins. The Pendell Court plant is no less than 12 feet high and 6 feet through—truly a marvellous specimen. Like most of the large growing plants at Pendell Court, it is planted out in a good border of free soil. Mr. Green thinks that one of the chief causes of the apparent unpopularity of this plant arises from not planting it out under conditions suitable for its proper development.

Strophanthus Bullenianus.—This is a pretty-flowered Apocynaceous plant, which was introduced from Western Tropical Africa about fourteen years ago, and flowered for the first time in the Glasgow Botanic Gardens, in compliment to whose curator (Mr. Bullen) it was named by Dr. Masters. In habit this plant resembles the several other species here and there met with in botanical collections, and of which S. longicaudatus is the best known, and which may be grown either as shrubs or trained against the glass in the stove or upon a trellis. The flowers are tubular, with a spreading limb composed of five petals, which are narrowed into tails about 1 inch in length. The colour of the tube is yellowish, and the petals and tails a rich vinous purple, with bright yellow blotches about the apex of the tube. The flowers are freely produced in terminal racemes on the short lateral shoots, and, although not particularly showy, they are by no means devoid of beauty, and no doubt a well-grown specimen would prove a really first-rate flowering plant. S. longicaudatus has yellowish flowers, whose tailed petals in some of the varieties reach a length of 6 inches and are bright scarlet. This species flowers annually at Kew, and specimens

of both it and S. Bullenianus are now in flower there. The finest species of the genus, and one which, if introduced, would probably prove a grand stove flowering plant, is S. sarmentosus, whose large Nerium-like flowers, with twisted tails a foot in length, suggest the sea spider or octopus, and are borne profusely all along the ripened wood of the young branches. Perhaps Sir John Kirk, who has already sent home some fine garden plants from Tropical Africa, could help us to living specimens of this handsome Eastern species of Strophanthus.

Coronilla glauca.—We have received from Mr. Molyneux, The Gardens, Swanmore Park, Bishop's Waltham, Hants, branches laden with flowers of this good old-fashioned shrub, cut from a plant growing against a south wall, where it was planted three years ago. Mr. Molyneux states that it is now 6 feet high, and that it has been in full bloom since before Christmas, and likely to continue so for some time yet. The specimens in question are sent to show what a grand plant this is for covering walls where it can be planted in a favourable position. It has withstood what frosts we have had during these last three years without any protection. It has copious supplies of liquid manure given it during the summer months, and occasional washings with the garden engine, which keep it clean and free from red spider, by which it is sometimes attacked when grown indoors.

Canna Ehemanni.—In the Palm house at Kew some healthy plants of this, the finest of the "Indian Shots," are now nicely in flower, and we learn that these early flowering specimens are the result of dividing a strong plant in the winter and potting the pieces in good soil, plunging the pots in a strong bottom heat. This treatment caused the growths to push at once, and being shifted into larger pots as the plants increased in strength, they have by this time developed into useful specimens, which give promise of a profusion of flower for some time to come. A selection of some of the best of the commoner Cannas might be made for early forcing in large establishments where flowers of any kind are acceptable during winter and spring. We imagine that many a dull and flowerless stove and conservatory might be enlivened and made attractive by a few of the yellow, white, and scarlet-flowered Cannas, and such like plants, which if potted and placed in a warm house, and, when started, treated liberally both as regards water and light, would yield a useful crop of bloom long before they are seen in flower out of doors.

Bauhinia purpurea.—If we except the graceful and pretty B. corymbosa, which is flowered every year at Pendell Court, B. natalensis, a dwarf, shrubby species which grows and flowers freely at Kew, and one or two less ornamental kinds of which we see flowers now and then, the Bauhinias are not nearly so satisfactory as garden plants as in their native wilds, where either as shrubs or festooning the outsides of forest jungles they produce a gorgeous display of large Hibiscus-like flowers. At Kew there is a large number of plants belonging to this genus, but, owing to the absence of sufficient sunlight in this country, they do not flower at all freely, and many of them never have flowered. A large plant of B. purpurea is, however, now in flower, and proves to be the finest we have seen alive. The blooms, which are as large as those of Hibiscus sinensis and similar in form, are pale rose, with the exception of the upper petal, which is rich crimson, edged with rose. They are borne in short terminal racemes on the ends of the young ripened shoots. The plant is trained against the glass, it being one of the slender shrubby species. In shape the foliage may be likened to that of the Goat's-foot Woodbine (Convolvulus Pes-Capri). In the "North" gallery a picture of what is known as B. variegata appears to bear a close resemblance to the above.

Streptocarpus cauleecens.—The cultivated species of Streptocarpus hitherto known, are stemless rugose-leaved herbs in general appearance, not unlike our common Primrose; they are S. floribundus and its variety biflorus, S. Rexi, S. polyanthos, S. Greeni, and the recently introduced S. parviflorus, and, with the exception of the last named white-flowered species, these all bear flowers of various shades of blue. An interesting and, though somewhat diminutive, yet pretty addition to these is the plant above mentioned, of which a pan of little flowering specimens now stands in the Begonia house at Kew, and the introduction of which has been brought about as singularly as was that of the now popular Zanzibar Balsam, Impatiens Sultani. A Wardian case of Ferns was received at Kew from Zanzibar last autumn, and upon the stem of one of these a week or two after their arrival seedlings were observed of what turned out to be this new Streptocarpus. We are acquainted with numerous instances of new and beautiful garden plants having been introduced in this stowaway manner, the Impatiens above mentioned and Masdevallia Shuttleworthi being two of the best known of them, and we would impress upon those who have to do with new importations the wisdom of looking after these little strays. S. caulescens is a fleshy herb about 6 inches high with opposite ovate leaves, which are covered with a short velvety pubescence. The flowers are borne in axillary cymes, the stalks being graceful and air-like, each one bearing about a dozen pale blue irregularly bell-shaped flowers.

KITCHEN GARDEN.

TOMATOES UNDER GLASS AND OUTDOORS.

Every year these seem coming more and more into use, and the trade in them will soon be something enormous; besides the vast importations from France and the Channel Islands, home growers are either putting up houses or utilising old ones for their growth. Notwithstanding how great the production may be, there is no fear of the market being over-done, there being so many ways in which they may be used. Up to the present their price has been much against them, but, except for those forced, there is no reason why they should be so dear, as when we get anything like ordinary summers, they may be ripened almost anywhere in a garden if they can have shelter and sun. The best places outdoors are on a south wall or fence, and the next planted in a border sloping to the south; but if got into vigorous growth, they may be brought to a fair state of maturity in open quarters, where, in some seasons, I have seen them do remarkably well.

Raising young plants.—Those who have glass, even of the most ordinary description, need have no difficulty at all in getting the fruit moderately early, as by sowing at once, fine plants may soon be had; but to raise these requires a little heat, that of a Cucumber or Melon frame being just suited, as in it the seeds quickly germinate. The way in which to manage is to sow thinly, and as soon as the plants are up and large enough to handle they should be potted off singly, or placed two in a pot, and again returned to a position where they can get a little warmth to give them a start. To prevent drawing it is necessary to stand the plants up near the light, and directly they are fairly established and growing freely, they ought to be shifted on into larger pots, and may then be put into a cooler house to be gradually hardened ready for planting out or growing under glass when the different structures are set free from bedding or other plants and become at liberty to receive the Tomatoes. Those intended to be kept indoors should be potted into 12-inch or 18-inch pots, which, if the plants are well fed, are quite large enough to grow and fruit them in, as they are naturally strong in their habit, and a little restriction at the root tends to check over-luxuriance and assists in making them fruit. For potting, almost any kind of soil will do, but the best and most lasting is good sound loam, in which the plants should be potted somewhat firmly, and then stood where they can be trained within a foot or so of the glass, as may easily be done by straining a few wires or string along crosswise under the rafters. The way to manage the plants when there is to lead up the main shoots as far as they like to go, and as they elongate they will show flower at most joints or from the laterals they make, but these should be kept thin, that the foliage and fruit as it sets may have plenty of light and air, both of which are essential, as well as full sun, to consolidate and harden the growth and ripen off the Tomatoes. While these are swelling the plants will require plenty of water, which should be given warm, or at least with the chill off, and every two or three days it will be a great help to them if they have a good soaking of liquid manure, but this should be discontinued when the fruit colours, as after that it is apt to affect its flavour. The treatment as regards air requisite for Tomatoes is to ventilate freely during the early part of the day, which insures a free set and a sturdy, stocky growth. Under these satisfactory conditions the house may be closed by three or so in the afternoon, which will urge the fruit on and hasten the ripening.

Plants for outdoors.—Any plants intended for turning out will need to be kept under cover of a frame or pit till towards the end of May, when, if the weather is settled and warm, they may with safety be planted against a south wall or fence, where, to keep off wind, it is a good plan to stick an evergreen branch at their sides, which shelter is of great assistance in giving them a start, and preventing any check they might otherwise feel. In planting, it is always advisable to keep the ball and collars of the plants low, as then there is no difficulty in watering during the early part of the summer, and if a mulching of manure be given, it will prevent evaporation, and be a great stay to the roots. Plants that are turned out on borders or in the open need protection for a time, and where they can be spared there is nothing equal to handlights, one of which may be placed over each pair of Tomatoes, and kept there with a little air on till the plants get too large for them and into free growth, when the glasses should be removed and stakes driven in, or hurdles placed for training and supporting the plants. These ought to be kept thinned out and the branches tied and regulated as they progress, that those left may feel the full influence of the sun, and have its rays on the fruit. One of the best Tomatoes to grow is Hathaway's Excelsior, which is a free-bearing medium-sized kind, and Hackwood Park is spoken very highly of as being remarkably good and prolific. S. D.

Spinach.—Than this we have no more wholesome garden vegetable and few more easily cultivated or more readily cooked in various ways. Without ascribing all the good properties to it which it is said to possess, it is at least true that it may be eaten with advantage by anyone, being more easily digested than most other vegetables. By means of periodical sowings, plenty of leaves may be had all the year round. The common prickly seeded variety withstands our hardest winters, affording pickings in all weathers; and the more recently introduced New Zealand Spinach succeeds best where it is hottest and driest; while the round or summer variety provides a supply in the summer also, but is always best where it is cool and moist. The want of attention to sowing at the right times is too frequently the cause of failure in the supply in many gardens, as the common Spinach soon runs to seed, and is then useless. A small quantity of the summer variety should be sown every month, and not a large breadth at long intervals, as is often done in gardens of moderate extent, the owner being under the impression that Spinach is a crop to be sown once a year—like Onions, for example. Prickly Spinach, sown in August, will provide a supply from November till June following; but this should be much the largest sowing, for the progress of the growth is not equal to the demand in winter. This autumn sowing will run to seed in spring or early summer, and should be succeeded by the round variety, sown between the rows of the earliest Peas or elsewhere, and that again by later successional sowings till July. When frequent sowings cannot be made in this way, New

Zealand Spinach should be substituted for the common kind. It is a far too little-known variety, and grows with little trouble, affording a plentiful supply from July till sharp frosts cut it off. If a dozen small pots of seed are sown early in April in heat, and hardened off and planted out on a rich and well-drained border in May, they will soon cover the ground for yards around, and produce an abundant supply of large succulent leaves. The usual practice is to put the plants out in patches of half a dozen on small mounds of rotten manure and soil. The value of this variety consists in its disposition to grow on without producing seed, whereas the common summer sort runs to seed almost as soon as it appears above ground, if the weather be dry or the soil poor. When the New Zealand Spinach is sown, the other will not be needed.—J. S.

ORCHIDS.

Cypripedium Curtisi.—This plant belongs to the barbatum group. The dorsal sepal is near that of Veitchi, but more pointed, while the lateral sepals are thickly marked with small spots and much fringed. The large pouch is of a dullish purple colour It is evidently a fine species, and one which requires the treatment usually given to others of this group.—J. D.

Lælia grandia.—In this Lælia the sepals and petals are stated in the "Orchid Album" to be of "a pleasing sunkin or fawn colour" and the lip "creamy white with magenta lines" This rare Lælia was flowered by Baron Schroeder at The Dell, Egham It has some of the characteristics of growth, and requires the same treatment as L. purpurata.—J. Douglas.

Cymbidium eburneum.—From Sir William Marriott's rich Orchid collection we have received a superb variety of this lovely Orchid. It differs from the ordinary forms by the lips of the flowers being very much spotted with rose-purple, thus adding to the beauty of the chaste waxy white sepals. With this also comes flowers of C. citrina and two extremely fine varieties of Cattleya Trianæ.

Angræcum Ellisi.—There is such a peculiar appearance in a spike of this Madagascar Orchid that renders it at once distinct from almost all others. The flowers, though only about an inch across, have curious tail-like spurs from 4 inches to 6 inches in length, and these twist about in a singular way. The colour of these is a soft, fawn tint, while that of the sepals and petals is white flushed with a reddish brown. A fine spike of this Orchid has been sent to us by Dr. Paterson carrying eleven flowers.

Hybrid Odontoglossum.—Dr. Paterson sends us a twelve-flowered spike of a beautiful and most distinct variety of Odontoglossum, which is different from the majority of the so-called natural hybrids of O. crispum. The flowers are about the size of an average variety of O. crispum, and in form much resembles the typical crispum. The ground colour is a bright canary-yellow, which is heavily blotched with cinnamon-brown both on the sepals and lips. Dr. Paterson certainly possesses a very choice variety, one that we do not remember to have seen before.

Vanda Sanderiana.—This plant, recently figured in The Garden, is certainly one of the handsomest of Vandas. We have yet to find out whether it is of easy culture. Plants have been brought over in good condition, and nearly all the best cultivators have examples of it. It is being grown in the warmest house. It comes from Mindanao, a large southern island of the Philippine group, where, according to Mr. Sander, it grows high up on old trees, perched upright between the branches in situations which are not shady—a circumstance which gives us some clue as to its treatment. We know that the natural conditions of V. cærulea are the same, and we grow our plants of that near the glass and comparatively cool. Nearly all the Vandas like a rather cool temperature, and it is just possible that this one may form no exception to the rule. —J. D.

Varieties of Cattleya labiata.—A distinct and beautiful form of Cattleya labiata was lately described in the "Orchid Album" under the varietal name of pallida. It would be a pallid form if it were not for a very bright magenta-coloured blotch on the lip which covers it all but the margin, which is creamy yellow, the throat being marked with yellow veins. This plant was seen in the Comte de Germiny's garden, at Gouville, with forty-eight expanded blooms on it. The different forms of C. labiata are amongst the finest of Cattleyas, and are easily grown, but I fancy they like a warmer temperature than some of the others. I exhibited several years in succession a good specimen of the type. It made very strong growths, sometimes two in a season, and generally produced three flowers from each; the temperature of the house in which it was grown averaged 60° as a minimum during the winter, and the summer temperature was about 65°. The plant has not done so well in a lower temperature and has been broken up.—J. Douglas.

Pruning Orchids.—Mr. Parker merely reiterates (p. 262) what "J. S. W." before told us respecting Orchid pruning. I am not alone in disbelieving in the practice; growers, collectively, who have proved the difference between pruned and unpruned plants entertain the same opinion as I do. Few interested in the subject have either time or inclination to go and see "J. S W.'s" plants, neither is it usual or reasonable to ask them to do so. I can assure Mr. Parker that those conversant with Orchid-growing can judge the result of "J. S. W.'s" pruning operations by a sight of a few plants, as I have already said, when not in flower, but if in bloom all the better. And if "J. S. W." is desirous of convincing others that his pruned plants make growth as good as they are described to do, he cannot fail to see the necessity for showing them. They would be an interesting feature at any of the Royal Horticultural Society's fortnightly meetings.—T. B.

GARDEN DESTROYERS.

Vine weevils (*J. W. W.*).—The grubs you forwarded are the chrysalides of a very injurious beetle (the black Vine weevil) which devours the leaves of Vines and many other plants. The grubs of this insect are also very destructive; they feed on the roots of Primulas, Cyclamens, Strawberries, and various other plants. When in the chrysalis state they are harmless, but should always be destroyed to prevent as much as possible the increase of this insect. Examine the roots of any plants which appear to be flagging without any apparent cause. The grubs will generally be found near the collar of the plants.—G. S. S.

Fig tree insects (*W. Eastwood*).—The insects you have forwarded are the black Vine weevil (Otiorhynchus sulcatus), a most destructive beetle which destroys the foliage of Vines and various other plants. This grub feeds on the roots of Primulas, Cyclamens, Saxifrages, Strawberries, &c. The beetles only feed at night, remaining hidden under the leaves, &c., during the day, when they are very difficult to find. One of the best means of catching them is to spread a sheet under the plants they are feeding on, and after dark to enter suddenly with a bright light, which will generally cause them to fall; if it does not, give the leaves a sharp tap. In a friend's greenhouse one morning the gardener called my attention to the leading shoots of two young Vines which had been eaten off. I felt sure who the offenders were, but we searched in vain until the hay was examined which closed the hole through which the Vines were introduced into the house, and there we found two specimens of this weevil in each bundle of hay.—G. S. S.

Birds and young kitchen garden crops.—I agree with what Mr. Gordon Comber says (p. 199) in reference to sparrows and other birds being kept off kitchen garden crops by the use of black cotton. I always apply it to rows of early Peas, and though troubled much before by the depredations of these feathered marauders, I never am after the cotton is placed in position. They cannot see the lines, and when they come in contact with them they get alarmed and quickly take themselves off, seldom if ever returning to the same ground. Bird scarers may, and do, answer for a time, but most birds, and especially sparrows, soon get used to them, and may be seen hopping about under or near them in the most unconcerned way possible. Nets, to be of service and safe for seed beds, must be fine, and even then it is often necessary to have them double and to prop them up, so that they do not dip or come near the soil, or finches will draw the young plants out by pulling their heads or bills through the meshes. All these annoyances may be prevented by straining a few cheap reels of cotton over a seed bed. The thread should be within 2 inches or 3 inches of the ground, and if so used not a bird will alight on that particular spot.—S. D.

3168.—**Mice** *v.* **Peas and Beans.**—I have tried various plans to prevent mice from eating newly-sown Peas, and find none so good as syringing the soil with paraffin and water occasionally. A half-pint of paraffin is poured into a 3-gallon can of hot water, and kept violently stirred with the syringe to keep it from floating on the surface all the time it is being used. This preserves the Peas, and the mice are then more easily trapped or poisoned. Poison should not be put down if there are many birds about and cats in the neighbourhood, as the former, as well as the mice, will take it, and these in their turn will poison the cats. Where mice are known to be troublesome, it is always advisable to briefly soak the Peas in paraffin prior to sowing. Cats are the best mice destroyers.—I.

—— I would advise "E. F. T." (p. 220) to try the following: Make the ground firm and level; take two bricks, place one on its edge lengthwise, and lay the other brick down flat, close to the one on its edge; get a 2½-inch flat nail and a small piece of cheese rind; make a hole through the latter, and put the nail through it in such a way that it hangs on the centre of the nail; then raise the side of the flat brick nearest the oneon edge; place one end of the nail against the upright brick and the other end against the slanting one, about the centre of each; make a hole in the ground below the bait for it to drop into, in order that the brick may fall quite level. When the mouse pulls the bait, the slanting brick at once falls on it. A sharp pointed nail should not be used, as it holds the brick too tightly. Three such traps I place to each row, and I have by means of them caught 107 mice since November last.—J. Parris, *Northiam*.

Mushroom destroyers (*W. Melon*).—Your Mushrooms are attacked by a species of Podura or Springtail. Try tobacco smoke, or if there are no plants near to be injured, the fumes of burning sulphur. Watering the bed with an insecticide would probably be injurious to the Mushroom spawn, and of course the Mushrooms would be spoilt.—G. S. S.

Water snails, &c. (*A. C. B.*)—The leaves of your Eranthemum are attacked by a minute mould-like fungus on which you might try the effect of sulphur. The water snails are Limnea stagnalis and Limnea pereger; the former is the larger species, and has the more elongate spire. It is often kept in aquaria to eat the conferva which grows on the glass, but it is also very partial to Vallisneria and Stratiotes; whether either species would attack the plants you mention I cannot say.- G. S. S.

Diseased Roses (*M. L. H.*)—There is no fungus on the Rose shoots sent, and we cannot account for their death. There is probably some defect at the root.—W. G. S.

Vine leaf excrescences (*D. H. M.*)—Excrescences such as the leaves sent show do no harm. They are generally the result of too warm and moist an atmosphere and faulty ventilation.

Moon Flower.—According to "C. A. B. W.'s" description, his plant, I think, must be similar to one brought here from Ceylon some time since under the name of Calonyction grandiflorum, the flowers of which are white and short-lived.—C. Paul, *Bowdon*.

Names of plants.—*W. Sheppard.*—1, Anemone fulgens fl.-pl.; 2, Ranunculus asiaticus fl.-pl.; 3, variety of Begonia Rex; 4, Primula erosa.——*Delta.*—Ornithogalum nutans.——*Anon.*—1, Pinus species; 2, Euonymus europæus; 3, Pittosporum Tobira.——*T. O. & Co.*—Helleborus fœtidus.——*N. W.*—1, Hedaroma Tulipifera; 2, Akebia quinata; 3, Selaginella cæsia arborea; 4, Corydalis cava albiflora.——*A. J. H.*—1, Tetragonolobus purpurea; 2, Serapias Lingua; 3, Ophrys Speculum; 4, Cerintha alpina. ——*Enquirer.*—Biota orientalis.——*A. P. H.*—Boronia megastigma.——*F. R. S.*—Maxillaria Harrisoniæ.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CAMELLIAS OUTDOORS IN WALES.

THESE are just now beautifully in bloom, and the more I see of them the more am I astonished that Camellias are not planted everywhere as Evergreens and as free growing, effective flowering shrubs. All who think them tender are mistaken; on the contrary, they are as hardy as Laurels and grow as freely. Some may say the climate of Wales is a very mild one, but the geniality of the Welsh climate is more imaginary than real; the incessant rains and cold winds which we frequently experience are most distressing. Frost, too, comes sometimes severe enough to check and cut back even the Laurels themselves, but I have never seen Camellias injured, a fact worth noting. Here they grow in the form of bushes, and if sheltered from wind succeed better in this style than against a draughty wall. Pretty they no doubt are as wall plants, but they are much more so as graceful Evergreen bushes. As to when to plant, I would say April and May. Ordinary sized pot plants are the most suitable for turning out. If previously grown in a greenhouse, they must be hardened off before taking them outside altogether, and they ought to be planted when the leaf-buds are bursting, and just before any young leaves are fully expanded. Holes should be formed a good deal larger than the ball of roots, and into these a quantity of mixed up peat, loam, and a little sand should be put; then plant, but do not disturb the roots. Put plenty of the compost just described over, under, and round them, and they will soon find their way into it. Until they have a firm hold of the soil the tops should be staked, and when dry weather follows the planting the roots should have frequent deluges of water. The leaves should never wither or fall off, and they will not do so if carefully planted. In my opinion Camellias are hardy enough to grow anywhere, but in windy situations and unfavourable spots the blooms are apt to be blemished, and in order to avoid this as much as possible is my reason for stating that they should be planted in sheltered positions. Anyone having large Camellia plants in pots or tubs which have become too large for their houses should plant them out of doors. Two years ago we had to deal with a large plant of this kind, and now it is in much finer condition than we ever saw it previously to being planted out. CAMBRIAN.

THE DAFFODIL CONFERENCE.

IT is, perhaps, premature to say a great deal upon the subject of renaming the Daffodils; it will be easier to speak to the point when the promised report upon nomenclature is issued; but there are abundant difficulties, as has already been shown, in the way of giving simple and popular English names to hybrid and natural seedlings of Narcissi. There is the objection that such names cannot well bring before us the parentage, shape, and colour of the flower, while even a not over long Latin name often does this perfectly. And there is the "international" objection. It is most convenient that a race of flowers which is so especially engaging the attention of gardener-botanists in different parts of Europe should bear descriptive names in a common language. This would apply even to the garden varieties, for I venture to say that these, to such cultivators, possess an interest quite apart from and higher than that of ordinary florists' flowers. In no other family of hardy bulbous plants can we study the phenomena of development and hybridisation through such a wonderful range of varying form and delicate colouring. The scientific value of Daffodils in this respect, even in hundreds of varieties, and their worthiness, therefore, to bear names explanatory of their origin, form, and colour, and internationally intelligible, seemed to be overlooked at the conference. And perhaps I may be allowed to say that, in my opinion, Mr. Barr received hard treatment. Mr. Elwes in particular spoke of him as "doing enormous mischief" by his catalogne—a charge which was scarcely counterbalanced by the compliments afterwards paid to Mr. Barr for his hard and enthusiastic work in this field. Most of us lovers and growers of Daffodils fail, I think, to see what enormous mischief he has done. It was assumed, apparently, that Mr. Barr mixes up species and sub-species and hybrids, &c., but he does this in no catalogue of his that I have ever seen. He may have kept too many similar varieties, but to those who can afford to buy them and find room to grow them they present a most interesting series. His Latin names may be cumbrous and over long some of them, but they are, for the most part, aptly chosen and expressive. I am not myself fond of such names for our English garden flowers; much better the vernacular, where possible. But in this case there are difficulties to be met, as has been pointed out; and at present Daffodils do possess an interest far higher than that of ordinary "florists' flowers," and are deserving of a more exact and expressive nomenclature. Some of us who are giving our attention to these most beautiful flowers do not agree with Mr. Barr in all things, but we must all feel that, without his many years of work, and his collections, and his catalogues, we should have missed a most excellent set of tools for our purpose.

Appleshaw, Andover. G. H. ENGLEHEART.

NOTES FROM NEWRY.

SOMETHING to see once and dream of ever after. Thus I thought when, exploring a very old garden not a hundred miles from here a few days ago, I came suddenly face to face with an oblong bed on a sunny slope some 3 yards to 4 yards long. Its centre consisted of a belt about 2 feet wide of white Daffodils—a solid mass of flowers. There could not have been fewer than a thousand open at the same time, besides buds in all stages. This was bordered on each side with blue Grape Hyacinth, about 18 inches wide—a solid mass of beautiful blue, a contrast positively enchanting. I never before saw either one or the other in such profusion. That bed I heard had not been disturbed in the memory of the oldest inhabitant.

WHITE DAFFODILS abound in that garden here, there, and everywhere—in the Grass, amongst the shrubs, in the borders, &c. I noticed, however, that they were stronger in every case where the ground had been bare in the summer, and where, of course, their bulbs would be better ripened.

GRAPE HYACINTHS also abounded in broad masses and in all sorts of situations. I noticed, however, that they were stronger and better where they grew upon and amongst the roots of shrubs than elsewhere; for instance, among old Moss and other Roses, Weigelas, Fuchsias, &c., and especially round the trunks of old espalier Apples. Here they seemed to quite luxuriate. Pictures like these, bear in mind, take years and years to make.

CARAGANA ARBORESCENS is a small and handsome flowering tree or shrub, seldom or never met with even in select collections. Why, I wonder? Why I wish to call attention to it now is that at present, when coming into leaf, it forms a perfect contrast with everything else. Its young foliage is a peculiar shade of yellowish green, soft downy, and beautiful.

HELLEBORUS ARGUTIFOLIUS—known also by several other names—is, to my thinking, one of if not the most ornamental of all the Hellebores; foliage rigid, persistent, and handsome, and it bears in the spring huge terminal heads of apple-green flowers, which remain in beauty for many weeks. It is a peculiar plant in many ways, and its natural habit is unlike that of anything else, a fact well illustrated in the case of our largest specimen. Its stems, of which our best plant has thirty, are of annual duration only; those of the last season ripen their seed and pass away; new ones grow up to the height of 2 feet or more, and after attaining their full stature fall down in a circle; the tips then turn up to the light. It remains during winter making a 4-foot circle of rigid Holly-like leaves, and now one of pleasing green flowers. It is quite sufficiently ornamental for garden decoration of any kind, but why I have drawn attention to it is because its peculiar habit has suggested to me various ways in which it may be turned to account for the purpose of producing

CONTRASTS. The central area of this circle has often troubled me by its comparative bareness, and I have tried to improve it by planting various things within it. Primroses and Polyanthuses look very well, but do not grow high enough. Various Daffodils have been tried, but the contrast of green and yellow is not a happy one. The best effect I have produced as yet is by planting one of the rich brown Crown Imperials, so as to quite fill the circle, and the contrast, both as regards habit and colour, is charming. The growth of the Fritillary is finished before the young growth of the Hellebore comes up, and the free root-growth of the latter ensures that the bulbs of the former shall be dry and comfortable during the summer and autumn; in fact, they associate together first-rate. I have some other ideas with regard to this plant which have to be worked out.

PRIMULA VENZOI is a gem of gems: the whole plant, consisting of four or five glossy rigid leaves, is not larger than a penny-piece, and is now bearing three or four beautiful rosy purple, pale-throated blossoms, each nearly as large as the plant itself.

GENISTA TINCTORIA FL.-PL. is a most desirable rockwork or ordinary border low-growing shrub, forming a broad cushion not more than 9 inches or 12 inches high, and bearing for many weeks in succession a great profusion of double bright yellow blossoms. T. SMITH.

ROSE LA FRANCE.

AS an antidote to sunless skies and darkness and denseness of atmosphere commend me to the beauty and fragrance of La France. What a rich revelation of the one and a full manifestation of the other have we in this Rose! And yet there is ever the feeling, as we gaze on its beauty and revel amid its sweetness, that an infinity of both remains unrevealed. Its petals are piled up in such prodigal profusion and raised to such a fine point as to baffle a full discovery of the wealth of beauty that is more concealed than revealed by their attempted unfoldings. And as with their mass, so with their colour. Who can discover, or, more impossible still, describe, the silvery rosy pink and deep lilac touches of colour and shadings that suffuse the three-quarter-opened buds with soft touches, and mines of colour found nowhere else among Roses or other flowers. So delicate and sensitive are some of these, that they almost seem to wax or wane as one gazes upon them, being now a decided pink, now a delicate grey, and anon of a light silvery hue. And then what aggregate of adjectives can represent, not to say

exhaust, its fragrance! Compose a fragrant bouquet of Valley Lilies, Violets, and Gardenias, and you may equal—hardly excel—the sweetness of La France Rose; or go among the Roses and pick out such fragrant examples as Boule de Neige, the old Cabbage, Alfred Colomb, Beauty of Waltham, Charles Lefebvre, Marie Baumann, Exposition de Brie, E. Y. Teas, Maréchal Niel, Rubens, Madame Margottin, Gloire de Dijon, Celine Forestier, and any or all other fragrant Roses that can be found, and La France will equal, if not exceed them all; its fragrance is as inexhaustible as it is indescribable. Notwithstanding the thinness of the petals of this Rose, its staying properties are of the highest and longest. It also travels well, the same blooms having obtained first prizes at shows at long distances apart. This staying power renders this Rose invaluable for bouquet and vase work, for which the colour, fragrance, and form of La France admirably adapt it. It is also about the most real and the most valuable perpetual-flowering Rose we have. Properly placed and cultivated, it is, as a rule, the first to bloom and the last to cease flowering. With plants against walls of different aspects and as standards and dwarfs on the Brier, the Manetti, and their own roots, this magnificent Rose may generally be had in plenty in the open air from May to November. Few or no rosarians who have this Rose—and who has it not?—but are ever asking for more and increasing their stock in all directions. It is almost as useful indoors as out—in pots as in the open beds or borders. Unlike many other Roses, La France is of a deeper colour, as a rule, under glass than in the open air. The better climate under glass also seems, if possible, to give the flower a higher and more perfect finish and a fuller fragrance. La France thrives well on the Manetti, grows freely on the seedling Brier and Brier cuttings, takes kindly to the high stilts of hedgerow standards, and thrives admirably on its own roots. While about as hardy as most of our Roses, there is no Rose we grow, whether Tea, Noisette, or Perpetual, that better deserves or will make better use of a warm wall than La France. In such positions with a rich root run kept moist with soap-suds or sewage, the numbers of blooms the plants will produce and their size and sweetness will satisfy the most avaricious rosarian that ever planted a Rose or gathered the blossoms thereof. And yet there are rosarians—in the trade even—who disparage La France. Well, such are even greater marvels than the Rose in praise of which we have just been writing.

D. T. F.

PLANTS IN FLOWER.

Clematis indivisa.—Here this is growing as a pillar plant in a cool conservatory, and of late it has been one mass of lovely blossoms. In February and March it is assuredly the most showy of all greenhouse climbers. Such a charming spring flowering plant well deserves attention. —J. Muir, *Margam*.

Daffodils.—The nursery grounds of Mr. S. Robinson, Sale, Manchester, are now well worth a visit by admirers of Daffodils. Amongst various sorts in flower I remarked a large bed of the beautiful N. bicolor Horsfieldi, on which there was over one thousand fully expanded blooms. The plants are well grown, and have produced remarkably large flowers and foliage.—N.

April Roses are produced in great perfection at Burghley, judging by a gathering Mr. Gilbert has sent us of Maréchal Niel and Niphetos, both of which are as fine as could be seen in July. Probably no other two Roses are so universally grown for early bloom as these, both being admirably suitable for cutting, particularly Niphetos, which is so lovely in the bud state. Mr. Gilbert also sends flowers of Tree Carnations and a very fine dark crimson Wallflower, very double, and of which we should like to know the name.

Ribes Gordonianum.—Now that the many varieties of the flowering Currant are in full beauty, it may be well to direct attention to a variety, or rather a hybrid, that is distinct from all the rest as regards colour, which instead of being a deep pink is orange-red. This Ribes is said to be a hybrid between R. sanguineum, the common species, and the bright yellow-flowered R. aureum, which as a rule flowers much later than the former. It is a handsome shrub and well worth growing for variety sake. Mr. Stevens brings us a fine flowering branch of it from his garden at Grasmere, Byfleet, which shows its beauty well.

Pyrus spectabilis.—Several specimens of this beautiful Chinese Crab scattered here and there in shrubberies are now in flower at Kew, and as there seen it is certainly one of the finest of the class to which it belongs. It is of free growth, is somewhat upright in habit, and bears large semi-double pink blossoms in great profusion. An attractive feature belonging to this Pyrus is the deep colour of the unopened buds, which contrast in a pleasing manner with the paler tints of the expanded blooms. It is an old inhabitant of our gardens, and one greatly valued for the beauty of its blossoms.

Verbascum ferrugineum.—A plant in flower on the new rockery at Kew, and long known in gardens as Verbascum ferrugineum, is there named phœniceum, which indeed it very much resembles, and may be, as stated by some, simply a permanent form of phœniceum. It is at any rate a plant well worth cultivation, and seems to thrive best treated as a biennial, the ordinary way of dealing with these plants. The stem is much more leafy than is the case with the above, the leaves being rougher and rounder, and having dark chocolate or rusty coloured very attractive flowers.—D. K.

Azalea sinensis alba.—On Easter Monday last year I saw this lovely Azalea beautifully in bloom in Mr. Cypher's nursery at Cheltenham; since then we have had some plants of it; they are now in bloom, and, in my opinion, this is the most charming Easter Azalea we have. It is deciduous, like the mollis varieties, and the flowers are produced in large clusters at the end of every shoot. They are large and funnel-shaped and of the most charming creamy colour imaginable. This Azalea resembles some of the most beautiful greenhouse Rhododendrons more than anything else with which I can compare it, but it blooms far more profusely than any of these do.—J. Muir.

Virginian Cowslip.—Among a gathering of hardy flowers from Mr. Stevens' garden at Byfleet is this lovely North American Lungwort (Mertensia virginica), the delicate tints of whose flowers cannot be matched with any flower we know. Those who can give it a peaty border somewhat moist and partially shaded can grow it to perfection. Owing to the nature of the spike, the flower-buds expand daily for some weeks, so that its beauty is more lasting than that of many spring flowers. The great yellow Crown Imperial, Erythroniums, Cyanoglossums, Epimediums, Othonna cheirifolia, Doronicums also come from Mr. Stevens, and all tell of the flower beauty which exists at the present time in well-stocked hardy plant gardens.

Crown Anemones at Birdhill, Clonmel.—Two months ago on going through the flower grounds here I was greatly pleased with a bed of these Anemones, principally crimsons and scarlets, in front of one of the cool houses. They were then beginning to expand their great saucer-shaped flowers, and upon enquiry I learned that they were last June seedlings that had been sown just as the seed had been collected and dried. For the bed in question only seed from crimson and scarlet kinds had been selected, and though ample opportunity for cross-fertilisation had been afforded, they came singularly true. They were blooming where the seed had been sown, and on this fact hangs one of the secrets of success. I had the same strain, but mine were transplanted in autumn and never recovered the check. Judge of my surprise the other day when, calling to see some remarkable Orchids there, I found in the same bed Poppy Anemones, if anything, larger and more brilliant than before and likely to be for two months to come. For such success the following points are essential: First, selection from only the largest and finest, tying a scarlet thread or otherwise around to denote the intended seed bearers; secondly, giving preference to decided colours—crimson, scarlet, deep blue &c.; and thirdly, planting in a rich moist soil with a southern aspect. Let the soil be deep if possible, and to attain the maximum success, sow where the plants are to bloom.—W. J. Murphy.

Double Narcissus minor.—This is a striking novelty, and one which we had not seen until its raiser, Dr. Browne, of Aldborough, Hull, sent us a couple of flowers last week; it is not double, as double Daffodils usually are, inasmuch as the doubling is confined to the trumpet of the flower, the outside row of sepals being quite perfect. The trumpet is crammed full of metamorphosed stamens or petals, forming quite a dense mass, and the beauty and distinctness of the flower lie in the fact that the doubling does not extend to the sepals. It is an extremely pretty variety, and one which Dr. Browne cherishes highly. He is presumably the only person who possesses it, having raised it from seeds of N. minor.

Magnolia Soulangeana.—A specimen of this Magnolia is just now a magnificent object in the pleasure grounds at Kew. It grows near the old Azalea beds, close to a fine plant of the Yulan (M. conspicua), which some two or three weeks ago was profusely laden with its pure white blossoms, and, owing to the absence of frosts, they remained longer in perfection than usual. M. Soulangeana is more spreading in habit than the Yulan, and the blooms, instead of being white, are suffused with purple, besides which they are later in expanding than those of that kind. These early-flowering Magnolias are so beautiful that, even if cut by the frost sometimes, they should certainly be more frequently planted than they are. Like most of the class to which they belong, a cool, loamy soil, rather than a hot, dry spot, suits them best, and they are somewhat impatient of having their roots disturbed; therefore care should be taken in planting to allow for future development, and not be obliged to shift them on the ground of insufficient space just as they begin to show their real character. In many parts these early-flowering Magnolias are grown as wall plants, but though they flower beautifully in such situations, and the blossoms are to a great extent protected from spring frosts, yet it is when allowed to assume their natural shape that they are seen to the greatest advantage.

Primrose or Polyanthus?—Accompanying this you will find—well, either a Polyanthus or Primrose, or, perhaps more accurately, both. It is a seedling of last year, and, I think it must be admitted, a very fine one. The body colour is a bright rich pink, with a narrow white lacing around the margin and a radiating, large, citron-yellow eye. The habit is very robust, and the foliage of the ordinary P. acaulis type. The flower measures a shade less than 1¾ inches in diameter—a little less than what is considered to be a fair specimen of P. sinensis. Had I known this was so promising, I could readily have put it in a cold frame, fed it with liquid manure, and got blooms half an inch larger. My object now, however, is to ask your readers whether it is a Polyanthus or a Primrose. There has been so far but one Polyanthus stem; all the other blooms are on single stems. I am aware this frequently occurs where a Polyanthus has been starved and unable to produce the customary head of bloom, but under ordinary circumstances in the open air the Primrose does not become polyanthoid.—W. J. Murphy, *Clonmel*.

Garrya elliptica in fruit.—Branches of the female Garrya, bearing racemes of fruit in various stages of ripeness, have been sent to us by Mr. Kingsmill from his garden at Eastcote, Pinner. The fruits are berries each about the size of Black Currants, and of a dull purplish black. They are borne in pendulous catkins, like those that bear the pollen on male plants. Mr. Kingsmill obtained his plant some five years ago, and though it has flowered every year, this is the first season in which it has fruited, the flowers having been fertilised artificially. Examples of the female Garrya are so rarely met with, that these specimens of it from Mr. Kingsmill possess unusual interest.

Indoor Garden.

PINGUICULA HIRTIFLORA.

This is a dainty little species from Italy, of which Miss C. M. Owen, Knockmullen, Gorey, sent me a couple of plants some months ago. It has now been in bloom some time, and the donor tells me that its flowers will endure fresh and fair for eight or nine weeks. Both our plants are in blossom side by side. The typical plant has delicate lilac-tinted blossoms, with a yellowish white centre or eye, the margins of which have a hairy fringe. The other variety bears larger pure white flowers, but is in all other ways the same. We grow it in little pans of wet Sphagnum standing in saucers of water, and so treated they enjoy the hottest of bright sunshine at this season. Our plants are in a cool, airy porch, and might be equally well grown in a sunny window.

Pinguicula hirtiflora.

F. W. B.

NIDULARIUMS.

These are small-growing plants belonging to the Order of Bromeliads. They are very compact growers, in general appearance much like the Tillandsias and Echmeas, to which they are nearly allied. The flowers are produced similarly from the crown or centre of the plant; those of several of the species are very singular in appearance, nestling in a close, compact mass, like the head of a Cauliflower before it opens. The flowers are preceded by a number of small, brilliantly coloured leaves. The plants are easily grown, provided they receive a sufficient amount of heat, with a moist atmosphere and a little shade. They are increased from suckers produced like others of the Bromeliaceous family. These should be taken off from the parent plants after being allowed to remain attached until they have got sufficient strength—in fact, it is better not to separate them before they have grown to nearly their full size, as growth is much quicker whilst supported by the old crowns. The roots are of a tough, wiry nature; good fibrous peat, such as is suitable for Orchids, will answer for them, adding a sprinkling of broken crocks or charcoal; 4-inch or 5-inch pots are large enough at first, keeping them moist after they have been severed from the parent plants. If separated in the spring they will sooner get established, giving them a corner of the stove away from any current of air with a temperature of about 65° or 70° in the night through the summer. They do best in a fairly light position, but should be shaded from the sun when it is powerful; syringe them overhead daily, allowing the water that collects in the hollow crown to remain always. They will not require any more pot room during the first summer; 60° by night will answer through the winter, never letting them get dry at the roots.

In the spring when the heat is again increased give them pots a size larger, using soil similar to the first; if they gain sufficient strength, the plants will flower towards the end of summer, but, unless the suckers were strong when taken off, they may require another season's growth before blooming. The tuft of coloured leaves and the flowers which follow collectively retain their colour for many weeks, and have an extremely pretty and distinct appearance. After blooming treat in every way as before, so as to encourage the production of suckers, retaining the old stools after the first are removed, as they will generally make a second growth; this is the more necessary, as these Nidulariums increase slowly.

Species.—N. spectabile has stout recurved leaves, reddish purple at the tips with greyish white bands on the under side. Flowers violet, produced in a dense mass. A native of Brazil N. Scheremetieuri.—This is a larger grower than some of the genus, attaining a diameter of 18 inches or 20 inches; inner leaves bright red; flowers purple and white. Brazil. N. Laurenti.—Leaves spotted dark brown on a green ground colour; flowers dull purple. From South America. N. lonocenti.—Outer leaves stout and broad, dark dull green above, red beneath; centre leaves orange colour; flowers white. Brazil. N. Meyendorffi—A strong growing species with larger leaves than some of the family: spiny on the edges, inner leaves crimson; flowers bluish purple. Brazil. N. cyaneum.—This species has comparatively large leaves, 20 inches long, green ground colour spotted with brown, under surface banded with greyish white; flowers reddish violet with deep red bracts. Brazil. N. fulgens.—A compact growing kind, outer leaves deep green, inner ones red; violet coloured flowers. Brazil.

Insects.—The texture of the leaves of Nidulariums is so hard, that they do not afford food for many insects, but both brown and white scale will live on them, for which sponging is the best remedy.

T. Baines.

Lapageria alba.—A fine specimen of this handsome climber may now be seen in the conservatory at Glenlee Park, Kirkcudbrightshire, the residence of Mr. George Maxwell. It was planted in the spring of 1880, and has grown so luxuriantly since, that it has already covered the entire side of the house on which it is trained. It flowers profusely, and when in bloom is a plant well worth seeing. The secret of success in this case seems to be a suitable compost, ample drainage, and a genial atmosphere during the growing season. Rain water only is used for watering it. The roof of the house is glazed with a glass which breaks the direct rays of the sun, but at the same time admits plenty of light, much more than if shading were used. The compost in which it is planted is peat, got from the neighbouring hills, a small quantity of charcoal, broken bricks and silver sand in lumps like eggs being scattered throughout it to keep the whole sweet and porous. The method taken to keep insect enemies in check is careful sponging with some insecticide and syringing on clear days, getting well under the leaves. Green fly is the most troublesome, attacking as it does the points of the young shoots, from which it must be carefully removed by means of the sponge.—L.

NEW AMARYLLISES.

As the season advances different types and varieties of the Amaryllis develop themselves in Messrs. Veitch's collection at Chelsea, and it is interesting to trace their parentage, and to compare what we know of the older varieties with those now being produced. The names Amaryllis and Hippeastrum seem to be given to them indiscriminately, and ordinary cultivators are at a loss to know where the one genus leaves off and the other begins. Dean Herbert seems to class the whole under Hippeastrum. He says the first institution of the genus Amaryllis was by Linnæus in 1737, and that the name was given to Belladonna only, Amaryllis being the Belladonna of Virgil, and proverbial for loveliness. Hippeastrum differs from Amaryllis Belladonna in having—1, a hollow scape; 2, black shelly seeds; 3, seeds not bursting the capsule prematurely; 4, the oblique mouth of tube abbreviated on the underside by the deeper incision of the perianth; 5, the fourfold instead of alternate insertion; 6, the fourfold instead of alternate length of the filaments; 7, the nectarions beard or screen in several species; 8, the germ sloped from the peduncle; 9, the tube sloped from the germen; 10, the constriction of germen in the middle; 11, the capsule widest instead of narrowest as its base; 12, the flowers accompanying or following instead of preceding the leaves; 13, the growth of the leaves being vernal instead of autumnal; 14, the plants being occidental instead of African. As a rule, the flowers follow or accompany the leaves, but in some cases the flowers precede the foliage, as in H. pardinum. This species is interesting from its being the pollen-bearing parent of the first hybrid Amaryllis raised in Messrs. Veitch's nursery. It is no great beauty itself, although some of the normal forms of it are rather pretty. The flowers are densely spotted, but have no tube. By using the pollen on the handsome varietal form, A. Ackermanni pulcherrima, Mr. Seden produced three very fine garden varieties, viz., Brilliant, Chelsoni, and maculata. Chelsoni is, I think, the best of the three; it is a very handsome variety, but does not make a very stately plant. The stem is usually not more than a foot high, surmounted with two flowers 6½ inches across, of a slightly spotted reddish crimson colour. This variety is an excellent representative of the varieties that have short tubes. I have been comparing the flowers of it with those of John Heal, a variety certificated two years ago. The flowers of John Heal were of the same width, creamy white, with the centre of the segments crimson, and a greenish star. The last named is the best formed flower, but Chelsoni is not far behind it. There are numerous very striking varieties in Messrs. Veitch's collection of the long-tubed type. They do not, however, seem to find favour in the eyes of the censors appointed to adjudicate on the merits of these flowers. A very fine one exhibited at South Kensington, and also at the Royal Botanic Society's Gardens, Regent's Park, was passed over. There are two at present in flower at Great Gearies—viz., Lady Musgrave and Princess Beatrice, both raised in the Chelsea Nursery, though not so well known as they ought to be. They have produced three scapes from one bulb, and six flowers on a scape. The segments form a narrow tube and reflex considerably, forming quite a distinct type of flower. Queen Victoria and Alexandra, two very lovely varieties of this type, raised a good many years ago by Mr. Baxter, are both in flower with us. They would certainly not now gain certificates, although I believe that the first-named sort obtained one about a decade ago. They are flaked with rose or rosy red on a white ground. Probably they are both seedlings from marginata

or grandiflora. We also grow another very brilliant variety raised by Mr. Baxter, and named by him Keizeri. In foliage and flower it is quite distinct, the latter being a deep blood-crimson and 4½ inches across; the petals, being wavy or twisted, add to the interest belonging to this variety.

Tube white forms are open to much improvement. Although it must be admitted that Duchess of Connaught, which I saw in Messrs. Veitch's nursery a few days ago, has many good points, it flowers in a very small state, the flowers being pure white, of good substance, and well formed. Of course in comparison with such magnificent flowers as John Heal there is much room for improvement, but the material with which to effect this improvement is not very readily obtained. The late Mr. Pearce discovered an Amaryllis in Peru, which he sent home to the Chelsea Nursery, describing it as the finest of all the species he had ever met with, a description which was fully realised when the plant flowered. It was exhibited for the first time in 1869, when the King of the Belgians visited the gardens of the Royal Horticultural Society, and was named in compliment to him A. (Hippeastrum) Leopoldi. It received from the Society a first-class certificate, and also a special certificate. The flowers of this original species measured fully 7 inches across. It had six broad obovate perianth segments, forming a rounded symmetrical flower. Since that time all the large broadly opened flowers which we have have been raised, and all of them can be traced to Leopoldi. Could we obtain a pure white specific form in shape and texture like Leopoldi, a marvellous revolution would take place amongst the light-coloured varieties. As it is, there are some good light-coloured sorts; the large finely formed flower, named Madonna, exhibited by Messrs. Veitch, was overlooked by the committee at South Kensington, although the same plant gained the highest award given to new flowers the day following by the Royal Botanic Society, and well it deserved that award, being very distinct from any other variety in the same class, and superior to any other in form and size of flowers. The plant had two stems from one bulb, 22 inches high, and there were two flowers on each. The flowers, which are large and finely formed, are creamy-white in colour with a few crimson flakes and lines. In judging the merits of a new flower, it is not quite right to compare a light variety with a dark one and quietly pass it by because it does not compare favourably in size and form with flowers belonging altogether to another class. A white Amaryllis would yet be worth a certificate, even although behind Chelsoni in size and form.

The culture of the Amaryllis is now being better understood than it was ten or fifteen years ago; the bulbs flower sooner from seeds and the propagation is more rapid. This of course follows naturally, although even in the matter of propagation, some sorts are much slower than others. Keizeri, for instance, which I have had for nearly ten years, grows well, and is now in flower, a strong vigorous plant, but it has never given off a single young plant. Other varieties have been grown for three and four years and have made no increase. The offsets should not be removed from the parent bulb until they are of good size, and can be detached readily with plenty of roots adhering to them. No offsets should be removed during the growing period. Allow them to remain until potting time in the early part of January. In order to grow the plants well they ought to have a house to themselves, and the pots should be plunged in a bed of tan. They will succeed well in a vinery, where the good old system of making a bed of leaves and manure inside the house is adopted. When the bulbs are potted, they can be plunged on this hotbed, but care must be taken to see that the heat is not too great. The heat of the vinery would be about from 15° to 50° to begin with, and this is just the temperature for the Amaryllis. The increasing heat and moisture as the season advances will suit the requirements of the bulbs, and by the time the leaves of the Vines have covered the roof many of the Amaryllises will be in flower. Removing them into the greenhouse during their flowering period does them no harm, but they require more heat again during the months of June and July while making their second growth. They like a little peat added to the potting soil, which should be good sandy loam, with a fifth part of rotten stable manure added to it. During the growing period water must be applied with care, especially during the early stages, before the roots have grown much. At no time should they have any manure water. The resting period, too, is almost as important as the growing period; they require a decided period of rest, and this is during the four last months of the year. At that time they require no water, sufficient moisture being stored up in the bulbs to last them until the end of January. Water very sparingly or not at all till the leaves appear; and even then once a week will be sufficient if the pots are plunged.

J. Douglas.

PLANTING OUT V. POT CULTURE.

This is a subject of some importance to both gardeners and their employers, so far as regards the culture of many kinds of greenhouse and stove plants in which they are interested. The pot system of growing plants may be described as a restrictive one, in which the plants cultivated are confined at their roots to pots by the shifting-on process, and the planting-out system is one which permits of free growth. This is not a new question; it has been dealt with long ago under the head of the one-shift system, which virtually means planting out. The only objection to the system is that it is too favourable for growth, and renders plants inconveniently large for most people's space and means. A plant in the open ground or in the border of a well-managed conservatory grows fast, acquires a rich deep green healthy colour, and produces its flowers and fruit as soon as it has arrived at the proper age; on the other hand, the same kind of plant, under the same circumstances, managed by the same grower, but kept in a pot and subjected to a course of shifting, although it may be healthy at first, soon ceases growing, and becomes yellow, lean, and starved. This latter is the condition of numbers of large stove and greenhouse plants in many gardens, and has given anxiety to many a cultivator. Nevertheless, it is still far too much the practice to attempt the culture in pots of plants that should be planted out. One has only to look at the pot specimens, in many gardens and at shows, of such subjects as the Stephanotis, Camellia, Clerodendron, Dipladenia, Ipomœa, Allamanda, and Passiflora, &c., to see how far the system is adhered to, to notice how such plants are excelled by good planted-out specimens when these are found. Some of the most remarkable plants of these named, as regards health and flowering quality, have been planted out. Bougainvilleas and Stephanotis, which I once saw at Lord Wimborne's, in Dorset, growing in the border and having head room on the rafters of the roof, were simply magnificent some years ago under Mr. Dick's management, and I have rarely seen such clusters of Stephanotis as I saw there, quantities of which were cut for sending to London. Unless the plants must necessarily be portable, and therefore kept in pots, it is the wisest plan to plant out either in small pits, to which the roots will be confined, or in the borders, inside if possible; but many greenhouse and intermediate subjects will thrive well with their roots quite outside the house, like Vines. I once had some of the fine Acacia Riceana, Fuchsias, Rhynchospermums, and Miltonias in the country growing in this way, and have now Allamandas, Clerodendrons, Camellias, and Stephanotis, &c., which show what planting out can accomplish.

Camellias.—A remarkable case of Camellia culture came under my observation that bears on this question. For some years the plants—pretty old ones most of them—had been grown in tubs. While the plants were young and had root room they grew freely, and reached a tolerable size; a large house on the ridge-and-furrow principle, and glazed with rough obscured glass, had been provided for them; but in the end they grew so stunted and poor, that something had to be done with them, and they were planted out in a prepared border of light loam and peat. I did not see them till a few years afterwards, and when I did, I should not have recognised the same trees, they were so greatly altered and improved. This collection, and the quantity of blooms it has borne, has often been commented on in the gardening press. On one occasion I planted a small plant of Allamanda out of a 3-inch pot into an 18-inch one, and the year following into a much larger one, a tub, in fact, deeply plunged in the border, and in two years it had covered the space (20 feet by 4 feet) allotted to it. More room was given it, and it now extends 40 feet in a broad even arch, and flowers famously for months in succession. It is, indeed, mere waste of time potting climbers and other permanent plants that are wanted to cover walls and rafters. Plant them out in a temperature that suits them, give them the room they require and light and air, and something is radically wrong with the management if they do not succeed. I saw lately a plant of Clematis indivisa lobata covering the roof of a low span-roofed house that was a sight to be seen—the growth of two short years. The flowers were in thousands, and the plant was planted out on the floor. This is the way to grow this plant to have it in perfection. At the same place one of the most remarkable planted-out Stephanotis was also to be seen; perhaps one of the most wonderful examples of culture in the country.

How to plant and train.—Bush plants, like Camellias and the splendid Luculia gratissima (which will only thrive planted out), need very little attention, except that the last wants spurring close in every winter; but they must have a good bed of soil about 2 feet deep, thoroughly well drained, to grow in. Each bush may be bricked in by itself if needful; but all should be levelled up full, so as to prevent evaporation from the sides of the divisions. The Lapageria is a plant that cannot be grown successfully for long, unless it be planted out, and the way it will stand out under such condition is sufficient to show anyone, contrary to common opinion, what an easy plant it is to grow. When a greenhouse or stove bed cannot all be filled up with suitable soil for the roots of plants, the subjects planted out must be confined to limited space; and a good and ready way of doing this is to divide a square space off by means of flags or slates set on edge, packed round the outside, and filled in with suitable soil. This enables one to know always where the roots are, and, should the plants have to be shifted at any time, it is an easy matter to pull the flags away and get the ball of roots out intact. Bricks may be used as well, but they must be set in mortar. Two feet of soil is a good depth for most subjects, including 3 inches of drainage, but more will do no harm in the case of gross-growing trees. In lofty conservatories, planting out in the open border is the best plan. Under such circumstances a seedling plant of Acacia Riceana, one of the finest of cool house climbers, will grow 50 feet in a few years, and extend tolerably in proportion. The strong growing Fuchsias (pendulous kinds are best) will grow even faster, to 20 feet or 30 feet, and may be pruned in annually like Vines, with the certainty that each year the side shoots will grow 4 feet or 5 feet, droop gracefully down, and bloom profusely. The Tacsonia Van Volxemi will cover a large roof in two years, and by planting several plants at opposite points, the largest building may be covered with it in one year, and it is sure to flower. The Maréchal Niel Rose, where it succeeds, and the Gloire de Dijon grow almost as fast under glass, and so does the Cheshunt Hybrid. The common Heliotrope rushes up in a year to the top of a rafter and lives for years. Jasminum grandiflorum, white and scented, grows fast also, and the Clerodendron Balfouri and the Stephanotis ramble and grow almost faster than one can find time to train and attend to them. But all depends on planting out and

finding room for the tops and a free, sweet soil for the roots. W.

LATH BLINDS FOR SHADING.

Mr Baines in writing upon this subject (p. 261) says: "Those who are not satisfied with plants badly grown require nothing more than a sight of these blinds to be deterred from using them"—a statement evidently unfair, as no one can judge of the merits of any garden appliance without giving it a trial. The real cause for these lath blinds being but little used lies, in the first place, in the fact that not more than one per cent. of English gardeners know anything about them, and in their cost which is great as compared with other kinds of shading. When their merits come to be widely known, there will in all probability be a great demand for them, and then they may be perhaps manufactured at a rate which will place them within reach of all. It is just the same with these claies as with cloches, which were largely and universally used in France at a time when they were scarcely known in this country, but when their merits became recognised and the demand for them increased, they were quickly offered at about half the price at which they were obtainable previously. Mr. Baines assumes that plants become drawn and weak under these lath blinds, and mentions Orchids as being likely to suffer by their use; he will therefore probably be surprised to learn that the Messrs. Sander, of St. Albans, who are perhaps the largest Orchid growers in Europe, think so highly of them, that they are using them largely and intend adopting them for the whole of their glass erections which require shading. Some of the finest collections of Orchids I ever saw were grown under this form of shading and when I mention Vandas 8 feet high with foliage as lustrous and green as that of a Laurel down to the base, Miltonias 4 feet through, perfect in leafage and bloom, Cattleya Skinneri with upwards of 300 blooms, not made-up plants, but *bona-fide* specimens grown on from single imported pieces, and other kinds of proportionate dimensions, I think that your correspondent will admit that such results could scarcely have been achieved unless the cultural conditions were about perfect.

The plants grown by the Paris market gardeners would compare favourably with those cultivated by our own market growers, and yet around Paris these lath blinds are preferred to all other kinds of shading. The nurserymen and nearly all private growers employ them, and one sees some excellent examples of plant culture under them. The fact is, these blinds admit more light than would at first sight be supposed, for, although no light can, of course, pass through wood, this disadvantage is compensated for by the space between each lath, through which light and even sun rays, naturally much broken in force, can pass; indeed, my impression always has been that plants shaded by the claies get more light and draw less than when any other material is used, except perhaps netting.

I have used them for almost every kind of plant requiring shading, and never, as far as I could perceive, with ill effects. I have used them for Orchids, Camellias, stove plants, Ferns, and propagating houses, and found them of great service for frames, as they are not easily moved by wind, and there is no need to trouble about putting them under cover or drying them in wet weather. Mr. Baines says that "on the Continent, where these lath blinds are in use, there are not so many days on which the sun is obscured as in our fitful climate," from which I infer that he considers them as being necessarily fixtures—as, of course, a movable shade would never be let down on dull days. But, except in the case of lofty structures, they can and are fixed so as to afford immense facilities for regulating the amount of light and sun admitted to the inmates of the structure on which they are fixed. The usual plan is to fix two pulleys, some 6 feet or 8 feet apart, at the top of the rafters. The cord is then attached to the iron which carries each pulley, passes underneath the blind, and up outside through the pulley. The attendant, taking the ends of the two cords in his hands, has perfect command over the blind.

By thus fixing the blinds in panels as it were one has the option of shading any particular portion of the structure at once, which anyone who has much to do with plant culture under glass will acknowledge to be a great convenience, for it frequently happens that some plants would enjoy the sun a little longer in the morning and would like it admitted to them again early in the afternoon, whilst others might only need to have a little shade during the hour or two which nearest border on midday. In the case of houses where a miscellaneous collection of plants is grown the advantages thus obtained are necessarily very great, as by the ordinary roller blind arrangement either the whole house must be shaded or be fully exposed to the full blaze of the sun. As I have before mentioned, the one great bar to the free use of these lath blinds is the first cost, which, unless they can be offered more cheaply than at present is likely to hinder trade and market growers generally from using them. If I remember rightly, they could not be had for less than 3s. per square yard, so that to fit up a house 100 feet long would require a considerable outlay. But the extra cost would be saved in no very great length of time, for with a little attention in the way of repairs and an occasional coat of paint, they will last a lifetime, and they may be made to lower the cost of firing very materially. Fixed as above described, they are not liable to be blown out of place in rough, wintry weather, and let down at night they keep out several degrees of frost; and whereas in the case of canvas the blind is often so stiffly frozen in the morning that it cannot, if used for this purpose, be drawn up until thawed, the lath blinds can be removed at daybreak, no matter what the weather may be, barring of course a deep fall of snow. I feel sure that those who once use these blinds will prefer them to other forms of shading.

J. Cornhill.

COTTAGE GARDEN SOCIETIES.

The distribution of seeds is a proper and, indeed, necessary step in the case of those who are interested in the subject of cottage garden societies, and the more isolated the locality the greater the want of some such help, for cottagers have few opportunities and less means of securing improved varieties of vegetables. They often devote both time and space to inferior sorts, because they either do not know that there are better kinds to be had, or they are unable to purchase them. What is wanted is a moderate outlay on new and improved varieties, the selection being made by competent individuals, and the proceeds to be distributed amongst the cottagers who take part in exhibiting. Take, for example, the Potato. Amongst the newer varieties likely to be popular we may mention Covent Garden Perfection; one bushel of this, or, indeed, any other variety, of Potato would suffice for rather a large district, sufficient quantities being distributed to enable the recipients to make a fair start. The same remarks apply to Peas. Such sorts as Advancer and Pride of the Market are only likely to be known to but few, yet they are cottagers' varieties *par excellence*. As they only grow about 2 feet high, they do not require long sticks; moreover, they are both excellent in flavour and good croppers. The Kidney Bean is another vegetable that may well be taken in hand. No one could wish to say a word against the cropping qualities of the Scarlet Runner, but the getting sticks to support it entails expense, and even then they are often difficult to get. This trouble might be avoided if cottagers could be prevailed upon to grow the dwarf form of this Bean. It is therefore desirable that they should be made acquainted with it by having the seed distributed amongst them; and as this class of cultivators requires something obviously good to induce them to take kindly to it, I should suggest that the sort known as Canadian Wonder be selected for that purpose; it is a great cropper and produces edible pods of extraordinary length. The vegetables just named and other improved varieties that could be selected would not only awaken fresh interest in small gardens, but increase their produce.

Prizes. — These induce cottagers to take greater pride in their gardens, and, such being the case, unsuitable prizes should not be offered. What I mean is that prizes should not be offered for anything which is not adapted or necessary for the consumption of a cottager's family. The offering of prizes in the middle of August for Celery, Leeks, and Parsnips I think a mistake, that being an inducement to expend time and space on subjects that are not seasonable. In many districts there is a lamentable lack of useful fruit in cottage gardens even where there is sufficient space for Strawberries, Gooseberries, Currants, and Raspberries; more encouragement should therefore be given in the shape of prizes for these, and this brings me to a very important consideration, viz, the extension of the number of prizes. I am quite aware that it is a question that seriously affects the funds of societies, but it must be brought forward nevertheless. Having had on many occasions opportunities of seeing the disappointment felt by exhibitors when no prizes have fallen to their lot, and the injurious effects it had on their future behaviour, I cannot too strongly urge upon those who frame the schedules the desirability of offering fourth and fifth prizes to such subjects as Kidney Beans, Potatoes, Peas, Cabbages, Cauliflowers, Onions, and Broad Beans, and I have advocated a reduction in the sums given for first and second prizes, and an addition of fourth and fifth, and, in the case of Potatoes, a sixth prize, because I found, when I was taking part in the management of such shows, that more value was set on the name of getting a prize than on its actual value. As to the desirability of giving certificates or commendations of any kind, I am satisfied that they are useless; to be valued, a prize must consist of coin of the realm or its equivalent. From my experience I am convinced that large prizes are not essential to the success of a show. Where four prizes are allotted to any one subject, the first need not be higher than 4s. if funds are low. Probably only those who have taken an active part in the management of such institutions can realise the amount of good they do. Some years ago I was deputed to inspect and report upon the condition of the gardens of competing cottagers in several parishes, and I am pleased to be able to state that the intercourse resulting therefrom was both profitable and instructive; profitable, because affording an opportunity to see how in the management of their gardens difficulties had been overcome, and results obtained that did honour to their cause, because accomplished in many cases under unfavourable conditions; instructive, because these visits twice a year gave me an opportunity of seeing that in the cottage both the strictest integrity and morality were maintained more generally than cottagers are accredited with. The gardens of exhibitors should be inspected the day before the show, and to accomplish this in a satisfactory manner, every exhibitor should be compelled to send in his entries four clear days before the day of the show. J. C. C.

Gymnopsis uniserialis.—Few annuals, at least among composites, when the small amount of trouble connected with their cultivation is taken into account, give such a handsome return as this Gymnopsis, which is useful alike for flower garden and mixed border decoration. It is a showy and attractive plant, and the success which can be attained with it even in ordinary garden soil is sufficient to make it, when better known, a great and lasting favourite. It was first introduced into this country by Drummond, who found it in Texas, and also on the Mexican plains, and it is as yet rare in this country. Its oval-shaped, sharp-pointed leaves are very minutely and prettily dotted on their upper surface, and densely covered beneath with short hairs. The flowers, which are described as having an odour like that of Jessamine, are very interesting owing to the rarity of the occur-

rence of such odours in this family of plants. They are nearly 2 inches in diameter, the ray florets being large and of a beautiful bright orange, the inner, small, closely pressed together, and very attractive. Although it may be safely raised from seed sown in the open about the beginning or middle of April, it is better to sow earlier in pots under glass and transplant the seedlings as soon as strong enough to handle. As will be seen by the foregoing description, it might easily be mistaken for a dwarf Sunflower.—D. K.

Garden Destroyers.

ANTS AND EMMETS.

Very few, if any, insects have attracted more attention, or about which more has been written, than ants. They are among the few insects mentioned in the Bible, where they are most appropriately quoted by King Solomon as patterns of industry and forethought. They are also alluded to by many of the earliest historians. To give anything like an exhaustive account of these wonderful little insects is utterly impossible in the space at my disposal in The Garden, so a comparatively very cursory article must suffice. Ants are particularly interesting to horticulturists, not from the injuries they cause to plants by feeding on them, as so many insects do, for they are perfectly harmless in this respect, but from their great fondness for ripe fruit and an unpleasant habit which they have of at times making their nests among the roots of plants in pots or in the open ground, and building their galleries among their stems, which usually interferes seriously with the growth of the plants. It is their habit of attacking ripe fruit which is most annoying; sometimes even the fruit which they have merely passed over is rendered unpalatable. In vineries they sometimes are very destructive in attacking the ripe Grapes, and in orchard houses Peaches and Nectarines suffer in the same manner. In greenhouses they are often a nuisance, roaming over everything in search of food, which usually consists of honey, honeydew, other insects, and animal matter generally. In gardens they are sometimes hurtful in making their nests at the roots of plants; in lawns they are, however, useful to a certain extent in destroying grubs and other insects, and if they are found running over a plant or two it is a sure sign that it is attacked by aphides or scale insects, whose presence might have remained unnoticed had it not been for the ants, who are thus of use in pointing out our foes. The lives, therefore, of these intelligent little creatures should always be spared unless they have taken up their position in some place where they are really troublesome.

Ants' nests.—Ants are often very difficult to get rid of, as their nests are frequently made in inaccessible places, such as under the flooring of greenhouses, &c, and they enter the houses by some hole or crevice which is so small, that it is almost impossible to reach their nests without a great deal of trouble; and though boiling water and some insecticide may be poured into the entrance, so little reaches the nest, that the majority of the inmates do not suffer in any way. Under these circumstances the best thing to do is to set traps, such as bones not picked quite clean, pieces of sponge soaked in treacle, or pieces of meat, into which the ants will crowd, when the baits should be dipped into boiling water or have the water poured over them. Ants may sometimes be driven away by pouring petroleum, sulphuric acid, or carbolic acid, diluted with ten or twelve times its weight of water, into the entrance of their nests or about their haunts; sprinkling guano or chloride of lime is also useful. If the nest is among the roots of a plant in a pot, both pot and plant may be immersed in cold water for five or six hours, when all the ants, grubs, and eggs will be drowned. When the nests are in the open ground their destruction is a much simpler matter; they may be dug up and thrown into boiling water, or merely opened and boiling water poured into them. A friend of mine, who was much annoyed with ants' nests in one of his meadows, found that the ants were very easily destroyed by opening the nests with a spade and pouring in a mixture of pearlash and liquid manure, of about the consistency of cream; if the pearlash was mixed with water, two applications were necessary. This would be a useful way of destroying ants in lawns. If the nests are made among the roots of a plant in the open ground, which, for some reason, cannot be disturbed, a good way of removing them is to place an inverted garden-pot, with the hole at the bottom closed, near the entrance to the nest, and keep the ground about the nest well watered. The ants will soon leave the moist ground and make their nest under the shelter of the pot, when they can be easily destroyed. To prevent ants from climbing fruit trees, the following process has been recommended: Scrape the bark in a ring round the tree 2 inches wide, and chalk this smooth ring thoroughly, which will render it impassable to the ants, as they can find no footing on the chalk, or make a line of gas-tar

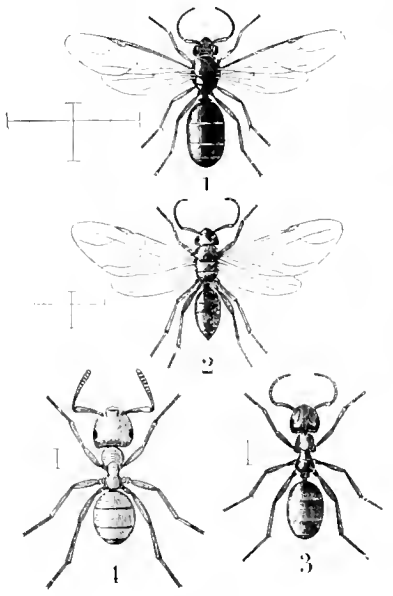


Fig. 1, the common garden ant (Lasius niger), female: 2, ditto, male; 3, ditto, worker; 4, the common yellow ant (Lasius flavus), worker.

round the tree. Of course, neither of these plans would be of any protection to trees trained against a wall; and in the case of espaliers, the stakes to which the trees are attached must be treated in the same manner as the stems.

Intelligence of ants.—There are certainly no insects, nor even any other animal, which show anything like the amount of intelligence that ants do. Sir John Lubbock, in his most interesting work, entitled "Ants, Bees, and Wasps," says: "The anthropoid apes, no doubt, approach nearer to man in bodily structure than do any other animals; but when we consider the habits of ants, their social organisation, their large communities, and elaborate habitations, their roadways, their possession of domestic animals, and even, in some cases, of slaves, it must be admitted that they have a fair claim to rank next to man in the scale of intelligence, and Darwin, in his "Descent of Man," speaks of an ant's brain as one of the most wonderful particles of matter in the world. Some writers have allowed their imagination to rather run away with them when, in alluding to the care that ants take of aphides, they speak of ants keeping cows and goats and mention their stables and cattle lairs. No doubt aphides are often found in ants' nests and are carefully tended by the ants, who feed on the honeydew which they secrete; but those which are found underground with the ants belong to one of the twenty-five or thirty species which feed on the roots of plants, for it is very improbable that an aphis which lives on the leaves and tender shoots of plants should be able to live and secrete honeydew when deprived of its food, and in such unnatural circumstances, so that the ants would be guilty of the folly of killing the goose which laid the golden eggs if they removed such aphides into their nests. Ants, however, are known at times to build a covering of earth over aphides feeding on plants near their nests, and to collect and store with great care the eggs of aphides. Sir J. Lubbock found some in the nests of Lasius flavus, the common yellow ant, which were evidently not the eggs of any subterranean species, for he says, "Near one of my nests of Lasius flavus, in which I had placed some of the eggs in question, was a glass containing living specimens of several species of plants commonly found on or around ants' nests; to these some of the young aphides were brought by the ants" which had been hatched from these eggs. Besides aphides numerous other insects are found in ants' nests. André, a French entomologist, enumerates 584 species; many of these, however, were probably only accidental inmates of the nests. One of the springtails (Podmidæ) is sometimes very numerous in ants' nests, and so is a kind of small woodlouse; both these insects are blind, and Sir J. Lubbock in speaking of them says, "In neither of these cases have I ever seen an ant take the slightest notice of either of these insects. It is certain that the ants intentionally (if I may so say) sanction the residence of these insects in their nests; an unauthorised interloper would be at once killed. I have therefore ventured to suggest that these insects may perhaps act as scavengers. In other cases the association is more close, and the ants take the greatest care of their guests. It appears that many of these insects produce a secretion which serves as food for the ants. This is certainly the case, for instance, with the curious blind beetle, Claviger, which appears to be entirely dependent upon the ants. It even seems to have lost the power of feeding itself; at any rate it is habitually fed by the ants, who supply it with nourishment as they do one another." The Clavigers have certain hairs at the base of their wingcases which the ants take into their mouths and lick, as well as the whole upper surface of their bodies, with apparently the greatest enjoyment.

Ants' dependents.—One of the most curious facts in regard to ants is that some species are in the habit of using individuals of other species as slaves. They steal the eggs or pupæ, the ants bred from which live in the nest, and assist in the general work as if they were in their own nest. A Continental species, Polyergus rufescens, appears to be quite dependent on their slaves. Sir J. Lubbock says: "Even their bodily structure has undergone a change; the mandibles have lost their teeth—deadly weapons, indeed, but useless except for war; they have lost the greater part of their instinct; their art—that is, the power of building; they show no care for their young, take no part in providing the daily supplies. If the colony changes the situation of its nest, the masters are all carried on the backs of the slaves to the new one; they have even lost the habit of feeding. We have no ants in this country which store grain, but in warmer lands, even in the south of Europe, there are harvesting ants which collect grain. Although ants are so fond of nectar, there are comparatively few flowers from which they can obtain it. Most plants are provided with some arrangement which prevents ants from wasting their nectarines. In some hairs are placed in such a manner that the ants cannot pass them; in others the leaves form a collar round the stem with curved surfaces, over which the ants cannot climb. Some flowers are so formed that ants, small as they are, cannot reach the nectar. Other plants are protected by viscid secretions. Most flowers are so dependent on insects for their fertilisation, that some protection is beneficial, for if robbed of their honey by ants they would not

attract other insects; and ants are very unlikely to transport pollen from one flower to another, on account of their diminutive size, their comparatively smooth bodies and limbs, to which pollen would not readily adhere and their being unable, as winged insects do, to pass rapidly from flower to flower.

Intruders.—Ants have a wonderful power of recognising the inmates of their nest, even though it may contain several hundred thousand. This has been proved by placing in it ants of the same species from another nest, which were immediately attacked and killed or dragged out of the nest, showing that they at once detected strangers; and ants which had been removed from a nest were restored after the lapse of one year and nine months, and were evidently recognised as friends. How this recognition is effected is at present a mystery. How ants communicate with one another, which they certainly do, is also uncertain: they appear to be quite deaf to any sounds which we can hear, and we cannot hear any sounds which they produce, but that is no reason why they should be deaf or mute. It is evident that their sense of smell is acute, and that they are able to distinguish some odours which we can. The ants are a very numerous family, and belong to the natural order Hymenoptera (membraneous winged) which also contains the sawflies, ichneumon flies, bees, and wasps. Ants are very generally distributed over the world. But when we hear of the injuries caused by white ants in tropical countries, it should always be remembered that the insects alluded to are not really ants, but belong to quite a different order, Neuropteria or nerve-winged, and are nearly allied to the dragonflies, though very unlike in general appearance. Ants are found, as many insects are, in a fossil state. In one of the tertiary strata on the Continent no less than 83 different species have been detected, and in amber many species have been found. Ants may be considered as long-lived insects, for most insects are supposed to live only a few months or perhaps a year; some, indeed, live only in the perfect state a few hours; whereas Sir J. Lubbock had some individuals of the common garden ant (Lasius niger) which he knew were more than seven years old.

Communities.—Ants, like bees and wasps, live together in large communities, each individual working for the general welfare of the nest. Besides the males and females, there are others called neuters or workers, which are really females not properly developed like the insects just mentioned; these workers far outnumber the males and females. Ordinary nests always contain one or more wingless females, but towards the end of summer, there are many hundreds of winged males and females, which on a suitable day all leave the nest together and couple in the air, after which the males soon die, and the females either begin (having divested themselves of wings which are no longer of any use to them) to form a new nest, or are brought back to the old one by the workers. The majority, however, probably come to an untimely end. As soon as the female or queen lays any eggs in an established nest, they are immediately removed by the workers who are attending upon her and placed in certain chambers in the nest. They are very small, whitish, and oval, but somewhat bean-shaped. The grubs (fig. 8) are white with the joints of the body well defined; they are blind and legless, and are most carefully looked after and fed by the workers, who carry them about and place them in the part of the nest most suitable for them, in fine weather during the day bringing them near the surface, replacing them in the lower parts of the nest towards evening. They become full grown in about six or seven weeks; they then spin a cocoon round themselves, within which they become chrysalides (fig. 9) or pupæ. It is these cocoons which are commonly called ants' eggs, and which are as carefully guarded by the ants as the grubs. When a nest is disturbed the first thing the workers do is to try and save the pupæ. When the perfect insect tries to emerge, the ants do all they can to assist it in getting free from its covering.

Families.—The ants are divided into three families—the Formicidæ, Poneridæ, and Myrmicidæ, containing 20 species indigenous to this country, and three introduced from abroad; those belonging to the first two families are stingless, or have that weapon in a very rudimentary condition; their waists are composed of only one joint, and their chrysalides or pupæ are enclosed in cocoons. The Myrmicidæ are armed with a sting; their waists are composed of two joints, and their chrysalides are merely covered with a thin membrane. The various species greatly resemble one another in general form, but they differ much in size, and each possesses peculiarities of structure which are usually very well marked. In all, the basal joint of the antennæ is much larger than any of the others, being sometimes half the length of the antennæ. The females (figs. 1 and 5) are the largest members of the community, and differ from the workers not only in having wings, but also in the shape of their bodies, which are oval and flattened, and much larger in proportion. The males (figs. 2 and 6) are usually considerably smaller than the females, and, with the exception

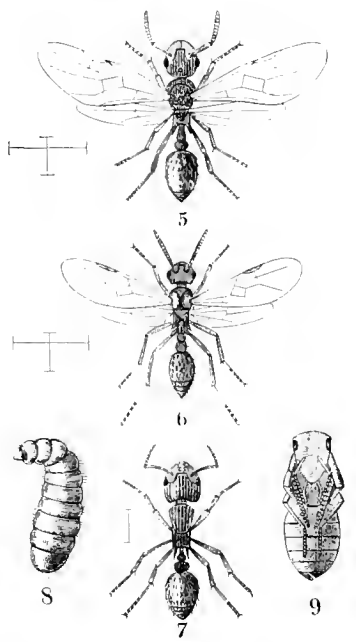


Fig. 5, Myrmica rubra, femal; 6, ditto, male; 7, ditto, worker; 8, grub or larva of ant; 9, chrysalis or pupa of ant (after Sir J. Lubbock).

of being winged, very much resemble the workers (figs. 3, 4, and 7); the latter have largish heads, furnished with a pair of long antennæ and strong jaws. The thorax is narrow, the legs long. The body is attached to the thorax by a narrow waist, formed of one or two joints; the body and legs are often sparingly covered with fine hairs. Many of the species are armed with a sting, but in others, though the organ is present, it is in such a rudimentary state, that it is useless as a weapon; the poison glands are, however, larger than in those which have stings. Ants have the power of ejecting this poison (formic acid) to a considerable distance. Sir J. Lubbock, after disturbing a nest in Switzerland, found his hand was covered with the acid, though held 18 inches above the nest; it is this acid which imparts the unpleasant flavour that fruit sometimes has when ants have been on it. It would be useless, even had I the space at my disposal, to describe all the species, so I shall confine myself to a few very common species. The common brown garden ant (Lasius niger) is abundant in most gardens, where they often make their nests at the edges of paths, under stones, in fact any dry place is suitable for them: even stumps of wood are sometimes selected, and in them their galleries and chambers are formed. The male (fig. 2) is about 2-10ths of an inch long, measures 4-10ths of an inch across the wings, and is nearly black; the female (fig. 1) is hardly 4-10ths of an inch in length, nearly 8-10ths of an inch across the wings, and is of a soft, dull brown colour; the head and thorax are darker than the body; the wings are larger with light brown veins. The workers (fig. 3) are of about the same size as the males, the thorax and legs being of a lighter shade than the head and body. The ants belonging to this genus have not fully developed stings. The common yellow ant, Lasius flavus (fig. 4) forms the ant hills so common in meadows, &c., and sometimes makes its nest in the edges of paths. The males are about 2-10ths of an inch in length, measure 4-10ths of an inch across the wings, and are brownish black in colour. The females are nearly as large again as the males, and are of a dull reddish brown colour. The workers are of two sizes, the larger measuring 2-10ths of an inch in length, the smaller about 1-10th of an inch; both are of a pale yellow colour and have large heads.

The species belonging to the genus Myrmicidæ are armed with stings, and the pupæ or chrysalides (fig. 9) are not enclosed in cocoons, but are merely covered with a thin membrane. M. rubra (figs 5, 6, and 7) is a very common species, making its nests under stones, loose bark, or moss; in fact, almost anywhere. There are several varieties of this insect, but their differences are not important. The males measure about 2-10ths of an inch in length, and are 4-10ths of an inch across the wings. The females are somewhat larger. The workers are about the same size as the males. Both sexes and the workers are of a reddish brown colour, but the latter are rather lighter in colour. All have smooth shining bodies and two blunt spines at the base of the thorax. The head and thorax in both females and workers are rough, being furrowed longitudinally. The wood ant (Formica rufa) is a very common species, but seldom found in gardens. In making its nest it forms mounds of small pieces of stick, Lime leaves, &c. The workers are from 2-10ths of an inch to 4-10ths of an inch long, with reddish heads and thoraxes, and dark brown bodies and legs. I may as well just allude to the little house ant (Monomorium phazaonis), which is an introduced species, but may now be found in houses in many towns, where they are a great nuisance, attacking food of all kinds. It is a very small insect; the workers are hardly 1-10th of an inch in length, and are of a pale brownish red colour.

G. S. S.

Flower Garden.

Some Garden Favourites.

Lobelia cardinalis.—This is not quite hardy. I lost it, unprotected out side, in 1879 and again in 1881. I may be asked, why not keep it indoors, then? First, because it does not like that treatment; and next, there is no difficulty in protecting it against the severest winter. A pyramidal mound of coal ashes, Cocoa-nut fibre, tan, or even an armful of hay strewn over a bed of it, will, any of them, be sufficient. Just now, I observe mine, owing to the mildness of the winter, bursting through the coal ashes. Except I consider the soil in the bed rich enough for another season's growth, I lift and divide, and readily make two or three beds out of one. Nothing in the flower garden will be more brilliant during the autumn, not merely in the deep velvety crimson of the floral racemes, but also in the dark red foliage. I am now referring specially to L. c. fulgens. If only for contrast, the species Lobelia syphilitica should be grown alongside, or, better, alternately; the bright blue contrasts with the former and will bear comparison with the two best blues of the flower garden—Salvia patens and Delphinium formosum. There is a white variety of this last named Lobelia, but not worth the same attention to my mind for decoration.

Hyacinthus candicans.—I place this next, as it has a feature in common with the last—it requires some care in winter. I must not be understood as saying it is not hardy, but this is what I found last year. I planted out the bulbs we here received in October. I examined them the following February, but they had made no move, and one-third had been eaten into by a villainous black slug that takes himself securely beneath the surface at the approach of winter. Towards the end of March some puny roots were emitted from the remainder, which I then and there took up, potted, and put in a cold frame until the pots were full of roots, when they were transferred to a prepared bed again. I intend to adopt this method in future, and will have at least three advantages thereby—certainty of growth and no loss, flowers a month earlier, and plenty of time for maturation of foliage and bulb. This last is the secret of good flowering the following year, and not in this case alone. I transferred my small stock from the pots which were filled with roots to a prepared bed a few days ago, and they are now started on their course.

Lilies.—You can hardly permit your correspondents to refer to these glorious flowers too frequently. To my mind L. auratum stands first for either indoor or flower garden decoration, but I cannot remember having seen a Lily that does not deserve to be grown for some peculiar innate beauty of its own. I would be slow to recommend the growth of Liliums in an exposed position, where there was no chance of protection, as they frequently get smashed and splashed. The one objection to L. auratum indoors is the strong overpowering scent, which in a conservatory people often think too much. Perhaps another would be the great height—often 8 feet or 10 feet in a cool house. I have seen large bulbs of L. lancifolium, especially L. l. roseum, which seems to be the most vigorous, equally tall even without the slightest forcing, while L. giganteum for the same reason is never attempted inside, though, where possible, it would be a magnificent object. As pot plants these medium-sized bulbs have many things to commend them. Several correspondents, since I drew your attention to them, have written to me as to the delay of the imported Lilies in starting into growth. My own in a cold frame, though potted the moment they arrived from Japan the first week in December, are only now started on their course. A better plan would be as they arrive minus any roots to plunge them in Cocoa-nut fibre, and let them remain there until roots commence to be emitted; then pot, leaving space at the mouth of it for refilling when stem-roots appear. As to varieties, I cannot do better than recommend what I did myself—procure as many as you can and continue those you like best, or that answer a particular purpose. L. tigrinum vars. and L. candidum do admirably when established and sheltered outdoors, but should not be disturbed for some years.

Narcissi.—Those who like outdoor early spring flowers, and have not yet attempted to grow even a limited collection of them, have still a treat in store. For the past two months I have had great satisfaction with about two dozen distinct types of the single and garden Narcissus, and the same of the Polyanthus. Where all have their special beauty it is hard to speak comparatively; but as a pot plant—I am now specially referring to the Dutch ones grown in a cold frame for early use—to N. bicolor incomparabilis fl.-pl., both white and orange, I give the preference. Mine in 13-inch pots were slightly over 3 inches across, and contrasted admirably with Hyacinths and Tulips of almost all colours. Of the Trumpet (single), I still like N. bicolor Horsfieldi best, though the pure white, N. biflorus, should also be grown; in size N. maximus (pure golden yellow) is the largest. Some of the best are yet to come, especially the double white sweet-scented N. poeticus, single and double, the latter not for a month or more yet, and a few of the Polyanthus varieties. I put outside last year a rather rare variety I got in an old garden here labelled N. prostratus fl.-pl., and unexpectedly it is now in flower. The petals are small in the centre, and radiate larger and wider to the perianth segments. Those who grow them in pots would perhaps do best to remove the seed pods, if not required when done flowering, and plant out fully in the sun, where they take care of themselves. Going through the lawn at Birdhill, near here, a few days ago where a number of varieties enjoy a happy, undisturbed wild life, in the same tufts I saw different shades of the common N. Telamonius, single and double, and several flowers semi-double in the actual process of changing their stamens into petals, a point that may interest Messrs. Wolley Dod and Brockbank. We are all—I mean those who could not be present—highly delighted by your giving us so long and good a report of Mr. Burbidge's excellent lecture at the Narcissus conference, and the discussion that followed it is also most interesting.

Gladioli.—I am just putting down my last corms, though for some time yet it might not be too late to plant provided the aspect was good. I recently took up some of your space warmly commending all the species and varieties as among the most brilliant of autumn hardy flowers, especially the magnificent hybrids of gandavensis, and now return to the subject, to specially draw your attention to the above point—aspect. Now, I am not at all sure that this may not be the (to many inexplicable) cause of success or failure. I have frequently urged in your columns that without proper maturation, which means a first-rate southern aspect, there can be little hope for successful storing and successful flowering the following season. If a corm is half ripened, store it how you will, it will either shrivel or rot during the winter. If fully matured, store it how you will, it remains sound. Now, aspect has much, if not all, to do with this proper maturation, admitting that a proper system of treatment is otherwise adopted. I do not believe in what is called Gladiolus disease, and therefore I need not say I do not believe in that newest phase of it, contagion, and that haphazard expedient of burning a plant once it shows indications of failure to prevent the supposed spread of the infection. Practically, then, I would say, give the grand hybrids of gandavensis the sunniest and warmest aspect, especially that with a southern incline, that can be had and failure will be minimised. W. J. Murphy.

Clonmel.

DOUBLE DAFFODILS AND NARCISSI.

Double Daffodils. — *Flat-leaved.* — N. Pseudo-narcissus.—Seeing that the single forms of this species are so widely variable, it seems strange (as in the case with N. Tazetta also) that there are not more double varieties. Those known are—Double English Daffodil (wild in Devon and Isle of Wight), N. Telamonius plenus (common double), N. grandiplenus (two or three forms), N. cernuus plenus (two forms), N. pumilus plenus (N. lobularis fl.-pl.), N. Eystettensis (capax), figured by Parkinson and sometimes known as Queen Anne's Daffodil in gardens.

Double Narcissi.—*Flat leaved.*—N. incomparabilis.—Several forms well known in gardens under popular names—Codlins and Cream, Butter and Eggs, Eggs and Bacon, Orange Phœnix, Sulphur Phœnix, being examples. N. poeticus.—The double form of N. poeticus is rather variable. In some the coronal segments are almost entirely suppressed. It is sometimes known as the Gardenia Narcissus. N. Tazetta. — The common double Roman Narcissus of the seed shops is a form of this species, and one or two others are figured in Parkinson's "Paradisus," A.D. 1629. *Rush-leaved.*—N. Jonquilla.—The double-flowered Jonquil is commonly grown among forced spring-flowering bulbs in gardens. N. odorus.—This species has yielded us one variety with double golden flowers, well known as Queen Anne's Jonquil.

That some Daffodils have become double is an interesting fact, and it has been thought by many that even change of soil and locality seem favourable to the production of double flowers. In some parts of France, especially near Orleans, and also in Italy, near Naples, we are told, the different indigenous forms of N. Pseudo-narcissus are frequently found with double flowers. It would appear that double-flowered Daffodils are not all sports of accidental origin, as is often the case with Camellias and Azaleas, but may be raised from seed of single or of semi-double kinds, a fact well known to the quaint old gardeners of the last century, as will be seen from the following quotations from Hale's "Eden; or, a Compleat Body of Gardening"* (a valuable old folio, containing 60 coloured plates and much interesting information), published in 1757. At p. 329, Hale, curiously enough, observes: "The varieties of Narcissus raised by culture are much more numerous than the species we have from Nature." The following varieties of Narcissus are probably never met with in a double state, or, if so, very rarely, viz: Juncifolius, Bulbocodium, pachybulbos, elegans, serotinus, Broussoneti, intermedius, Macleayi, biflorus, viridiflorus, calathinus, triandrus, dubius, gracilis, and canariensis. The following frequently assume a double-flowered condition, viz., N. Pseudo-narcissus, incomparabilis, odorus, Jonquilla, Tazetta, and poeticus. Among the double forms of these may also often be found great variety, even among those of the same species.

Flat-leaved double Daffodils. — N. Pseudo-Narcissus. — Of this variable plant we have four or five showy double forms, one of the most rare and interesting of which is the true double-flowered form of our common English Daffodil. This variety was well known to Parkinson, who figured and described it (1629) as Pseudo-narcissus anglicus fl.-pl., or Gerard's double Daffodil. It has often been confounded with the common large deep yellow-flowered double Daffodil of our gardens and orchards, but it is quite distinct from all other double forms. The perianth segments are of a pale sulphur-yellow, and the duplicate segments of the fringed crown are clear yellow, as in the wild form. The common double Daffodil of gardens is a form of Haworth's N. Telamonius (which is very nearly related to N. major of Curtis), a form of N. Pseudo-narcissus, having large deep golden yellow flowers, with pale yellow perianth segments. It is a native of Spain, and the single form is much more rare in gardens than the double one; indeed, this plant and its ally, N. major, seem inclined to produce semi-double and double flowers nearly everywhere in cultivation. The common double Daffodil was known to Haworth as the pale-pointed double, and it is probably the same plant as that described by Parkinson as Mr. Wilmer's great double Daffodil. The largest of all the double-flowered Daffodils is grandiplenus, a large, thick, massive flower, with green-pointed segments among rich golden or orange-tinted coronal divisions. In warm seasons this is very showy; but when the months of March and April are cold, windy, and wet, the flowers are plethoric masses of dingy green segments, which never open properly; this is a monstrous double form of N. major, or one of the other large deep yellow Spanish varieties. N. grandiplenus, or "Tradescant his double Daffodil," is made up of several double flowers all crowded together into a dense roseate mass; that is to say, it is in reality a double "Polyanthus Daffodil." Another Spanish plant, N. Pseudo-narcissus cernuus, having creamy-white nodding or pendulous flowers, produces two double forms of great beauty. Cernuus plenus is a full, open, Rose-like flower, the perianth and coronal segments being creamy white, and the centre of the flowers have often a tinge of lemon-yellow in them. Sometimes the multiplication of parts in this and other double forms of N. Pseudo-narcissus is confined to the corona, and then the result is a very handsome flower. In some seasons, however, the corona bursts open, and then the flower assumes a Rose-like aspect. Plenus bicinctus differs from cernuus plenus in have a double row of normal perianth segments, as well as a double corona. One of the most interesting of all the double-flowered varieties of the Daffodil is that figured by Parkinson as Pseudo-narcissus gallicus minor fl.-pl., and

* Hale's "Eden" is one of the many works of the notorious Sir John Hill.

by the late Dean Herbert as Ajax Eystettensis. Those interested in the singular morphology of this rare old double Daffodil should refer to *Journal Linnean Society*, vol. xxv., p. 465. In all the forms just mentioned there is a duplication of coronal as well as perianth segments, but in this the multiplication of parts is entirely confined to the perianth segments, which overlap each other in six regular rows, just as the petals of a Lady Hume's Blush Camellia seem to do. This variety is in fact a crownless double Daffodil, no coronal divisions being produced in its formation. This is one of the rarest of all the double-flowered forms, being seldom met with in our gardens, although evidently well known in the time of Parkinson, who figures and describes it very accurately in his "Paradisus" at p 107, fig. 4, and p. 105. An irregular form of the last variety is evidently alluded to by Hale at p. 354 of his "Eden" as the double Lemon Daffodil, which he describes as "familiar in full perfection in the gardens of Holland, but, though not unknown to England, it does not often show itself in its proper lustre." And, he adds, "the segments are long, obtuse, waved at the edges, and disposed in a wild and irregular manner, not, as in many double flowers, in a number of series." This is merely an irregular form of N. Eystettensis. On plate 44 of the last-named work, Hale figures what he calls the Silver and Gold Daffodil, and at p. 517 he says, "The petals are of a very delicate, shining, silvery grey, and the cup yellow. This is the natural colouring; but sometimes the yellow runs in light variegations among the grey, and often the grey in the same manner spreads itself among the yellow; either way the colouring is extremely singular as well as pretty." And under the head of culture, at p 518 he observes, "This rises from the seeds of some of those large single Daffodils which we have observed before are the original produce of the common wild English kind," and a few lines lower down he adds, "The great art to obtain these double and variegated flowers is to sow often and largely."

N. INCOMPARABILIS (Great Peerless Daffodil) —Of this there are several forms, three of which are well marked and distinct, viz., Orange Phœnix, a kind with white perianth divisions, among which the rich orange segments of the corona are shown off to good advantage. The common double form of old cottage gardens has yellow segments, among which are scattered the divisions of the deep orange cup. This last is popularly known as Butter and Eggs, a name doubtless suggested by the colours of the flower. The third is creamy white, with yellow coronal segments in the centre of the flower, and is known as the Sulphur Phœnix, or as Codlins and Cream. All these forms are sometimes seen in a semi-double state, the cup in that case retaining its entirety, the multiplication of parts being confined within its radius. Hale gives an excellent figure of this plant, which he calls the Nonpareil Daffodil, and at page 482 he says—"We have said it is a creature of the gardener's art, and the same management which first raised must preserve and may improve it. The seeds, which ripen freely, should be sown in the manner we have directed for the other Narcissi, and the young plants treated with the same care. They will show a great deal of variety; some flowers will be larger, others smaller, some better coloured, others worse, and there will be some double, or, at least, semi-double. These must be separated (the largest and best coloured with the double and semi-double flowers) into a bed by themselves, the others planted to supply vacancies and give variety in common borders. From the seeds of the semi-double there may always be raised perfectly double flowers, and these, as well as the finest of the single, may be afterwards increased by offsets." Parkinson, at pp. 68-9 of his "Paradisus," mentions four varieties of this plant, and two of them he describes as producing geminate or fasciated flowers, but no allusion is made to perfect double-flowered varieties. One white-flowered form he describes as follows: "N. maximus griseus calice flavo, the Grey Peerless Daffodil. This Peerless Daffodil well deserveth a place among these kinds, for that it doth much resemble them, and peradventure is but a difference raised from the seed of the former, it is so like in leaf and flower, but that the leaves seem to be somewhat greater, and the six outer leaves (segments) of the flower to be of a glistering whitish grey colour, and the cup yellow as the former, but larger. This last-named plant is N. incomparabilis var. albus of our gardens, and I have quoted Parkinson's description to show that Daffodils were commonly raised from seed two centuries and a half ago. This suggests the question, where are all the innumerable forms that cultivators of these popular flowers have raised during this lapse of years?

N. TAZETTA (Italian or Roman Daffodil).—This is the most variable of all the species of Narcissus, there being at least fifty well-marked forms of it, only one of which—the double Roman—is, so far as I am aware, found in a double state. This double variety is well known and extensively cultivated in pots for early flowering. It is singular that we have only one double-flowered variety among all the numerous of this plant, and the precise kind from which this double variety sprang appears to be unknown. Mr. Barr, who, as is well known, has paid much attention to Narcissi, has a delicious fragrant white-flowered form named N. Tazetta, with a rich orange cup, and this is supposed to be the single form of the double Roman, although it looks very different, when grown in the open air, from that variety. The double kind varies from a perfectly double flower, consisting of a white perianth and deep orange coronal segments in equal proportions, to a form in which the duplication is strictly confined to the corona itself, the normal number of perianth segments being present in their usual form. A deep yellow form is figured on plate 37 of Hale's "Eden" as the double oriental Narcissus, and Parkinson gives engravings of two forms at p. 85 of his oft-quoted "Paradisus," one of which bears four or five flowered scapes of large white flowers, having a crumpled or broken yellow cup in the centre. In the other form the duplication mainly consists of the white perianth segments.

N. POETICUS (Pheasant's-eye).—Of all the double forms of Narcissus, this is the most strikingly beautiful, in purity and sweetness rivalling even the flowers of a Gardenia. The pure glistening white perianth segments are incurved, and a few crimson-edged coronal segments are interspersed among them at the base. The amount of doubleness varies in different soils, but it deserves to be extensively cultivated for the sake of its fragrant flowers, which open about the middle of May. As cut flowers they are very useful, and possess the advantage of lasting in good condition for a long time in water after being cut. Parkinson, in his "Paradisus" (p. 83), describes three double-flowered forms of this species, and at pp. 84-5 describes and figures a double-flowered form seemingly intermediate between N. Tazetta and N. poeticus. In his engraving, which represents a four-flowered scape, the Rose-like flowers are shown as large as a bronze halfpenny, and this he calls Narcissus chalcedonicus fimbriatus multiplex polyanthos, the great double purple-ringed Daffodil of Constantinople. In his description he quaintly contrasts it with the double white Daffodil of Constantinople (or double Roman) as follows: "This Daffodil differeth very little or nothing in leaf from the former; the only difference is in the flowers, which, although they be double, and bear many upon a stalk like unto them, yet this has the pieces of the yellow cup tipped with purple, as if they were shed or scattered among the white leaves; whereas the other hath only the yellow, without any show of purple tips among them; the smell of this is as strong as any other." This curious and desirable form is now, unfortunately, lost to cultivators. It was doubtless a double-flowered form of one of the hybrid or intermediate varieties of N. poeticus and N. Tazetta, which we know exists in a wild state. Dr. Heuon, who carefully studied the French Narcissi, says: 'The station of Lates, near Montpelier, is remarkable in that it offers many species mixed in the same meadow." These species are N. poeticus, N. Tazetta, and N. biflorus, all of which are connected by a series of hybrid or intermediate forms.

RUSH-LEAVED DOUBLE NARCISSI.—N. ODORUS (Fragrant Narcissus)—Of this plant there are two well-marked double-flowered forms not unfrequently met with in old-fashioned gardens. One has double Rose-shaped flowers, two or even three on a scape, of clear golden yellow colour, made up of coronal and perianth segments. This form, which is by no means scarce, may often be seen at Covent Garden and other flower markets in the shape of cut flowers. In another form, more rarely met with, the duplication is confined almost entirely to the perianth segments, as is the case with Herbert's N. Eystettensis. This singular form is figured by Parkinson in his "Paradisus;" therefore it has been long known in gardens. The double varieties of N. odorus are popularly known as Queen Anne's Jonquil, and it would be interesting to hear how and when the name originated.

N. JONQUILLA (common Jonquil).—The double form of this old plant is well figured by Parkinson, who, singularly enough, gives a very poor engraving of the single form. It bears two or three golden yellow fragrant flowers on a slender, deep glossy green scape, the individual blossoms being considerably smaller than those of N. odorus and more pleasing in form. It is a common and well-known plant in gardens, and is valuable in the shape of cut flowers. This and the single form, when forced in pots, are useful both for greenhouse and drawing-room decoration during the earlier months of the year. A plant, which I suspect is a double form of N. odorus, is figured on plate 38 of Hale's "Eden" as the double Jonquil.

The above are all the double Daffodils with which I am acquainted; but there are doubtless others, and of these some account would be acceptable. Although it is confidently stated in Hale's "Eden" that double Daffodils or Narcissi may be raised from seeds of the single or semi-double kinds, yet I believe I am right in saying that no such double forms have been raised within living memory. Of all the double Daffodils mentioned by Parkinson, only one, Parkinson's double Daffodil (? N. Telamonius fl.-pl.) has a well-authenticated origin. At page 104 (l c.) Parkinson distinctly says that it "is of mine own fostering or raising, as I said before (p. 103); for assuredly it is risen from the seed of the great Spanish single kinde, which I sowed in mine own garden, and cherished it, until it gave such a flower as is described." This variety originated, as he tells us, in 1618, but of all the other double-flowered kinds, such as Tradescant's, Wilmer's, and Gerrard's, he is himself doubtful as to their origin. Nearly all our double varieties of to-day were known to and figured by Parkinson in 1629. Again, it was at one time thought that bulbs of the common single-flowered wild Daffodil of the fields (N. Pseudo-narcissus) had a habit of producing double flowers, as it were, spontaneously when transplanted into the richer soil and more genial shelter of a garden. This power of sportiveness is, however, extremely doubtful, and I do not know of a single authenticated case in which it has happened. So far as real evidence goes we can neither affirm nor deny, so that "not proven" is the only verdict possible. Even if such transmutation really did occur now and then, the "reason why" of the occurrence would yet remain as a problem for our gardeners to solve.

F. W. B.

Aquatic plants.—To "Veronica's" set of aquatic gems, allow me to add Herpestis reflexa, which has stood quite unprotected in an open pond here through the past winter. The water has been iced over once. It has lovely feathery branches, which remind one of the tail feathers of some tropical bird, and the colour is one of the tenderest of greens. During the summer months it spreads rapidly. Whether the flowers are of any account or not I cannot say, as it has

not bloomed with me. Triantæa bogatensis I find rather difficult to keep. It has a provoking way of falling to pieces and disappearing. The pretty indigenous Hydrocharis Morsus-ranæ is sufficiently interesting and rare in many parts of England to merit a place along with these exotic treasures.—J. M., *Charmouth, Dorset.*

Hutchinsia stylosa.—Having of late more than once come across a notice of a new alpine Candytuft under the name of Iberis stylosa, it interested me much not many days since to meet with the living plant coming into flower in Mr. Paul's Hardy Plant Nursery at Broxbourne. All early blooming plants are precious, and this small but free-flowering denizen of Neapolitan rocks will probably be welcome to many, but the name of Iberis attached to it is rather misleading, though it is very possible that it may be a true Iberis. Dr. Regel, who has figured the plant in the *Gartenflora*, does not settle the question, but gives as a synonym Hutchinsia stylosa (De Candolle), under which name it is also figured in the *Botanical Magazine*, and which seems, from a gardener's point of view, to be more appropriate. It is a minute plant, rising not more than 2 inches in height, like the better-known Hutchinsia alpina, but its corymbs of rosy purple flowers are freely produced, and are, besides, very sweet-scented, with a fragrance somewhat like that of Heliotrope, suggesting the idea that grown in a mass it might prove a good bee plant in early spring. It is probably a biennial; at any rate it would be safer to treat it as such, though it may prove to be perennial, and it appears to be quite hardy even in severe winters.—K. L. D.

A lilac Hose-in-hose Primrose.—A few days ago, in a charming garden belonging to a venerable manor house in Hertfordshire, I found nestling in profusion at the foot of an ancient red brick wall a very beautiful lilac Hose-in-hose Primrose which is new to me. The grower of it, a true lover of plants, could give no further account of its origin than that a single plant of it had been found in the garden when he became tenant of the property some years ago, since which time it had been carefully increased. The colour was so bright and full, attracting attention from a considerable distance, and the plants, smothered in bloom, were apparently so free and hardy—desirable qualities not possessed by even every good Primrose—that there is little doubt as to its value. If I remember rightly, the flowers were all borne on single stems, in which case it is a true Primrose, and not a Polyanthus, Hose-in-hose varieties of which are not uncommon, though I do not happen to know of a lilac one. I am aware, however, that there is in cultivation a good yellow Hose-in-hose Primrose. The plant to which I wish to call attention is of delicate growth, with slender stems, which curve slightly under the weight of the flowers, a trait which gives it a certain individuality of character. Both in colour—a full pinkish lilac, somewhat resembling that of P. marginata—and in floriferous habit it was very good, and, being at the same time unfamiliar to me, I am inclined to think it may be an old-fashioned and interesting variety not very commonly known. Perhaps some reader of The Garden interested in the subject will be so kind as to say if there be such an one in cultivation, and if so where it may be obtained.—K. L. Davidson.

Italian Narcissi.—We send you flowers and sketches of some forms of Narcissus incomparabilis which we have been growing for several years and which seem to differ materially from those hitherto cultivated in England and Holland. The following are the names and descriptions of half a dozen of them: 1. Narcissus incomparabilis præcox.—Perianth segments large and fine, sulphur-yellow; cup very open, orange edged; it blooms twelve days earlier than species imported from France and Holland. 2. N. incomparabilis siculus.—Perianth segments yellowish white, standing close together, almost one over the other; cup sulphur-yellow with curled, deep orange coloured edge; this flowers equally early. 3. N. incomparabilis formosus.—Flowers large and well shaped; perianth segments almost golden yellow; cup regularly double, orange-yellow, with few light yellow petals; it blooms early and is useful for forcing. 4. N. incomparabilis Stella fl.-pl.—Flowers small and regular; perianth segments yellowish white; cup golden yellow with white petals, densely double. 5. N. incomparabilis sulphureus fl.-pl.—Flowers large and very double, regular, unicoloured; an early and free flowerer. 6. N. incomparabilis candidus fl.-pl.—A very fine double-flowered sort, almost white, with visible remainder of the bright orange coloured cup: it flowers early and is very regularly formed. Nos. 1, 2, and 5 we have found in the south of Italy in a wild state and have taken them into cultivation; the others have been grown from seed in our establishment.—Dammann & Co., *Portici, Naples.*

*** Of these No. 3 appears to be the most distinct.—Ed.

RECENT PLANT PORTRAITS.

Torenia Fournieri (*Botanical Magazine*, plate 6747).—An ornamental stove annual, a native of Cochin China, introduced by M. Linden, of Ghent, and now well known in our gardens.

Oxalis articulata (*Botanical Magazine*, plate 6748).—A very pretty South American Sorrel with bunches of from six to eight circular flowers of a soft lilac shade of colour. It is one of the group distinguished by their stout perennial woody root-stocks. It requires the protection of a cool greenhouse, is sweet scented, and flowers in July.

Coffea travancorensis (*Botanical Magazine*, plate 6749).—A small Indian species of Coffea which is also found in Ceylon. It has pretty pure white tubular flowers resembling those of one of the Jessamine family. The flowers are usually produced in threes at the ends of the young shoots. The seeds are probably too small to be used as coffee, but as the flowers are sweet scented, and are apparently freely produced, it seems quite worth growing as an ornamental shrub. It is also known under the name of C. trifoia.

Acanthomintha ilicifolia (*Botanical Magazine*, plate 6750).—A singular little plant with much the habit of a small Lamium, producing whorls of pretty rosy lilac flowers with a faintly aromatic smell, and somewhat resembling those of Collinsia bicolor. It is a native of Lower California, and flowered in the open border at Kew in July of last year, having been raised from seeds sent from San Diego by Mr. Wright.

Labichea lanceolata (*Botanical Magazine*, plate 6751).—A beautiful and apparently free blooming greenhouse shrub, a native of South-western Australia. The flowers are of a clear golden yellow colour with two minute red spots on the base of the upper petal close to the centre of the flower; hence its synonym of bipunctata. They are three-quarters of an inch in diameter, and are borne in shortly peduncled axillary racemes of from 2 inches to 4 inches long. Though still a scarce and but little known plant, it is by no means new, having been introduced by Messrs. Low, of Clapton, so far back as the year 1840. It is apparently well worth growing.

Leiophyllum buxifolium (*Botanical Magazine*, plate 6752).—An exceedingly pretty little shrub closely allied to Ledum, and known in the United States as the Sand Myrtle. It seems to cover itself with bunches of small flowers, which are white with pink tips and backs to the petals. The subject of this plate is burdened with a complicated synonym, having been described by various botanists under the names of Leiophyllum thymifolium, L. serpyllifolium, and L. prostratum, Ledum buxifolium and thymifolium, Dendrobium buxifolium, Fischera buxifolia, Ammyrine buxifolia, A. prostrata, and A. Lyoni.

Daphne genkwa (*Revue de l'Horticulture Belge* for April).—An exceedingly pretty little shrub indigenous to North China and much grown in Japanese gardens. It covers itself in spring with sweet-scented, rosy lilac flowers if this portrait is to be deemed true to Nature, but in the figure of the same plant on plate 75 of Siebold's "Flora Japonica" the flowers appear to be of a dull lilac shade, totally devoid of the rosy tint. It is also said to be identical with D. Fortunei of Lindley, but does not at all coincide with the portrait of that variety as figured by Van Houtte on plate 208 of third volume of his *Flore de Serres*. The flowers as drawn on the plate now under notice resemble almost more those of a Syringa or Lilac than a Daphne.

Prunus sinensis (*Revue Horticole* for April 1).—A pretty free blooming variety, producing freely small bunches of medium-sized pure flowers with rosy centres, followed by good sized round fruit resembling small cherries in shape, but of a deep vinous shade of red, which ripen in autumn and are said to be edible. W. E. G.

GARDEN FLORA.

PLATE 435.

THREE NEW CHRYSANTHEMUMS.*

The popularity of the Chrysanthemum is now fully assured, and to the stereotyped forms sanctioned by the older growers we have now added the charm of much variety in form and colour; what is more, tasteful people now-a-days admire the grace and freedom of naturally grown plants rather than of the tortured balloons, cones, and the flattened, pancake-like "specimens" formerly considered perfection. The Chrysanthemum of to-day is most beautiful, and the modern Japanese and the new single or Daisy-like flowers introduced by Mr. Teesdale are likely to become as popular in their way as are single Pyrethrums and single Dahlias. The market grower of to-day is like that "king who knew not Joseph," and it is to the most intelligent of these cultivators that the great and increasing popularity of the Chrysanthemum as a cut flower is to be attributed. Our illustration shows three new and desirable kinds raised by different growers. The large rosy buff Japanese variety with strap-shaped florets is named William Robinson, and is likely to prove a useful addition to its graceful class. Single White speaks for itself, its snowy petals grouped around a golden centre of disk florets producing a good effect. George Stevens is quite a gem in its own way, neat in form, and, what is still better, distinct and vivid in colouring. Its bright florets are incurved, and the crimson-maroon colouring of the faces of the florets contrasts boldly with the bright amber gold of the under surfaces. When well grown it is larger than here represented, and, as we are informed by those who know it promises to become a really distinct and effective front-row flower, which, being interpreted, meaneth that, like other beauties, it is to be honoured by a box at the flower shows. A friend of mine, a grower of Chrysanthemums, who has done much to popularise the culture of hardy florists' flowers, feels, I am told, very much aggrieved at something I wrote in these pages about the old cricket-ball style of beauty even now so much affected by some growers of this flower. I did not wish to hurt anyone's feelings, but I wish to preach a wider doctrine than that of the old globe-and-circle theory as applied to Chrysanthemum beauty. We must to-day please everyone; all tastes must be consulted. We give to the technical florist his globes and circles as pourtrayed by his appellee, the celebrated Mr. Andrews, but we must ask that such graceful bits of fringe and tassel as some Japan varieties yield us be grown for ladies to wear, and for our Duffields and Moons, and Miles or Parsons to paint

* The single white was raised by Mr. Salter and drawn in Messrs. Veitch's nursery; the Japanese variety was raised by Mr. May, Northaw House, Barnet; and the incurved variety by Mr. G. Stevens, Putney.

for us. In floral beauty, as in the landscape gardener's art, there is a higher power than the rule and line.

Now that we have among half a hundred others a real National Chrysanthemum Society, we hope that all tastes may be consulted; all the types of the Chrysanthemums, single as well as double, be fostered and encouraged. The schedule must be a wide one, and the amateur, the florist proper, and the ordinary trade or market gardener must each and all be encouraged to do their best. Only in a broad and liberal spirit of this kind can we ever have a really good national exhibition of our popular favourite. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

Sowing and pricking out annuals.—The common varieties of annuals may now be sown in the open borders. Sweet Peas, Mignonette, Virginian Stocks, Bartonia aurea, Candytufts, Clarkias, Larkspurs, Eschscholtzias, Lupines, Nemophilas, Scabious, Silenes, and Sweet Sultans are amongst those that we usually sow in small patches amongst Roses or on vacant spots in mixed borders, where most of the varieties not only do good service in filling up blanks, but are also invaluable for cutting. Though we sow annuals amongst Roses, it is only because, from want of space, we have no choice in the matter, as we would much prefer the ground being kept for the Roses alone, and any who are compelled to follow our practice in this respect would do well to sow the annuals at long distances apart, and as far removed from the Roses as under the circumstances is possible. It is also now time that ornamental Grasses were sown. These we find quite indispensable for winter decoration, and hitherto have had the best success with them when sown where they are to grow, much in the same way as the flowers just named. A still better plan, however, is to sow them altogether in some sheltered border, arranged, as to distance of drills, according to the height to which each variety attains. The drills being drawn, as here indicated, fine soil should be sprinkled in them, and the seeds should be covered with the same material; if dry, they should be well watered. The soil drawn out of the drills should be left to serve as a protection to the young seedlings, and by-and-by, as soon as they have been thinned out, it should be levelled down with the hand, to serve as a mulching to the roots. Asters, Stocks, Zinnias, and Phlox Drummondi should be pricked off as soon as they can be handled, as, except for the germination of the seeds, glass cannot be spared here for these classes of plants. We have recourse to turf pits and coverings of hurdles or mats, and under such conditions they invariably do well. They are pricked out in light vegetable soil, half tight loam, and half leaf soil. About 4 inches in thickness we find ample, and as this rests on a hard bottom, the plants lift with such an abundance of earth, that they scarcely feel the check occasioned by removal.

KITCHEN GARDEN.

We are just now planting Cauliflowers out of pots. In the case of these, cold winds are worse than frost; but it is surprising how soon a large breadth may be sheltered if we only set about it in the right way. We use prunings of Laurels, placing a single piece to each plant—a plan which appears to suit them admirably. Our spring plants sown in February are now ready for pricking out in cold frames. Outside Mushroom beds should now be bearing good crops. Winds soon dry their surface, in which case they should be watered with lukewarm water through a fine rose. It is important to allow 1 inch or 2 inches in depth of straw to be on the bed while it is being watered, as in that case the water soaks into the bed instead of running away. Late Celery may now be sown outside, also Brussels Sprouts, Savoys, and curled Greens, and, above all, do not forget plenty of Parsley. All kinds of Broccoli—except Veitch's Autumn—should be sown later on. Our first early Potatoes are planted close under south walls. The soil is slightly broken, the Potatoes planted shallow, and a covering consisting of burnt refuse and sand 3 inches in thickness is placed upon the sets. The variety planted is the true Myatt's—undoubtedly the best of all early Potatoes. Earth up and water sparingly Potatoes in pits and frames. Asparagus may be planted directly it begins to shoot. We shall draw wide drills 3 feet apart, lay the plants in flat at the bottom, and cover them 2 inches deep with sand and burnt refuse. As regards Seakale, we are now cutting excellent heads from young plants planted last season, over the crowns of which we put a couple of forkfuls of half-rotten leaves. Just now is a capital time to form new beds. Seedling plants are better than cuttings. Vegetable Marrows and Gherkin Cucumber beds may now be formed by taking out a trench 3 feet wide and 12 inches deep. Any old material from Seakale or Rhubarb beds now done with may be advantageously used with a little fresh material from the stables. Mix up all together, and earth up from the sides; place hand-lights on the top, and sow the seeds at once.

FRUIT.

Cherries.—While it is difficult to imagine a more lovely sight than a house of Cherry trees in full bloom, it is impossible to name a crop which can be brought to maturity at so little cost in everything, with the exception of patience, and of this the successful cultivator, be he professional or amateur, must have a good stock, as the temperature of the house under artificial treatment should not exceed 40° at night and 10° to 15° higher by day, and even then a stagnant atmosphere should be avoided by having the ventilators a little open. It sometimes happens, as has been the case this season, that the temperature of the open air is many degrees above these figures, when a constant circulation of air gives the trees all the advantages, minus the risk attendant upon culture on open walls. These favourable conditions have brought about a bold blossom, a good set, and rapid growth, so far free from insects, but the everlasting grub which never fails is sure to put in an appearance which cannot be mistaken, and the first curled leaf must be the signal for daily examination and handpicking. When the fruit begins to swell the inside borders may be nicely mulched and well supplied with water at a temperature of 70°, and the trees will require good syringing twice a day, always with the ventilators closed, as it is the warm, genial atmosphere, resembling that of a fine April day, which helps the fruit along. After the first syringing give air at 50°, gradually increase it to 60° under moisture, with a circulation of air, and ventilate to the full extent when sun-heat raises the house above these figures. Reduce in a similar way, syringe and keep close for a time, and reopen the ventilators for the night.

Orchard house.—Since our last notes appeared the trees in this department have made great progress, and the fruit on many of the most forward Peaches and Nectarines is now set. Later kinds, also Plums and Cherries still in flower, will require abundant ventilation when the external temperature is not below 40°, and to prevent disappointment a few minutes devoted to daily fertilisation with a bunch of soft feathers will be necessary. Continue the usual treatment with regard to watering, as dryness at the roots will be fatal, and, while avoiding the wetting of the flowers, damp the floors and other available surfaces, also the stems of the trees, once or twice on fine days, and keep the house dry and cool in damp, dull weather. When the fruit on all the trees is set, let the daily syringing be resumed; aim at a night temperature of 50°, run up to 10° by day, and shut up before the sun is off the house where hot-water pipes have not been introduced. Commence disbudding and shortening back where this has been deferred and plenty of fruit has set near the base of the shoots; also thin the fruit where set in triples or clusters, leaving, as a matter of course, an abundance of the finest on the upper sides of the shoots for future selection. Although the house may have been well fumigated before the trees came into flower, green fly is sure to be present, particularly amongst the Plums, and as these are the first to suffer, another smoking will save much disappointment. As trees in pots now commencing to swell off a crop of fruit cannot be overfed, lose no time in getting them top-dressed with some rich compost consisting of strong loam, good rotten manure, previously dusted with soot to destroy worms, and twelve per cent. of bone dust. Mix well together in a shed, apply it when tolerably dry, and if any is left over it will improve with keeping. Examine trees which have been planted in the borders, top-dress with half-rotted manure, and give plenty of water at the mean temperature of the house.

Vines.—Assuming that former directions have been followed, the Vines in the latest houses will now be ready for disbudding. If they have been suspended in a horizontal position get them tied up to the wires before the young growths are too far advanced, syringe regularly until the bunches become prominent, and close with sun-heat at 75°. Attend to disbudding and tying down in succession houses, and remove all superfluous bunches from free setting kinds as soon as the most compact and best placed can be selected for the crop; fertilise when ready with Hamburgh pollen, and thin out the berries when the size of No. 6 shot. When all the bunches have been thinned allow the laterals to extend over vacant parts of the trellis before they are again pinched, give the inside borders a good supply of warm diluted liquid and add more fresh, but well-worked, manure where the surface is not well covered. Keep up a circulation of warm air in houses where Grapes are in flower, and fertilise when the heat has reached the maximum on fine days. Maintain a minimum of 65° for Hamburghs, and allow 5° more for Muscats when the weather is mild and air can be admitted with the aid of moderate firing, but on no account abide by these figures when external conditions are unfavourable. Although we do not approve of syringing Vines when in flower, some Grape growers do, and attribute their success to the application of water, which is doubtful, as Grapes that will set with the syringe would, in all probability, set just as well, if not better, without it, provided the roots are in a warm, well-drained border, and sufficient atmospheric moisture to support the delicate organs is produced by damping the stems and floors on bright days. When the fermenting material has been removed from the inside of the early house, and the berries begin to show signs of colouring, pass the scissors over them for the last time and remove any stoneless berries where they can be spared, as their presence always detracts from the appearance of an otherwise perfect bunch. Give the borders the final watering with water at a temperature of 80°, and if necessary add a little more short stable manure to keep in moisture and throw off ammonia when the house is closed for a short time every afternoon. Maintain a constant circulation of warm air with moderate moisture where pot Vines are ripening up their fruit, and while reducing the supply of stimulating liquid to the roots see that they do not receive a check by going to the extreme of dryness, and add more covering to the surface roots to prevent the escape of moisture. Get Vines which have been cut back and shaken out shifted into their fruiting pots as they become ready, plunge in a sweet bottom-heat and shade slightly for a few days. Train the young canes near the glass and insure short-jointed growth by giving plenty of light and air. Where spring planting is contemplated, April is the best month in which to turn out growing Vines. These should always be planted in internal borders, and the compost should be made warm by the absorption of sun-heat before it is placed about the tender roots. Settle the soil as soon as they are planted

by giving a little water at a temperature of 80°, shade slightly for two or three days, and then treat as has just been advised for pot Vines.

Melons.—When the roots of the earliest Melons begin to work round the insides of the pots, and a bottom heat of 85° is maintained, other conditions being favourable, a quick and vigorous growth will soon show whether the first laterals are capable of carrying a crop of fruit. Victory of Bath, the best we have met with for early work, throws out an abundance of side shoots laden with female blossoms by the time the leaders have covered two-thirds of the trellis, and earliness being the first consideration, these should be pinched in order to throw vigour into the side shoots. When the female blossoms begin to open keep the atmosphere dry, and give air on all favourable occasions as a means of keeping the foliage stout and firm, and at the same time assisting the setting of the fruit. Having secured a sufficient number of Melons on each plant by artificial fertilisation, stop at the second joint, mulch with stiff loam and manure, and gradually increase the supply of stimulating food and atmospheric moisture. Keep the foliage clean by good syringing on fine afternoons, but avoid wetting it on bright mornings. Aim at a night temperature of 70°, give a little air at 76°, run up to 80° or 85° under sun-heat, and a few degrees higher after closing. Keep a stock of healthy young plants by sowing once a fortnight, and throw away previous sowings before the confined state of the roots produces spider.

Cucumbers.—Old plants that have been in bearing throughout the winter will require very liberal feeding and copious syringing to keep them in a healthy and productive state. New compost, consisting of moderately strong loam and lime rubble, with a covering of short Mushroom manure, will also help them. Fill the evaporating pans with liquid manure, syringe the surface of the bed with the same, crop lightly, and give the young growths plenty of room. If a compartment can be spared, clear out to the bottom, thoroughly cleanse every part of the structure, and make a new start with spring-sown plants. The varieties of Cucumbers are now very numerous, and the lover of novelties may grow as many kinds as he has room for plants; but for general all-round purposes a good strain of Telegraph is not easily surpassed. Young plants now growing freely should be pinched to secure as many vines as may be required. Avoid rich feeding until they begin to bear; run the blinds down at night to economise fire-heat, and, if possible, dispense with shading. Keep up the linings round frames, earth the plants with good dry loam previously warmed, make it very firm, peg out the growths, and run up to 90° with sun heat and moisture after closing; cover well with mats, and give a little night air. Make a sowing of some hardy kind for planting in frames after forced vegetables.

Pines.—The past winter having been against early Queens, the fruit in many places will be later than usual, at least through the early stages, but when fairly out of flower, the swelling of the first batch may be considerably accelerated by closing early under bright sunshine, with a corresponding supply of moisure, and stimulating the roots with alternate supplies of clear diluted liquid and weak guano water. Aim at a temperature of 70° at night, 80° by day, and 5° to 10° more after shutting up on fine afternoons. Keep the plants in a moderately moist growing state at the root and prevent the plunging material immediately over the hot-water pipes from becoming dry by watering between the pots with tepid water at a temperature equal to that of the house. Many of the plants from which a successional supply of fruit, consisting of Queens, Cayennes, and Rothschilds, will be obtained will now be making growth before they throw up. Give them a good bottom heat of 85° to 90°; water sparingly until they show, but keep the atmosphere of the house well supplied with moisture and dew them over after closing for the day. If any of the young stock remain unpotted, lose no time in getting it finished, using good loam, which must be firmly rammed when in a dry state. In some soils Pines do not root so freely as in others, and where this is the case, small pots answer better than large ones, as the swelling of the fruit is mainly dependent upon the stem roots, and a small quantity of soil made solid is more lasting and less liable to become sour than when used in larger quantities. If not already done, remove the remains of winter fruiters to a pit by themselves, or where they can have a dry, warm atmosphere when ripening. If wanted to keep for a long time, the plants may be removed to a dry, warm room. Propagate shy kinds by trimming off the leaves and laying the old stools in shallow boxes of leaf-mould plunged in a bottom heat of 90°. Keep plants in every stage of growth near the glass; give them plenty of room in the bed: if possible, dispense with shading, and secure stout growth by airing early on fine days.

Hardy fruit.—The blossom buds on Peaches and Apricots are very forward this season. Therefore get all temporary copings, poles, and protecting material fixed upon the walls to be ready in case of frost. If thick and opaque, some ready method of removing it by day must be provised; but a covering consisting of several folds of pilchard netting may remain undisturbed until the fruit is set. If recent winds have disturbed any of the newly planted trees, see that the supports are readjusted, and ram the compost firmly when moderately dry. Get cut-back stocks grafted, remove old foliage from established Strawberries, thin the crowns if necessary, and give the beds a liberal dusting with soot prior to mulching with stable manure; the latter should be placed between the rows before the tender young leaves begin to push much from the crowns. Where the formation of the new beds is anticipated the ground should be deeply trenched, heavily manured, and made very firm before planting. If strong runners of last season have been preserved in nursery beds defer planting until they are on the point of starting into growth, and if new heavy loam is at command give each young plant a good spadeful to start with. Tread very firm, mulch with short manure, and water in dry weather. Where strong plants were put out last August for giving the annual supply of runners for forcing, they should be well watered and mulched to encourage early growth, and all flowers should be removed before they open. Some growers obtain their first runners from early forced plants, but we have never succeeded in getting them so early or so strong as from maiden plants, which should be placed near the margin of walks and in proximity to a good supply of water.

Kitchen Garden.

Jensenian System of Potato Culture.

I tried Jensen's system of earthing up Potatoes with the view of testing its efficacy in preventing damage to the tubers when the disease appears on the foliage.

The following is the principle upon which the success of this system depends: If the disease appears in the first instance upon the foliage and stems of the Potato plant, and if the tubers are liable to attack through the spores of the fungus being washed off the foliage and carried through the earth to the tubers, any system which will prevent these spores from reaching the tubers should ensure immunity from the disease. Mr. Jensen, with other scientists, supports the theory of the spores being carried from the foliage to the tuber by means of action ontside the ordinary circulatory system of the plant, and, as evidence, points to observations which he has made, that the tubers nearest the surface of the ground are always the most affected by disease; and the results of carefully conducted experiments show that his system has considerable elements of success. The success of the system depends on the operator taking the matter promptly in hand on the first appearance of the disease. The Potato haulm must be turned on one side, so that the leaves which were growing naturally above the drill shall now be immediately over the space between two drills. Earth is taken from the next space between the drills and put upon the turned down Potato haulm, so that the system may be called the high moulding system, and when the field is completed the Potatoes appear to have grown from the side rather than the top of the drill. This moulding is to be repeated at intervals during the remainder of the growth of the crop. In order to save risk from the spores of disease being brought into contact with the Potatoes as they are dug, it is recommended to defer the raising of the crop to a late period. Opponents of the system say it is quite impossible for the spores of the Peronospora to injure the Potato tuber, as they could not penetrate its skin, and that, even if this were possible, no amount of high moulding will so filter water, laden with these spores, as to prevent their reaching the tubers. I will not enter upon the scientific controversial part of the matter, but I may say that those who have taken part in the discussion appear to overlook the fact that the point most strongly urged by Mr. Jensen is that the high moulding and turning aside of the foliage causes the Peronospora spores to be discharged into the little valleys between the drills where there is small chance of their reaching the tubers. My experience is favourable to the system as far as regards the freedom from disease of the tubers grown on the Jensenian method is concerned. The gross yield is, however, greater where the Potatoes were not high moulded; this is what might have been expected, as the interfering with the plants during the period when their tubers should be growing most vigorously must retard their growth. At the same time it may be observed that the produce of marketable, *i.e.*, large tubers, was very nearly equal in both cases, and that the increased gross yield of the Potatoes not high moulded was owing to a large yield of small tubers. The amount of diseased tubers grown on the ordinary system was about 1·40 per cent. of the crop. On the high moulded Potatoes there was no disease apparent. T. Carroll.

Albert Institution, Glasnevin.

Tomatoes in Pits and Frames.

Fewer Tomatoes are grown in the open than at one time, and that, too, in spite of the great increase in their consumption; at least this is my belief as far as private gardens are concerned. This doubtless is due to the uncertainty of the crop, owing to the marked liability of the Tomato to be much damaged or totally destroyed by the Potato fungus. The falling off in outdoor culture is, strange as it may appear, indirectly due to the general demand for Tomatoes. A few years ago if the outdoor and only crops were a success so much the better, and so much more sauce was made, few thinking of otherwise utilising the fruit, but now employers insist upon having a long and continuous supply in common with Cucumbers and Melons, and, as a consequence, the Tomato receives equally as much attention and house room. All, however, are not able to devote much space to their culture in the forcing houses, beyond perhaps for a few in pots, and the cooler houses are usually required for other purposes. Failing house room, the next best place is to grow and fruit a number of plants in pits or frames, by which means and very little trouble heavy crops may be obtained. I prefer pits with a single hot-water pipe round, and which are oftentimes devoted first or during the winter to Bouvardias, then to kidney Beans during the spring months, and subsequently to Melons or Cucumbers. If such a pit is available it may well be devoted to Tomatoes, and, failing this, a cold pit or ordinary Potato frame will do nearly as well, as it is protection from rain rather than heat that is indispensable during the summer and autumn. Supposing these pits and frames, in addition to perfecting the crops of Potatoes, are also required for the preparation of summer bedding plants, the best plan will be to have a number of strong Tomato plants, with perhaps a cluster of fruit

already set, ready to plant, say, by the end of May.

Raising the plants and preparing the beds.—More often than not Tomato seed is sown too soon, the plants becoming drawn and weakly in the seed pans, or if properly potted off subsequently becoming badly root-bound and otherwise spoilt owing to the fruiting quarters not being ready for their reception. Strong, healthy plants can, with the assistance of a little heat, be grown in about five weeks, and the seed therefore should be sown about that time before they are wanted. Sow the seed thinly, place it in a heated frame or house, keep the seedlings near the glass, and when fairly strong and in rough leaf, pot off firmly and deeply either singly in 5-inch pots or in pairs in 6-inch pots. Any good soil will suit them, but this should be slightly warmed before the delicate seedlings are placed in it. Keep them in heat, shade from bright sunshine, keep them near the glass or otherwise they become "leggy," and give air freely when they are being hardened off for cold frames and pits. If the plants are a little too forward, in order to maintain good health water regularly with weak liquid manure. A bed previously devoted to early Potatoes just suits Tomatoes and needs no preparation beyond the addition of a little manure to the soil. If a bed has to be made specially for them, a quantity of old heating material may be used, adding to this sufficient fresh to cause the whole to become just warm enough to give the Tomatoes a good start. Better, however, a small bed of half decayed manure than a heap of material that has heated itself dry, as in the latter case the small amount of loamy soil on the surface of the bed is all the plants would have to support them. The depth of manure in the pits must be regulated according to the depth of the walls, but any amount from 1 foot to 3 feet will be ample, as the frames can be raised. The beds may be made of any height, so long as the heap does not become very hot. Over the manure place a layer about 1 foot in depth of rich loamy soil, and if the loam is rough and fibrous so much the better. Keep the lights of the frames or pits on closely, and when the sunshine or bottom heat has warmed the soil, plant at once.

Methods of training.—I have tried different methods of training and fruiting the plants in both pits and frames, and have had every reason to be satisfied with my success in each instance. In pits and deep frames a considerable number of plants may be fruited, these being grown with single stems and staked in a sloping direction; while in shallow frames a few plants may be trained and fruited somewhat similarly to Cucumbers or Melons. I prefer, however, in all cases where there is a depth of 2 feet or more at the back to adopt a combination of the two plans, that is to say to cover the back wall or boards as the case may be with a number of obliquely trained plants, and the beds with a few spreading or trailing plants. I found where numbers were in a pit or frame, say about 15 inches apart and necessarily staked in a slanting direction, they are apt to unduly shade each other, but if the back walls or boards are covered with plants these yield surprisingly without interfering with or being injuriously affected by those spreading on the ground. In frame culture, as I shall endeavour to prove, it is imperative that the cultivator be able to put on the lights at certain times, and for this reason the plants cannot well be too dwarf. Now there are few or no really dwarf sorts to be had generally with the exception of Vilmorin's Dwarf, but the plants may easily be dwarfed by burying the stems, and as these quickly emit roots, the plants are also strengthened by the process. I do not recommend burying the balls deeply; the object is best attained by trimming off the lower leaves of the plants, and then after some of the soil has been thrown out, lay them in different directions, so as to place all the heads where required, the soil being then returned. This will be found a better plan than either layering or striking the tops in order to secure dwarf plants, and laying them all in before covering the balls and stems is the only way to properly plant. The balls should be moist when planted, and are best slightly sunk and marked with pegs, so that they can subsequently be kept watered till such time as the roots are spread in all directions. The frames should be kept rather close till the plants have recommenced growth, when air should be given freely, throwing off the lights during hot weather. Close early in the afternoons till such times as the fruits are commencing to ripen, when a little may be left on during warm dry nights. A stout stake should be placed to each plant, the latter having all side shoots kept rubbed out and be stopped beyond either the second or third large cluster of fruit, or according to the head room. If what I term the combination system is adopted, those plants to be nailed or otherwise trained to the back of the frames should be laid down or dwarfed; while about two plants in the centre of each light should also be planted in a sloping direction, pegged down and encouraged to spread, the form to have all side shoots removed from the one or more main stems that may be laid in, and the latter must be freely thinned out where at all crowded, the laterals being depended upon for fruiting, and are best raised from the soil with short stakes, or the clusters of fruit may be laid on pieces of slates or roofing tiles. Wherever the stems are pegged down they will strike root, to the obvious benefit of the crops. Give plenty of moisture at the roots, liquid manure frequently when the crops are swelling off, and early in the summer mulch the beds with a good thickness of partially decayed manure.

Disease and its prevention.—It is when the foliage is wet, and especially during dull, showery weather, that the fungus affects a lodgment on it, and this happens whether the plants be dry at the roots or not. Consequently, to withhold water from the roots, or to increase the bottom heat as a preventive of disease, is a mistake, the former only serving to weaken the plant. Keep the foliage dry with the aid of the lights, never syringe overhead, especially seeing that this is wasted on hairy-leaved plants, besides being a source of danger, and do not leave air on when the nights are what are termed muggy—that is to say, warm and moist. It is this kind of weather that most favours the spread of the Potato fungus, and during its prevalence those growing Tomatoes in frames have the advantage over open-air cultivators, as they can and ought to keep their frames comparatively dry and close. Where the pits are heated, a little heat should be turned on during cold or wet weather, and again when it is desirable to hasten the ripening of the late fruit. The late fruit in cold pits and frames will generally ripen if cut in bunches and hung up either in a forcing or warm house or in the kitchen of a dwelling house. There are no disease-resisting varieties, nor anything approaching to it. What we have to consider is which are the best croppers and the best in quality. Taken all round, there is no variety generally procurable to equal the old Orangefield, and I am afraid the stock of this, in many vendors' hands, is much deteriorated. A dwarf free-fruiting sort which I received under the name of Vilmorin's Early Dwarf is the best cropper and most dwarf variety I have yet grown, but whether the Messrs. Vilmorin continue to distribute it I am unable to state. Earley's Defiance, a good form of the old Large Red, is a very heavy cropping free-setting sort, and of fairly good quality. All the three named are corrugated or ribbed sorts; while of the more handsome, though oftentimes inferior in quality, round or smooth-fruited sorts, Dedham Favourite proves to be superior to the still popular Hathaway's Excelsior, and Trentham Fillbasket also gives every satisfaction. Trophy crops heavily if plenty of air is given when in bloom to insure a good set, and some of the fruit are fine and handsome, others being large and ugly. It is late in ripening, and other extra large sorts for the same reason are not to be recommended for frame culture.

Marston. W. Iggulden.

Best Broad Beans.—Like Peas, Broad Beans are divided into two sections—early and late. Connoisseurs do not eat early and small Peas after the Marrowfats come in; nor would they patronise early Mazagan or Long-pod Broad Beans when the Broad Windsors can be had for use, as the latter stand in the same relation to the early kinds that Marrow Peas do to early Peas. For cottagers, probably the prolific Long-pods are the best to grow, because they are good bearers and early; but, considering the greater size of the Broad Windsor kinds, and the quantity of pods which they produce, not to speak of their much superior flavour, it may be doubted if they are less productive. The Windsors are more tender than the early kinds, and need not be sown so soon; but a main sowing of them should be got in now and a later one next month.—J. S.

HARICOT BEANS, AND HOW THEY ARE GROWN IN FRANCE.

As is well known, Haricot Beans are largely grown in France; whereas in this country they are but little cultivated. I think, however, that the time is approaching when the merits of this vegetable will be more generally recognised. As a fact, Haricot Beans are scarcely known to our working classes, and of all the vegetables now in cultivation this is the one which should be most largely used by them, as, according to competent authorities, it contains, with the exception of Lentils, more muscle-giving properties than any other known kind of vegetable; indeed, it is so rich in this respect, that its free use enables the labourer in many parts of Europe to almost dispense with meat whilst undergoing severe and protracted manual toil. A somewhat lengthened residence amongst the working classes of Normandy taught me the value of the Haricot, as well as gave me a liking for it, for there it forms one of the main ingredients of the *pot au feu*, which is simply bread and vegetables with but a flavouring of meat, and rendered highly digestible by several hours' simmering. A man who may be working hard in a quarry or at similar hard toil thirteen hours per day finds this all-sufficient to keep up his strength; and as what will nourish a Frenchman will be of equal service to an Englishman, it really does seem a pity that this esculent should not be popular amongst those classes whom it would best benefit. Were Haricots largely used in this country, their culture would open up a source of revenue to cultivators in districts favourable to their perfect growth, and land now lying waste, or which scarcely pays expenses, might thus be turned to profitable account. I believe I am right in stating that the greater portion, in fact, nearly all, the Haricot Beans used in this country are imported, and it certainly is not right to pay the foreigner for what we can ourselves produce. Perhaps with the growth of vegetarianism a greater liking for Haricots will be developed, and we may one day see them occupying the place among esculents to which they are entitled. It does not seem to be generally known that Haricot Beans are as easily grown as other vegetables, and I have thought that the following details from the pen of an experienced grower in the *Bulletin d'Arboriculture Belge* may prove interesting:—

"Varieties and uses.—There are two distinct classes of Haricots, viz., Haricots grimpants or Haricots à rames (climbing Haricots, or Haricots demanding stakes) and dwarf or "bushy" Haricots. In each of these classes are found varieties of which the pods are eatable and tender until they are nearly ripe; they are called mange touts (all eatable) and sans parchemin (without any interior skin to the pods); others preserve this quality only so long as the pods are young, and are lined later on with a parchmenty membrane, and are therefore called H. à écosser (Haricots for shelling), or à parchemin (having a skin to the pods). The produce of these Beans has varied uses; sometimes the pods are eaten fresh, or are preserved; sometimes they are eaten quite young, and at others the seeds are eaten when green or in a dry condition. The following are representative varieties of the different classes. Climbing kinds

—H. sabre à longue cosse (scimetar-shaped long-podded), Princesse and its sub-varieties, Prédome, having small fine thickly seeded pods, and Princesse sans fil; also Beurré and H. d'Espagne. Amongst dwarf kinds we recommend Prédome mange tout, Sabre early for shredding, Flageole de Hollande and its sub-varieties for the ripe, and for the young seeds Noir de Belgique (black Belgian), and Jaune longue hatif (long early yellow) to eat entire in a young state. These, as well as the Haricot Flageolet, may be shredded. The Soissons blanc, Comtesse de Chambord, and Jaune de Chine are useful for their ripe seeds.

"Climbing varieties.—Towards the end of the month of April a first sowing of the Princesse and Sabre is made. A second sowing is made about the 15th of May, at which time the earth is sufficiently warm and dry, that germination easily takes place, and the young plants can develop without check. In the first days of June another sowing of the Princesse or its sub-variety Prédome is made, and these are accorded tall stakes. The first sowing is made before placing the stakes, the last one afterwards. However, it is more simple, and more frequently practised, to first set the sticks, having previously well worked the soil, and when this is of a heavy nature it is as well to mix with it something of a lighter character. It is well to make the first sowing on a slight ridge and to cover the seeds but lightly, and there is never any need to trouble about the soil becoming very dry at the period of germination and during the first stages of growth. As soon as the plants have formed two leaves the soil is well stirred around them, and they are slightly moulded up, and where the shoots have not attached themselves to the sticks they are tied to them. Haricots, especially the climbing kinds, succeed in a general way best in a warm and sheltered situation. A rather light dry soil of a loamy nature is better adapted to them than rich retentive soils, the more especially that in these latter the crop is later in coming to perfection. Haricots do not care for fresh manure, although they require a well-stirred and fertile soil, especially rich in mineral matters. Instead of making use of stakes the shoots may be trained to strings stretched obliquely. The experience of several years tends to prove that Haricots thus trained do better than on stakes. Besides, the cost is less, and when thus trained they have a more ornamental appearance. In gathering these Beans a few of the most forward pods should be left for seed, the finest ones on the lower portion of the plants being kept by preference.

"Dwarf kinds.—If so desired, a sowing of these may be made in pots to come along under glass, the best kinds being Flageolet d'Etampes, Noir de Belgique, and Sabre hatif, or they may be sown some five seeds in a small pot in April, planting them out eventually under a wall in south exposure and sheltering them with straw mats at night. A general sowing is made about the beginning of May, to be followed by three successional sowings, extending to the last week in June Even so late as July Flageolet d'Etampes and Noir de Belgique may be sown, as they will yield small green pods before the beginning of autumn. Those kinds which are to be employed in a mature state, such as Suisse blanc, Jaune de Chine, and de Soissons, ought to form part of the first sowings. The Flageolet Noir de Belgique, and especially the Prédome or Princesse à fine cosse, should form part of the successional sowings. It is the Flageolet d'Etampes which is most esteemed for shelling in a green state, whilst the Noir de Belgique is best for the young green pods. In sowing, drills are drawn 2 inches deep and 1 foot apart for the small growing kinds, such as Noir de Belgique, Flageolet à feuilles gaufrées, Jaune de Chine, and rather deeper and 15 inches apart for the other kinds. If the grower has some fine ashes at command it is advisable to cover the seeds with them before filling up the drills. Afterwards they will only need to be kept clean and have the soil occasionally stirred around them. As to the kinds grown for the ripe seeds, they should be gathered in fine weather; strip off the foliage and tie them in small bundles, suspending them in a dry airy place. The Suisse blanc should furnish the main supply. It is a precious variety for field culture, naturally dropping its leaves, and all the pods ripen at the same time. The Jaune de Chine and de Soissons are not so productive, but more esteemed for the quality of the seeds. When shelled out they are carefully sorted and well dried, for the least damp causes them to ferment and turn mouldy in a few days when put into bags." From the above it will be seen that the culture of Haricots in France does not materially differ from that followed in the case of runner and dwarf Beans in this country, and that there is no difficulty in growing them; but it will be remarked that a large number of varieties exist there scarcely any of which are known in England, and of which in any case we should make a trial, as I consider some of them much superior in flavour to our ordinary Runners.

Mode of using Haricots.—There are two ways of using Haricots much favoured by the French, viz., *en aiguille*—that is, the quite tender immature pods cooked and eaten entire, and the young green seeds taken when about half or three-parts grown. These are the *Haricots verts* of the Paris restaurants (in contradistinction to *Haricots blancs*—the ripe seeds), and which many English eat for the first time in France, and generally pronounce to be a delicious vegetable. And now, in conclusion, I would like to give a hint or two on the cooking of Haricots. Put them in soak for a few hours, and then the outer husk may be easily slipped off. Boil them about two hours, and they will form, properly seasoned and with butter, a very appetising and nutritious article of food. By soaking them and boiling them thus long, as well as by taking off the outer skin, their flavour and digestibility will be much increased, as they come to about the same condition as mashed Potatoes. Many who have had no liking for Haricot Beans cooked in the ordinary way would like them, I think, in the manner here recommended, and I feel sure that, whether *en aiguille*, or as *Haricots verts*, or in the mature state, Haricot Beans would be found to form a fine addition to the list of vegetables commonly used in this country.

J. Cornhill.

A Pea show.—The special prizes for Peas to be given on July 22 are undoubtedly a step in the right direction. I would venture to suggest that, except the Peas are cooked and tasted, the result will be of little value to practical gardeners. Flavour—the very hinge of everything connected with Peas as well as other vegetables—should not be overlooked. Besides the varieties of Peas to be exhibited on July 22, there are others equally good, if not better, and I feel sure that the Royal Horticultural Society will not fail to recognise such as happen to be shown; therefore let me ask Pea growers generally to send up their Peas on the day in question, in order that an opportunity may be given both to the trade and the public to select those which they consider the best. I would further suggest, should my advice be taken, that the committee tell us which is the best-flavoured Pea in the exhibition.—R. Gilbert, *Burghley*.

SHORT NOTES.—KITCHEN.

Open-air Asparagus.—As an instance of the mildness of the season I may mention that I cut the other day, from the open ground, a bunch of Asparagus.—W. J. C., *Lewes*.

5168.—**Mice *v.* Peas and Beans.**—Furze cut short and put in with Peas or Beans at the time of planting keeps off mice, and their numbers can be thinned by the use of a few figure 4 traps set near the rows. With these traps most people are acquainted; they are easily set and very efficient.—R. *J.*

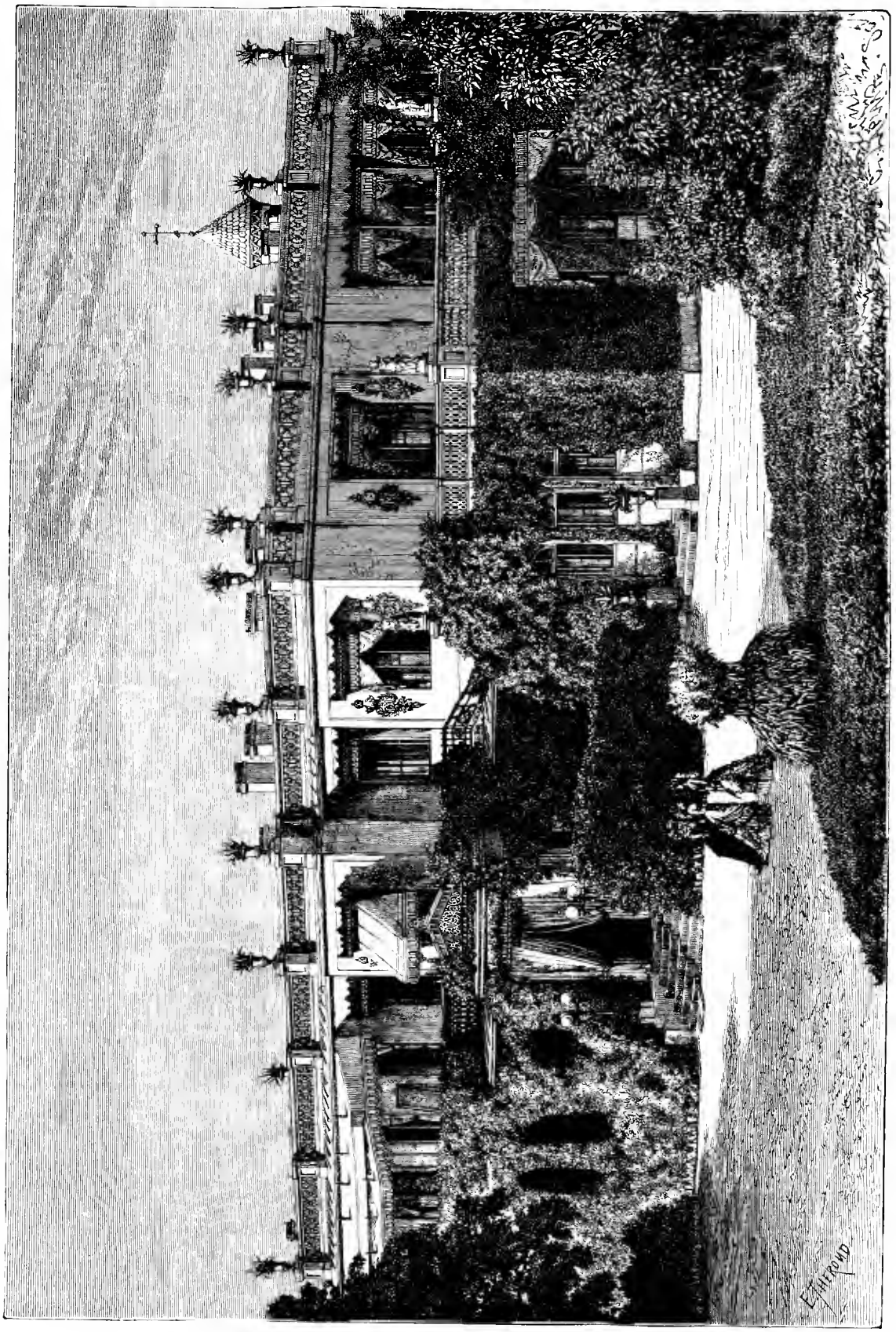
—— Take a quart of Peas or Beans and place them in a flower-pot, first corking up the bottom hole. A tablespoonful of King's Carbolic Dressing should then be sprinkled over them; stir well up with a stick until they are well coated with the dressing. The latter does not injure the seeds, but neither rooks, birds, nor mice will touch them. I throw a pinch of dry lime over them to facilitate the sowing.—J. Douglas.

Early Rhubarb.—Rhubarb has this year been abundant from open-air beds ever since the commencement of March. The small dark-stemmed varieties are most suitable for early work, and in order to get the best results gathering should be discontinued early, so as to get the crowns thoroughly ripened and the plants at rest by October. Then cover them with sufficient straw litter to keep out frost, and leave the covering on them until the leaves are fit to pull. Protecting with large pots, tubs, or any other temporary covering will forward growth considerably, but in this locality growth naturally commences at a very early date, provided protection from cutting winds is supplied. Rhubarb can hardly have too liberal culture; it is a gross-feeding plant and delights in plenty of rich manure. We plant in rows 4 feet apart and place the crowns 3 feet apart in the row in the case of early crops, for which only moderate growers are employed; the large giant kinds that come in later have 6 feet between the rows and 4 feet between the plants. A variety called the Early Albert is much grown in this locality; it is deep red in colour, and I find Johnston's St. Martin to be an excellent early kind, but not so deep coloured as the Early Albert. A new sort called Kershaw's Paragon promises well; it is early in making growth and produces a quantity of medium sized stalks of a beautiful colour. For private gardens these kinds are preferable to the giant sorts that produce stalks from 1 pound to 2 pounds each.—J. G., *Gosport, Hants*.

GARDENING IN RUSSIA.

There is more difference between the climate of the south and north of Russia than there is between the south of France and the north of Scotland. In the south of Russia the Vine grows and ripens its fruit freely, while in the north our common trees only reach the size of stunted shrubs. In the central parts the climate is much the same as our own, except that in summer it is a few degrees hotter, and in winter a little more severe. All sorts of fruits and flowers are grown and forced much the same as with us, although appliances for such purposes are not so good. As coal is very scarce, wood is generally used and old fashioned flues, but at the St. Petersburg Botanic Gardens and other places where coal can be procured at a reasonable price the houses are all heated by hot water. In the central and northern parts greenhouses are generally covered all winter with shutters or broad boards, while in the forcing or stove department they are covered at night and uncovered in the daytime. Nearly every garden has a Cherry shed covered with straw or boards sides and top from the beginning of November until about the end of March, and under this treatment one can always reckon on a crop of Cherries. Hamburgh Grapes, Peaches, Apricots, Plums, and Pears do remarkably well under glass; but Muscat Grapes and Pine-apples are seldom seen in anything like good condition, owing, doubtless, to the shortness of the summer season. Gooseberries, Raspberries, Strawberries, and all sorts of Currants generally do well, especially if they get a good covering of snow before severe frost sets in; if, however, there is no snow and the winter happens to be severe, there is little chance of any small fruits that year, and the bushes are often cut down to the old wood. Of Apples, none but the hardiest sorts will grow in the north, and even in many parts far inland people lost all their Apples about twelve years ago.

Kitchen gardening is carried on in good style in most parts. The Cabbage and Russian Cucumber (a variety much smaller than our Ridge Cucumber) are largely grown for pickling for winter use, pickled or salted Cabbage being always preferred to that which is fresh, although I do not think English people would like it Roots of all descriptions, including Potatoes, are largely grown and carefully stored in cellars during winter, for when once frost sets in, the temperature is seldom above the freezing point for three or four months. Maize is largely grown at most places. It is kept in pots until it is about a



PALACE OF LIVADA, IN THE CRIMEA. Showing front covered with ornamental climbers.

foot high, when it is planted out in trenches much in the same way as we do Celery when grown in single rows. It is earthed up about twice in the season, and the hot weather brings it on fast; it comes into use about the end of August, and with the Russians is a favourite vegetable. Tomatoes are not very largely grown; they, however, do remarkably well grown on in pots, hardened off and planted out at the bottom of south walls, where the hot sun soon ripens them to perfection. English Melons and Cucumbers are not favourites in Russia, but Water Melons are, and they are largely grown in frames much in the same style as we grow our Melons.

FLOWER GARDENING is extensively carried on at most places; at Petrofsky Park, near Moscow. Mr. Müller, the gardener, beds out yearly 400,000 tender plants, and as the planting of them is not finished before June 20, and they are liable to be cut off by frost by August 20, the pleasure derivable from them is not worth the trouble and expense which it costs. Subtropical gardening is carried on there in perfection; the soil is dug out of the beds about 2 feet deep; then hot manure is turned into them and covered over with the old soil; the plants are planted when ready and shaded for a few days until they get established. Thus with heat at the bottom and a strong top heat, they grow to an enormous size; in short, flower gardening, including carpet bedding, has been carried to excess in Russia, as with us

THE CENTRAL PART OF RUSSIA being flat, the scenery is not of a striking character; in travelling either by road or rail there is great sameness. Extensive forests (generally of Birch), bogs, and badly cultivated fields with no fences, and miserable little thatched huts for the villagers to live in meet the eye everywhere, but there are nevertheless some noble palaces where the landscape gardener has done his best to make the barren waste look pleasant. The climate is, however, against him, and the materials which he has to employ must be of the hardiest description. All American Rhododendrons, Azaleas, evergreen trees and shrubs have to be taken indoors during some three of the most severe months, and planted out again in spring. Amongst trees, the Birch is extensively grown, as it makes the best firewood; next comes the Scotch Fir and Spruce for house-building, most of the houses being of wood, but the Elm, Larch, Lime, Oak, and Poplar do well, and are almost equally useful.

Travelling southwards from the interior, the vegetation perceptibly changes with the climate, until the extreme south is reached, when it partakes of the character of that of other parts of South Europe. A beautiful summer climate is enjoyed in the Crimea, and gardening can be carried out on quite a different style from that in the interior; sub-tropical plants thrive admirably in the open air during the summer, and some of the larger gardens are beautifully embellished with them. An admirable example of this is shown in the accompanying illustration, which represents the palace of Livada, in the Crimea, one of the finest residences in that part of the country. The beautiful way in which the walls of the house are festooned with climbing plants is a charming feature, deservedly much admired.

M.

Tin found in canned Asparagus.—In Germany several persons were, a short time ago, taken ill after partaking of Asparagus put up in tin cans or boxes. The liquid in the cans contained no dissolved tin, but in the vegetable itself there was found from 0·0331 to 0·0404 per cent. of tin. This would indicate that the tin had been dissolved by the juices, and had subsequently entered into combination with some constituent of the Asparagus, forming a solid insoluble substance which remained within the vegetable. An analysis of canned Apricots and Strawberries gave similar results. There was no tin in the syrups, but there was some in the fruit; in Apricots from 0·0185 to 0·0245 per cent., and in Strawberries 0·0175 per cent. of tin. It has also been proved that this tin is in part absorbed during digestion, and that when canned fruits and vegetables are consumed for a long time the tin may prove injurious to health.

TREES AND SHRUBS.

FLOWERING SHRUBS.

I HAVE often been struck with the absence, in both large and small places, of flowering shrubs. We see Laburnums, Scarlet Thorns, Weigelas, Lilacs, and a few others, but there are many more which ought to be as widely grown. The following is a list of those we have growing here in Oxfordshire. A few are on a wall facing S.E., but most of them are in the open, and though a few have only been planted out through the last exceptionally mild winter, most have been out for some years, and none have had the slightest protection. I should be much obliged if any of your readers would kindly give me the names of any good things I have not mentioned. Some I have vainly tried to procure which I know are worth growing:—

Amorpha frutescens
Acacia Pseud-acacia var.
  Bessoniana
Amygdalus communis
  macrocarpa
Acer Reitenbachi
Adenocarpus intermedius
Æsculus macrostachya
  californica
  discolor
Akebia quinata
Abelia uniflora
Althæa frutex in var.
Andromeda floribunda
Aristolochia Sipho
  Clematitis
Aralia Sieboldi
  spinosa
  mandschurica
Aucuba in var.
Azalea in var.
  mollis
Abutilon vitifolium
Arbutus
Ampelopsis
Beuthamia fragifera
Berberis Aquifolium
  Bealı
  japonica
  Darwini
  dulcis
  Fortunei
  nepalensis
  stenophylla
  vulgaris
  v. purpurea
  Wallichiana
  ilicifolia
  concinna
  rotundifolia
Bignonia radicans
Buddleia globosa
  curviflora
Bambusa
Calophaca wolgarica
Calycanthus floridus
  præcox
Caragana arborescens
Carya alba
Ceanothus in var.
Celtis occidentalis
Corylus Colurna
Cercis Siliquastrum
Chionanthus virginica
Cistus in var.
Colutea arborescens
  frutescens
Cornus sanguinea
  florida
  Mas
Cotoneaster Simonsi
  microphylla
  frigida
Crataegus in var.
  Carrierei
Cytisus Laburnum
  purpureus
  nigricans
  Scoparius
  capitatus
Cephalanthus occidentalis
Cerasus caroliniana
Clethra arborea
  alnifolia
Carpenteria californica
Clematis in var.
Caryopteris mastacanthus
Chimonanthus fragrans
Daphne Mezereum
  Cneorum
  Laureola
  pontica
  Mazeli
Deutzia gracilis
  crenata
  caudidissima
  scabra
  parviflora
Dracæna australis
Elæagnus longipes
  pungens argentea
Escallonia macrantha
  montividensis
Euonymus radicans variegatus
  latifolius
  alatus
  europæus
  japonicus in var.
Eurya latifolia variegata
Eurybia ilicifolia
Exochorda grandiflora
Edwardsia grandiflora
  microphylla
Eucryphia pinnatifolia
Forsythia viridissima
  suspensa
  Fortunei (suspensa?)
Fremontia californica
Fabiana imbricata
Garrya elliptica
Gleditschia triacanthos
Gymnocladus canadensis
Genista elata
Halesia tetraptera
Hamamelis virginica
Hippophae rhamnoides
Hydrangea paniculata grandiflora
Hypericum patulum
  calycinum
  caprifolium
  oblongifolium
  nepalense
  hircinum
Ilex in var.
  insignis
Itea carolniana (virginica?)
Ilesia polycarpa
Indigofera Dosua
Jasminum in var.
Kalmia latifolia
  myrtifolia
  rubra
Leycesteria formosa
Lonicera brachypoda
  b. aureo-reticulata
  fragrantissima
  Standishi
  tatarica in var.
  nigra
  sempervirens
  tomentella
  Halleana
Lycium barbarum
Leptospermum lanigerum
  arachnoides
Lyonia arborea
Ligustrum in many vars.
Magnolia acuminata
  Campbelli
  conspicua
  c. Soulangeana
  purpurea
  Lennei
  tripetala
  glauca
  Halleana
  macrophylla
Menospermum canadense
Nuttallia cerasiformis
Nevinsia alabamensis
Osmanthus ilicifolius
Ozothamnus rosmarinifolius
Ostrya carpinifolia
Ornus europæus
Periploca græca
Philadelphus in var.
Phillyrea angustifolia
  decora
Photinia serrulata
Phormium tenax
Prinos glaber
Prunus in var.
  Pissardi
  triloba
Ptelea trifoliata
Pernettya in several vars.
Pterocarya caucasica
Pyrus japonica in several vars.
  spectabilis
  Malus floribunda
  Maulei
Piptanthus nepalensis
Pittosporum Ralphsi
Phlesia buxifolia
Pterostyrax hispidum
Raphiolepis japonica
Rhodotypos kerrioides
Rhus glabra, &c.
Ribes in var.
  subvestitum
  speciosum
Robinia hispida
Rosa rugosa
  r. alba
  camelliæfolia
  fraxinifolia
  polyantha
  diversifolia
  sericea
Rhamnus Alaternus
Rhodora canadensis
Rubus odoratus
  leucodermis
  deliciosus
Stuartia virginica
Shepherdia argentea
Styrax officinale
Skimmia japonica
Smilax
Sophora japonica
Staphylea pinnata
  colchica
Symphoricarpus racemosus
Syringa in var.
Stauntonia latifolia
Solanum jasminoides
Spiræa bella
  prunifolia fl.-pl.
  callosa
  Douglasi
  Nobleana
  salicifolia
  trilobata
  ariæfolia
  Thunbergi
  californica
Viburnum Opulus
  plicatum
  Tinus
  Awafurki
  macrocephalum
Virgilia lutea
Veronica, shrubby vars.
Weigela in vars.
Xanthoceras sorbifolia
Xanthorrhiza apiifolia
Yucca in var

OXON.

Prunus tomentosa.—The above-named shrub—mentioned in your last issue (p. 244) under the heading of "Plants in Flower"—is remarkable more for the beauty of its fruit than for its flowers, which, as stated in your note, though borne in great profusion, are pale in colour and individually small and inconspicuous, but the fruit, as shown on the 22nd plate of Siebold and Zuccarini's fine folio work, "Flora Japonica," is of a most brilliant scarlet colour, resembling somewhat a small Apple in shape, and is said to be edible, and also to possess medicinal qualities curative of dysentery. This Plum can hardly be called a tree, as in the work above referred to its greatest height is said never to exceed from 5 feet to 6 feet. It is a scarce plant even in Japan, where it is only found occasionally in gardens, and never in a wild state. It is believed to be a native of North China, and to have been introduced thence into Japanese gardens by M. de Bunge. It, unfortunately, but seldom sets its fruit in this country, as I have grown it for many years, and have only seen one or two of its pretty fruit.—W. E. G.

A new Eucalyptus from Tonquin.—An extract from a paper on the Eucalyptus, which appeared originally in the Dehli *Gazette*, has been communicated to the Agri-horticulturral Society of Madras. It is as follows: "Those who have introduced the Eucalyptus to Ceylon as a fever plant will do well to gather some information about an entirely new and superior plant found indeginous in Tonquin; it is called the 'Y-dizi.' It grows to a height of about 6 feet, and is not only a nutritious plant, but it destroys miasma and purifies stagnant water. Travellers, we are assured, use the Y-dizi in the same manner as tea is used in China. The grains are stated to have valuable properties, affording a refreshing beverage, which purifies the blood, invigorates the stomach, and is diuretic. To make this beverage the husk of the fruit is taken off, the seeds, or, as they are called, almonds, are extracted, and then boiled in water. Well-to-do people in Tonquin make very frequent use of the Y-dizi during the summer. The plant grows well and rapidly, and produces a large quantity of seeds. It is sown near pools and streams and around gardens in waste ground."

Double rose coloured Cherry Plum (P. Myrobalana rosea fl.-pl.).—This Plum imported from Japan by Messrs. Baltet, of Troyes, has lately obtained a first-class certificate at a meeting of the Horticultural Society of Paris, at which it was exhibited. It becomes covered with double flowers of a fine bright rose colour a month earlier than the double-flowering Peach, and, therefore, it will be a good tree for open air culture, and also for forcing.

Pernettya mucronata.—Cut sprays of this are very beautiful indoors. The brightly-coloured berries are fully as attractive as flowers would be, and they possess the additional merit of remaining much longer in perfection. The only attention we bestow on them, beyond seeing that they are supplied with water, is giving them a good washing every week, in order to remove any dust that may accumulate on them. Besides the Pernettya, there are hosts of hardy plants, the fruits of which might with advantage be employed for indoor decoration during autumn and winter, but they are generally allowed to remain out of doors till they drop or are eaten by birds.—Alpha.

Prunus triloba.—This is in every way a very desirable spring flowering shrub, but one seldom met with, or, at least, not so much as it should be. In the open ground it forms a much-branched bush, thickly studded, even to the smallest twigs, with semi-double blossoms of a pleasing rosy pink colour. These blossoms are but a few days later in expanding than those of the allied Prunus divaricata or of the Almond. From their opening so early, however, they are frequently injured by frost, but up to the present time they have this year escaped, and are now objects of great beauty. On a wall this Prunus shows itself off to advantage, for, with the protection thus afforded, the blossoms open without check. An old plant so treated on one of the walls at Kew is every year covered with bloom. Another purpose for which it is well suited is for forcing into bloom for the embellishment of the greenhouse or conservatory, as, from its naturally flowering early, it needs but little forcing, while so floriferous is it, that little bushes a couple of feet high will, properly treated, become quite a mass of flowers. This Prunus is a native of China, and is sometimes known in gardens as Amygdalopsis Lindleyi.—Alpha.

NOTES.

Exochorda (Spiræa) **grandiflora** is commonly called the Pearl Bush, and it well deserves its popular name, being thus early in blossom. Its slender shoots are covered with soft green leaflets, with pearly white buds and green-eyed flowers. As a bush in the open air, or as seen in a cut state indoors, its snowy buds and blossoms are alike beautiful. Mr. G. F. Wilson, who grows it at Wisley to perfection, tells us that it should be pruned in pretty closely every year. This treatment causes an abundant outgrowth of flowering shoots and a more copious display of flowers. It was long ago figured in The Garden, and is one of the most select of early blooming shrubs.

Leucojum pulchellum.—It is one of the most suggestive signs of the times to hear that the market gardeners are gathering together collections—choice selections, I should say—of the very best of the hardy bulbs and herbaceous plants for the supply of the cut-flower trade. Mr. Walker's collection of choice Daffodils and Narcissi shown at South Kensington the other day surprised many, and may be here quoted as a case in point. Now, I am told this lovely Snowflake is being largely planted for the sake of its graceful scapes of green-tipped blossoms. The Colchicum variety of the common Madonna Lily is another favourite of to-day, as the old form has been in times past, while yellow Day Lilies and Solomon's Seal, as forced early, also meet with a ready sale. Our best hardy plant nurserymen are fairly on the alert now for "good things" to meet this new taste for those beautiful old garden blossoms which our grandmothers grew ages ago.

The Huntsman's Cup.—This quaint North American Pitcher Plant, otherwise known as Sarracenia purpurea, is just now happy and luxuriant beside the ornamental pond at Wisley, where also, by the way, the Cape Pond Weed (Aponogeton) yields the fragrance of Hawthorn long before the May blossom itself appears. This Sarracenia is a very interesting plant, and one we have seen grown in a sunny window with great success. That it is perfectly amenable to open-air culture has long been known; indeed, it was so grown soon after its first introduction to Europe, now many years ago. When planted in sandy or gravelly peat in positions where its roots can reach the water it withstands the brightest sunshine and acquires a colour almost as brilliant as that of the Copper Beech or as Beetroot leaves. As thus seen, it is an object of beauty as well as of interest from a botanical point of view.

Narcissus juncifolius is quite a little gem among the dwarf Narcissi, and is just now flowering quite freely in the open air near London. Its slender Rush-like stalks stand erect, about 6 inches in height, each scape bearing from one to four dainty little blossoms with crowns elegantly crimped around the margins and not larger in size than are the silver pennies our great-grandmothers used to give us as rewards years ago. The slender Rush-like leaves curl and wriggle about on the surface of the soil in a graceful way. As a wild plant or species it is rather variable, and one or two of its most extreme forms are named as subspecies. N. gaditanus is one of these not often seen in cultivation. N. rupicola is better known and rarely, if ever, bears more than one flower on a scape; its foliage is erect and flatter than in the typical plant. It has been collected in Spain by Mr. G. Maw, and the late Mr. H. Crewe sent us a bulb from near the Escurial three or four years ago.

The chequered Fritillaries are just now flowering most profusely, each blossom dangling lamp-like from its gracefully curved scape, and they dance and tremble in the breeze like little Chinese lanterns, full of light and graceful beauty. They are now rare in the lush meadows bordering the Thames, but ought to be quite abundant in all good gardens, so simple and easy is their culture. In colour they vary from creamy white to a dark purple through all shades of purplish rose and lilac. One variety, of a soft rosy salmon colour with darker markings, is as rare as it is beautiful. As plants for warm rich borders in sheltered rockwork, or by the stones of a well-made rockery they are quite at home. All those here alluded to are varieties of our native F. Meleagris, but there are some other species of allied species equally well worth culture along with these chequered Daffodils, as Parkinson calls them.

Iris stylosa is a plant long enough known in gardens, and yet, as we may fairly say, comparatively rare. In Ware's nursery at Tottenham it is producing its buds and blossoms even thus late in the year. Its usual season of flowering in mild localities is January and February; hence its popular name of the Winter Iris. Miss Jekyll has shown us that to flower this plant well we must starve it by forcing it to compete with the roots of other low-growing plants or shrubs, and in County Wicklow the other day we saw it blooming freely planted close to the foot of a low greenhouse wall. Inside the greenhouse was a flue heated only during the coldest days of winter, and so planted, the drought at the root and protection from actual frost seemed to suit the plant admirably, since its foliage was fresh and healthy and its buds abundant. Cut in the bud stage and brought indoors to open, its blossoms expand in perfection.

Dickson's Peerless Narcissus is a very bold and noble form of N. incomparabilis, and attracted considerable attention when Mr. Burbidge showed it to connoisseurs at the Daffodil Conference on the 1st inst. Now it comes to us again from Mr. Tyerman, who met with its flowers exposed for sale in the Liverpool flower markets. In size of crown and breadth of perianth divisions, we believe it to be unrivalled; indeed it may be described best as a giant of the Peerless, or N. incomparabilis race. The perianth divisions are bright sulphur-yellow, considerably over an inch in breadth, while the cup is long, obconical in shape, and of a deeper or golden yellow. It is a variety well worth looking after, since but few if any of the new seedlings can rival it in size and showiness.

Berberis Darwini is so graceful in habit, and its colour is so warm and unique at this season, when it flowers, that one would like to see a bush of it in every cottage garden. B. stenophylla is another good kind for planting on rootwork or on rocky banks, down which its slender flowering growths droop most gracefully. Even the common Mahonia is a very valuable garden shrub, now covered with masses of its pale yellow flowers. Its foliage when bronzed or purplish red is useful for indoor decorations. Miss Jekyll used it most effectively as a groundwork for some great golden Daffodils at South Kensington the other day, and even late in the waning year these empurpled shoots are lovely grouped along with Chrysanthemums.

The spring Snowflake.—This, albeit by no means a rare plant in our gardens of to-day, was known to Parkinson, who figures and describes it as long ago as 1629, under the name of Leucojum bulbosum præcox majus, or, as he quaintly hath it in English, "the great early bulbous Violet." Its modern name is Leucojum vernum, and it is difficult to imagine a more fresh and beautiful spring blossom than is this as seen nestling beside mossy stones, or in little colonies along with the early blue Squills, Iris reticulata, and Hepaticas. If you turn to Vol. VII. of The Garden, p. 156, you will find a coloured portrait of this scented beauty, and a descriptive account of Snowflakes generally. Nearly all the authorities agree that L. vernum bears only one flower on a scape, but in some soils it is by no means uncommon for two-flowered scapes to appear, and yesterday a friend sent to me a single-flowered scape and a double-flowered one, both being from the same bulb. Curtis, who figures this species in *Botanical Magazine*, vol. ii., t. 46, tells us he applied to this species the popular name of Snowflake, "which, while it denotes its affinity to the Snowdrop, is not inapplicable to the meaning of Leucojum." Curtis is also careful to inform us that it sometimes bears two blossoms on each footstalk, and that it is delightfully fragrant. In colour the flowers are creamy white, the spots at the tip of each perianth segment varying from yellowish green to greenish yellow according to the age or development of the flower. It is a good old Linnean species which should find a home in all good gardens.

Veronica.

JAPANESE AND INDIAN MAT HOUSES.

Mat houses have been in use in Japan and in India for ages. In Japan every kind of plant is grown in them. They are used for propagating, and also for show houses for Chrysanthemums, Orchids, Pæonies, and similar plants. Their flowers, it is said, last much longer in such a house than under glass. Mat houses are also used with earth sides or sunk into the ground for the protection of plants in hard winters, and also for storing Orchids. In India they are used by the natives solely for the cultivation of the "Paun" Leaf, which is eaten as a wrapper for the Betel Nut. My object in introducing them is to ascertain whether we could not usefully employ them in England for plants requiring shade and protection, and also as places in which to grow some of those beautiful flowers, which are said to be only half hardy, *i.e.*, plants found in Nature either in dense shade or so protected by rocks and trees, as to seldom feel frost and never cold winds.

In India we have improved the native mat house which we use for keeping out both heat and cold and for securing shade and moisture in the dry season. Thus we are able to grow plants that would be killed in ten minutes were they exposed to the scorching winds of April and May. I use them exactly as I would a glasshouse in England, and can, as in the case of Orchids, vary the degrees of moisture according to the requirements of the plants. In some of these houses stages are put up for the plants; in others the pots are set on ashes on the ground. During cold weather Crotons, Dracænas, and other tender plants are stored away in mat houses till warm weather again sets in. If they will keep out heat and

cold here, surely they will do so in England, and I would suggest that they be made in the following manner. Any form can be employed—round, square, or oval, according to circumstances. They are best made with T iron and with an iron roof, but wood will do, the roof being battened. The battens should be close enough to hold up wire netting perfectly straight and level. In India over the wire netting we put either reeds or strong long grass fastened down with wire put crosswise, the reeds and grass being used to break the force of the sun's rays. Such houses can be made as ornamental as the taste of the owners will allow. It is simply the peculiar structure of the house that renders it so good for certain kinds of plants. In nurseries such houses would be most useful in winter. They should be narrow with a path down the centre, and beds on each side of convenient width, and they should have reed roofs, and in severe weather be protected with hurdles with Fern or Heath tied on them 6 inches thick. They should be about 7 feet high, have thatched sides, and be roughly and cheaply made. The sides should be movable, but the roof should be permanent

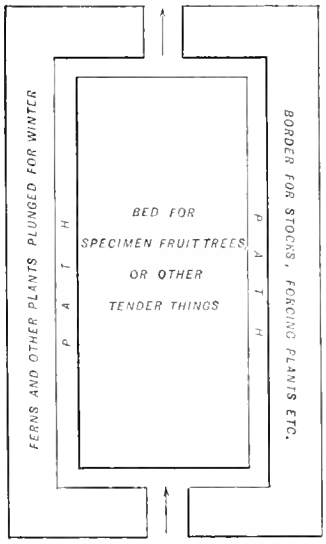


Fig. 2.—Ground plan of Indian mat house.

Such a house would be most useful for very many purposes. In summer the sides could be taken off and the house used for soft-wooded plants, Maples, or anything requiring a little shelter. Fig. 3 has earth sides banked up 8 feet. A streamlet could be made to flow through it, near which rockwork could be constructed for Ferns. This would, I believe, make a suitable house for tender Japanese, New Zealand, American, and Indian hill Ferns. Beds, too, could be made for Cypripediums, Sarracenias, and rare shrubs never seen in cultivation, except at some nursery in those very mysterious cold frames into which nobody ever looks. Plants by the dozen could be mentioned really beautiful, but which are never grown because people cannot afford to grow them in houses, and they will not thrive outside without protection. There are also many Orchids and Ferns from high elevations yet unintroduced that would delight in such a house. In choosing a place for a fernery after the style just suggested, if a brook or small stream could be brought through it and used properly, it would be of great advantage. The principal thing to bear in mind is thorough side protection, either by means of earth or thick mats: in both cases shrubs might soon be made to hide all unsightliness. These houses can be cheaply made and I am convinced that they would do for that class of plants that have hitherto had their home in cold frames. C. Maries.

Orchids.

Orchids in the United States.

Among the many Dendrobes at present in flower in the Kenwood collection are some fine plants of D. chrysotoxum, each bearing from fifteen to twenty arching spikes of rich golden flowers. This is one of the most showy of Orchids, and even small plants of it produce a striking effect arranged with a background of green, be it Ferns or Palms. This species flowers most satisfactorily when given a very long season of rest in a cool house—until, in fact, the spikes are well advanced, a slight sprinkle with a syringe being sufficient to keep the bulbs plump. D. albo-sanguineum is represented by three plants bearing fifteen, eighteen, and twenty flowers each. This grand species produces large cream-coloured flowers with a conspicuous crimson blotch on the lip By the way, I often wonder how it got the prefix albo, seeing that there is no white at all about it. In a warm house this Dendrobe produces bulbs from 15 in. to 18 in. in length, and proportionately thick. With us it flowers best when rested in the warm house, but given scarcely any water, treatment which also ensures green leaves for the flowering season, and these set off the beauty of the flowers to advantage. D. Pierardi is another species that produces most flowers when rested in a warm house. Last year we experimented on two plants equal in health and size; one was kept in a warm house and the other was placed along with D. Wardianum, both being kept dry; the result was that the one kept warm gave one hundred and ten flowers to a bulb, while the one kept cool produced no more than thirty. This year both were left in the warm house, and they have at present three hundred and fifty-six flowers on four bulbs. The white variety of D. Wardianum is finely in bloom, and, what is somewhat unusual, is flowering freely from two continuous bulbs made last season. By the way, as there has been somewhat of a controversy in The Garden as to the beneficial effects of pruning Denrobes, I may say that we tried it last year, and found no harm to result whatever from it. In one instance all the bulbs were cut within 2 inches of the base, and this plant produced as good bulbs as any in the collection, and this year is breaking double, and in every instance flowered equally well as the unpruned ones. Pruning most certainly does not hurt the plants, but I do not think it benefits them. D. splendissimum, endocharis, and rhodostoma are three very fine Veitchian hybrids, but unfortunately somewhat scarce; these are what we tried the pruning system on. Epidendrum bicornutum is usually considered a shy bloomer in England, but in this climate it is the reverse. Here no trouble at all is experienced in blooming it; we treat it the same as the Phalænopsids; we never allow it to be dry; and as the flower-spikes appear before the bulbs are matured it is kept in the same house all the year, the temperature of which is seldom below 70°. As to rooting material, I think it does best without any. Our plants of it are always kept wet, and are still in or rather hanging to the 8-inch baskets in which they were put three years ago. Nothing hurts an Orchid more than to be constantly pulling it about in the way of potting or top-dressing. The best way is to pot at first in material that does not become sour, and then never to touch the plant in the way of potting until it is so big as to overbalance the pot; then it may be set in a larger one and filled around with crocks, which may be covered with a little Tree Moss, which will soon establish itself. The Cattleyas here are never potted more than once in four or five years. The Phalænopsids are in baskets filled with charcoal and top-dressed with Tree Moss which never rots like Sphagnum, and in this they stay without repotting from two to three years. The plants, I admit, do not look so neat and trim, but for that we are amply compensated during the flowering season. F. Goldring.

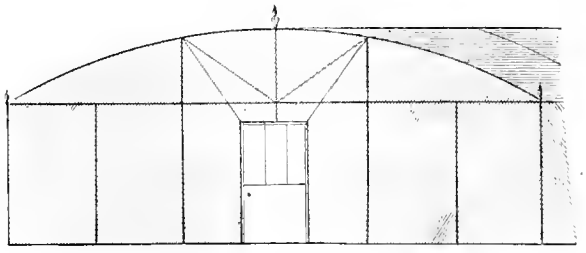


Fig. 1.—Indian mat house.

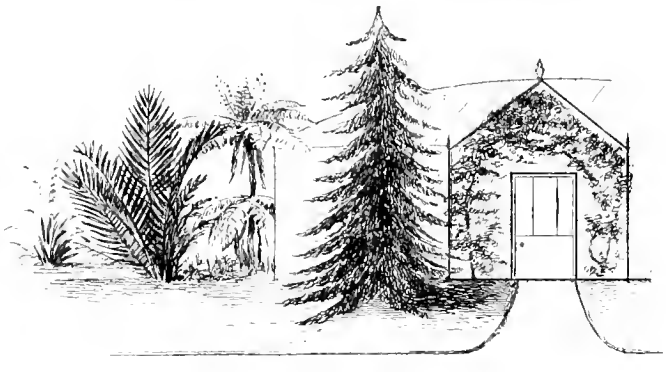


Fig. 3.—Fernery with earth sides.

Arpophyllum giganteum.—As it is a somewhat uncommon occurrence to see this beautiful Orchid in flower, it may be of interest to Orchid lovers to know that it is now in fine condition in Mr. Peacock's collection at Sudbury House, Hammersmith. A spike of it sent to us by the gardener (Mr. Vicary) is 15 inches in length and perfectly cylindrical, myriads of tiny blossoms being firmly packed together, so as to form a

dense, solid spike of rosy purple. The blossoms themselves resemble little shells, and are regularly and prettily arranged on the spike. The leaves are narrow and leathery, from 1 foot to 2 feet long, and, being evergreen, a well-flowered specimen forms a very handsome object.

Varieties of Cattleya Trianæ at Birdhill.—Mr. Lee, of Downside, Leatherhead, I see from the proceedings of the Royal Botanic and Horticultural Societies, has obtained certificates for varieties of this glorious Orchid, one of which bears his name, and for which, it is said, he paid the handsome sum of £250. Judging from the description, I am not at all clear that Mr. Gough has not got here a similar, but smaller one, flowering now with two other imported pieces for the first time. Mr Lee's has thirty pseudo-bulbs; Mr. Gough's has one-third that number. Of the three now in bloom here, the sepals and petals, though differing in size, are very much alike in colour—a shade of soft rose-purple on a waxy white ground. The lips in all three are different, and completely baffle word-painting. We measured the petals, and found three slightly over 6 inches across the flower, the labellum over 3 inches long, and enclosed from the base midway, hiding partially a throat of numerous tints, shading from bright yellow through carmine to white. In No. 1 the expanded lip was faintly tinted or dotted with a rich bright pinkish mauve, or rather lilac. In No. 2 these colours became a more decided purple, and shone out more brilliantly: while in No. 3 the density of crimson-pink and purple nonplusses description. All three were curiously fringed and frilled with a well-defined shaded edge all round less than one-eighth of an inch wide. So far as I see from THE GARDEN (p. 221), any of those referred to are equal, if not larger, even in the case of small plants, than the variety described as certificated.—W J. MURPHY, *Clonmel*.

Cattleya citrina.—Everyone who owns an Orchid house should certainly possess this most beautiful Cattleya, undoubtedly one of the finest of the race, and, moreover, distinct from all others and, indeed, from any other Orchid. No flower can rival it in colour, texture, or fragrance. It is now so well known that a description of it is scarcely needed, but for those who do not know it it may be described as being somewhat triangular in shape, and from 3 inches to 4 inches across. The sepals and petals are of very thick texture, looking almost as if they were moulded in wax, and bright citron-yellow in colour. The labellum is also of the same hue, except that it has in addition a heavy blotch of deep orange on the lowermost lobe and a frilled edge of primrose-yellow. Different varieties vary considerably as regards shades of colour, but in some flowers sent to us from Mr. Peacock's garden it is remarkably rich and fine, similar to some sent us last year by Sir W. Marriott, and of which we gave a coloured illustration This Orchid is an especial favourite with Mr. Peacock, in whose garden, at Sudbury House, Hammersmith, it may be seen by the hundred, and, moreover, grown far finer than it usually is. The best growth is obtained from plants in shallow suspended pans. These bear large plump bulbs which never fail to produce the finest blooms. This is a better way to grow this Cattleya than on rafts and blocks. The cool house in Mr. Peacock's garden contains long rows of this Cattleya suspended under the roof, and as each plant bears several flowers, they look like baskets of silver and gold, the foliage having a glaucous hue. Flowers of a very fine form of C. amethystoglossa have also been sent to us from the same garden. The colour in this case is much more brilliant than usual, particularly that of the labellum. Many other choice Orchids are also just now in bloom in this collection.

Orchid flowering from both base and top of bulb.—A plant of Mesospinidium sanguineum here is now bearing two good spikes from the same bulb, one as usual from the base and the other from the apex between the two leaves which crown the bulb. I would be glad to know whether such an occurrence is not unusual among Orchids. The bulb is not remarkable as to strength or vigour; the spikes are bearing eleven and nine flowers respectively.—GREENWOOD PIM.

Sir William Marriott's Orchids.—The sale of the celebrated collection of Orchids at The Down House, Blandford, appears to be anticipated with considerable interest by orchidists, inasmuch as it embodies so many choice and rare varieties. During the past week we saw at Stevens' Rooms, Covent Garden, cut blooms from the collection. These included a large spike of a magnificent variety of Odontoglossum crispum (No. 9 of the catalogue), the flowers of which are large with overlapping sepals of a delicate rosy tint. A variety of O. Pescatorei (No. 10) is likewise extremely beautiful, and so is the Cattleya citrina from the same plant from which the plate was made in THE GARDEN last year. Worthy of special notice, too, is a very fine form of Odontoglossum vexillarium, remarkable for the depth of tint of its blossoms, the colour being an intensely deep rose-purple, exactly the counterpart of the autumn flowering Lehmanni or rubellum.

Pruning Calanthes.—I observe that Mr. Baines avoids all allusion to this subject in his note in last week's GARDEN (p. 288), and I now name him in connection with it, as I am assured by those familiar with Mr. Baines' practice that he invariably cut away the whole of the bulbs of his Calanthes when potting them; and yet every argument he has advanced for the retention of the back bulbs of those pruned by me applies to the Calanthe with even greater force than to Dendrobiums, because while the plants I pruned have permanent roots as well as bulbs to rely on, Calanthe roots are deciduous, and the young growths are therefore solely dependent on the bulbs for a certain period. Old spent Calanthe bulbs are attached to the young bulbs just like other Orchids; they produce growth in the same way, and finally are also found in Nature (Mr. Baines' argument) in masses attached together. I therefore leave Mr. Baines to reconcile his precept and his practice as best he can, but his past practice completely upsets his present theory.—J. S. W.

FRUIT GARDEN.

DOES PINE GROWING PAY?

SEVERAL interesting communications have lately appeared in THE GARDEN encouraging more or less the belief that Pine growing could be profitably carried on in this country, but I fear the weight of evidence to the contrary is overwhelming. Pine culture has been given up in hundreds of private gardens under the belief that glass structures can be turned to better account in other ways, and market fruit growers have almost entirely put Pine-growing aside from finding the balance, as regards that kind of culture, year after year on the wrong side of the ledger. Mr. Murray (p. 248) tells us that Pines can be grown at a much more reasonable figure than is generally supposed, but he forgets the circumstances under which growers for market are placed; for instance, in his system of Pine growing, dry tree leaves form an important item; of these plenty can generally be had in private places. But if I wanted a number of cartloads of leaves, they would cost me more than would an equal quantity of stable manure, and the majority of market growers are similarly situated as regards this commodity. The supply of soil, too, is much the same. We have to pay from 8s. to 10s. per load for soil fit for Pines, and on the planting-out system this adds considerably to the expense. Rates and tithes also press heavily on market growers, and, taking all things into account, even Mr. Murray's well-known ability as a Pine grower would, I think, be severely taxed to produce Pines under 1s. per lb., so as to compete advantageously with growers in the Azores. They get abundant light and heat, and, moreover, employ some of the best trained English gardeners to make the most of these great natural advantages. We are therefore too heavily handicapped to think of competing with them. We have, however, other crops which we can grow profitably, and notably such fruits as do not travel so well as Pines. I may add, too, that in calculating profit and expenditure it is not safe to take exceptional cases, such as 500 pounds of Pine fruit from 80 plants. That this may and has been often done in the Royal Gardens, Frogmore, I readily admit, but growers for market are placed under very different circumstances. Indeed, the growing of Pines for market promises to become one of the things of the past, and even in private gardens where a strict debtor and creditor account is kept, the Pine pits are slowly, but surely being turned to more profitable uses.—JAMES GROOM, *Gosport*.

—— I am pleased to find my remarks on this subject (p. 171) so ably substantiated (p. 248) by Mr. Murray, late of the Royal Gardens, Frogmore. His facts are highly encouraging, and the results of his practice show how much may be accomplished by anyone who cares to grow Pines in a thoroughly practical manner. It was good work to produce Pines at a cost of not more than 1s. per lb. in 1846. Fuel was much more expensive then than now, and the cultivator would be a poor hand indeed at the work if he could not show the same results at present. I am sure, too, that all who know anything of Pine growing will admit that Pines would pay handsomely if produced at a cost of 1s. per lb. One thing is certain, and that is, they cannot be bought in the market at that price; they are quoted at 2s. per lb. wholesale. It may suit some to assert that the St. Michael's Pines are perfection and the English ones inferior, but why not take the market value of the two? Last week the best St. Michael's Pines (whole fruit) were sold for 2s. and 3s. each, while English ones were just fetching the same amount per pound wholesale. Can any evidence more conclusive than this be obtained to prove which of the two is considered best by the public? Statistics are better than assertions; if one man can grow Pines profitably, why should others not be able to do the same?—CAMBRIAN.

GRAPES IN THE CHANNEL ISLANDS.

THE great point as regards culture to be attended to here, above all others, is abundance of manure and water. The crops taken from the Vines are often prodigious, and only the most unlimited supply of manure could enable the Vines to carry them; in case of vineries situated on the sides of hills the border dries up very quickly, and requires very frequent and copious watering. Atmospheric moisture is also a point of much importance; in hot weather, with a drying wind and scorching sun, it is necessary to keep water sprinkled about the house almost continually, to keep the atmosphere moist, and prevent the Vines from flagging, as well as to keep down red spider. Pruning should be done as soon as the leaves are off, and at times it is found necessary to remove the leaves by force, but this must always be done very carefully and gradually, removing only a few leaves daily. As long as the wood is well ripened, the presence of a few leaves is of no consequence; they may be pruned away with the wood. It is the general practice to prune to one eye, and leave in no more new wood than may be necessary to furnish the house in the case of young Vines, or to replace such as it may be necessary to cut out in the case of old ones. Painting the rods with an insecticide is a necessary operation if the Vines are infected with insects or mildew, otherwise it is unnecessary and even injurious. In growing Grapes for market the profitableness or otherwise of the crop will depend on the season at which it is sent to market. Growers in these islands have very great advantages in the matter of forcing, and where the vinery is well situated and the Vines well managed, and gradually worked up to the proper condition, it is not a very difficult matter to have ripe Grapes before the 1st of May, and the small amount of forcing required to effect this would astonish many used to Grape growing in the neighbourhood of London or farther north. It must be confessed there are not many vineries worked so early, and, considering the inducement of 12s. or 15s. per lb., this is a matter of some surprise, and shows that much more might be made than is now

being done, except by a very few growers. Some are for ever crying out that Grape growing will be overdone, but this we do not believe as far as these islands are concerned; with all our advantages of soil and climate and cheap and rapid communication with London and all the large centres of population, there will always be a profitable market for all the Grapes we can supply. It is consumers own fault if their tables are not well supplied during the latter part of August and all September with good Grapes at 1s. or 1s. 3d. per lb, and that price would give the grower a fair profit if he conducts his business on a large scale. Last season inferior samples fetched less than 6d. a lb, but we doubt if these were sold to the consumers at less than 1s. a lb. The average prices returned for Hamburghs during nine months are as follows: April, 15s. per lb.; May, 7s. 6d. per lb.; June, 5s. per lb.; July, 2s. 6d. per lb.; August, 1s. 6d. per lb.; September, 1s. per lb.; October, 2s. 6d. per lb.; November, 3s. per lb.; December, 3s. 9d. per lb. Muscats, if good, will fetch more, yet these can be grown to the highest perfection in an unheated house, and therefore equally as cheap as Hamburghs. A vinery about 200 feet long, unheated, contained last season a truly magnificent crop of well ripened Muscats. They were ripe in August, but were not sent to market till October, and paid well for keeping.—Jersey Gardener.

Vine roots going outside.—Just a line to say what I ought to have said in my last note, viz., that Mr. McIndoe, of Hutton Hall, had seen no other version of my side of this question than that with which Mr. Baines chose to furnish him. I therefore did what Mr. Baines should have done—sent him my correspondence in The Garden, which he had not seen, telling him at the same time that if after seeing both sides he was himself prepared to say his borders were a case in point, I was still open to come, but that unless he could do that I did not feel inclined to take a 200 miles' journey for nothing. That assurance Mr. McIndoe has not given me, and that is enough for me. Mr. Baines' request that I should show Grapes from inside borders to prove a matter having no connection therewith is not to the point. It curiously happens, however, that I did once do exactly what Mr. Baines asks me to do now. I once showed bunches of Grapes at the National May Show of 1869 at Manchester, with a card attached, stating that they were from covered and aërated borders, and they were awarded a first special prize of three guineas, in addition to a first prize in the general competition. I have no prejudices, therefore, one way or the other.—J. S. W.

QUESTIONS.

5183.—**Carnations and Picotees.**—Will some of the readers of The Garden kindly inform me the best way in which to propagate Carnations and Picotees—if by seedlings how to treat them to obtain early blooming plants?—W. H. D.

5184.—**Blue flowers.**—I wish to form beds of only blue blossoms. Will any of your readers kindly give me lists of both outdoor and greenhouse plants with blue flowers, dividing them under kinds for the four seasons (*i.e.*, spring—Bluebells, Squills, &c.)? Any help in this way will be gratefully received.—Rose.

5185.—**Fruitless Strawberries.** I send two strong spikes of Strawberry flowers, the produce of a plant in a 6 inch pot. I have had a great number in flower for some time, but cannot get any fruit to set. The plants stand on a shelf in a late vinery and have plenty of light and air. I have tried fertilising, thinning the flowers, &c., but all to no purpose. Plants and flowers alike are very strong. Can any of your readers give me any probable reason why I have no fruit?—A. B.

5186.—**Queries, various.**—I shall be obliged if any of the readers of The Garden will kindly answer the following questions: 1. Where can I procure Aronia asiatica and Benthamia japonica? Both of these are figured in Siebold's "Flora Japonica." The former was mentioned by Mr. Maries in one of his letters to The Garden on Japanese shrubs, but Messrs. Veitch, to whom I have applied, state that they have not got it in stock. 2. The Japanese Wax tree (Rhus succedanea) I have also searched for in vain. One specimen of it in my possession which I brought from Japan four years ago has with-stood the winters, and is a most attractive little tree from April to December. In the autumn and winter the leaves are of the brightest tints of red. 3. I should also like to know where I can get the Japanese Camellia Sasanqua. 4. And where the true Bambusa gracilis is to be had.—Kiku, *Guernsey*.

SOCIETIES.

CRYSTAL PALACE SPRING SHOW.

April 4 and 5.

The importance once attached to the flower shows at the Crystal Palace seems likely to be revived, judging by the programme of the present year's exhibitions, of which there are no fewer than six, the money prizes offered at which are both large and numerous. These shows are to be held in April, May, July, September, October, and November. The first of the series was held on Friday and Saturday last. Upon its success the company is to be congratulated, inasmuch as it was by far the finest April show we have seen about London for years. A good show, however, was expected, seeing that the company offered prizes amounting in the aggregate to about £150. For these there was a brisk competition in all but the amateurs' classes which were meagrely represented. Nearly all of the open classes were filled more or less numerously, not only by local exhibitors, but also competitors from afar; for example, the second best three dozen Hyacinths and the finest dozen Lilies of the Valley came all the way from Newcastle-on-Tyne, and well did they appear after their journey of nearly 300 miles, especially when the fragile character of the Hyacinth is taken into consideration. The display took place in the central transept—a capital position, inasmuch as there is plenty of room for the exhibits and abundant space for the throngs of visitors which always attend the Palace flower shows. By the list of awards given in our advertising columns it will be seen that some of the leading cultivators about London contributed in the various classes, all of which were well set up and arranged by Mr. Head, the garden superintendent.

Hyacinths.—The finest of the two collections of three dozen Hyacinths was shown by Mr. Williams, a well-known grower for the London market at Finchley. As regards the quality of his collection, it was far ahead of the Newcastle group, which, as we have said, was nevertheless good, considering the distance it had travelled. Mr. Williams' collection throughout was remarkable for the uniformly large size and high quality of the spikes. Three dozen exhibition Hyacinths, the number required, is large for even a grower like Mr. Williams to muster. The following kinds are those which he showed, viz.: Of reds and pinks he had Koh-i-noor, 3; Lord Macaulay, 3 (double); Von Schiller, 3; Vurbaack (double); Fabiola; Gigantea; King of the Blues, 3; King of the Blacks; Argus, white eye, dark blue; Czar Peter; Feruck Khan; Garrick; Lord Derby; Starlight, dark blue, white eye; and Grand Lilas. The whites were represented by Mont Blanc, La Grandesse, Grandeur à Merveille (pink). Obelisque was the best yellow, and Haydn a very fine violet colour. Mr. Watson's collection from Newcastle also contained some of the finest sorts.

Tulips.—There was but one collection of three dozen Tulips, and of this was also from Mr. Williams. Like the Hyacinths, they were very fine, and comprised the best sorts, such as Joost Van Vondel, Pottebakker, Ophir d'Or, Vermilion Brilliant, Keizer Kroon, Fabiola, Rose Luisante, Hector, Canary Bird, Adeline, Proserpine, and Duc Van Thol, all of which represent the cream of their respective colours.

Narcissi.—A finer collection of Polyanthus Narcissi we have rarely seen than the two dozen plants which Mr. Williams showed on this occasion for the first prize. The plants were all admirably grown, profusely flowered, and represented the best sorts. These were Newton, Grand Monarque, Charles Dickens, Sir Walter Scott, Apollo, Bathurst, Gloriosa, and Mercurius.

Cinerarias were not numerous, and no one could approach the superb collection shown by Mr. James, the Cineraria raiser, of Farnham Royal. His dozen plants were as fine as could possibly be seen, and the varieties were the ideals of perfect Cinerarias. A number of them were new varieties, and some half a dozen of these the judges singled out for certificates. Amaryllises were poor compared with the grand varieties we are accustomed to see at South Kensington, though the collections shown on this occasion indicated a growing taste for Amaryllises among amateurs. Mr. Little, who has for years paid attention to these bulbous plants, won the first prizes in both classes. Some of his varieties were good.

Chinese Primulas.—Though so late in the season for these, Messrs. Carter made quite an array of the numerous varieties that they have raised and grown at their Forest Hill Nurseries. Their first prize collection of a dozen plants consisted of the following varieties: Venus, white flaked; Holborn Magenta, brilliant magenta; Holborn White; Prince of Wales, magenta, double; Rosy Gem; Holborn Vermilion; Snowflake, an extremely pretty bluish double; Holborn Queen, large blush pink; Holborn Blue; Holborn Salmon; Holborn Pink. Besides these a group of large plants in baskets were shown, making a showy display.

Cyclamens were the one great attraction of the show, and rarely have they been shown so extensively or in such perfection. It seemed as if all the Cyclamen growers about London had agreed to meet here in friendly rivalry with their productions, as nearly all were represented. First and foremost was Mr. H. B. Smith, who as usual was unapproachable, notwithstanding the lateness of the season. His three dozen plants were every one remarkable for large size and profusion of blossom, the sizes of the pots being 5 inches and 8 inches. Perfect sheaves of bloom arose from the tufts of luxuriant foliage, the diversity of colour rendering the group the centre of attraction. There were five other collections of three dozen plants shown, and none of them were decidedly bad, and the second and third best were uncommonly fine. These were from Mr. Little and Mr. James, both well-known Cyclamen growers. The former showed an extremely fine collection of a dozen plants in the amateurs' class, all the plants being perfect specimens.

Azaleas.—As is usual at the early spring shows, Mr. Turner, of Slough, contributes the finest specimens of Indian Azaleas. His grower seems to have the knack of flowering to perfection moderate sized plants carrying luxuriant foliage and a profusion of large flowers of high quality. The two dozen plants Mr. Turner showed included the following excellent sorts, which may be regarded as the best for early forcing: Comtesse de Flandre, Magnificans, Mons. Cavellier, Sigismund Rucker, Madame Marie Lefebvre, Duchesse de Nassau, La Pucelle de Gand, Ceres, Reine des Pays-Bas, Louis Pynaert, Flag of Truce, Jean Vervaene, Mrs. Turner, and Irma. Among Mr. H. James's second best collection was the brilliant Flambeau, unquestionably the finest of its colour. The Lilies of the Valley that Mr. Watson brought from Newcastle were decidedly the best that have been seen in London this year, the plants being uncommonly well flowered, though Mr. Williams' plants carried more foliage which showed the flowers off better. There was a class for early market Pelargoniums (twenty-four plants), but only two exhibitors represented it. These were Mr. Williams and Mr. Turner, both of whom showed excellent collections, though the plants shown by the former were bushier and sturdier in every way. In both collections a sort named Rosetta was shown admirably It is a very pretty sort and well worth general cultivation. The varieties Madame Favart, Pink Perfection, Scarlet Gem, Albino, Kingston Beauty, Lucie Lemoine, Maid of Kent, and Triomphe de St. Amand we also singled out as being uncommonly fine.

Auriculas were represented by a fine dozen show varieties and a dozen of the alpine section, both from Mr. Turner, who, as may be supposed, showed them admirably, and among them were some new seedlings that had never before been exhibited. A choice collection of hardy plants, the only group in the show, came from Messrs. Carters' neighbouring nursery at Forest Hill. The dwarf sky-blue Iris, Primula nivalis, and some Primroses were noteworthy among these. Groups of plants arranged for effect are generally

a feature of the flower shows here, and on this occasion they were finer than usual. There were three competitors in the class for a group of stove and greenhouse plants arranged on a space of 100 square feet. The first prize group, arranged by Messrs. Laing, Stanstead Park Nurseries, was very bold and effective, being made up of a great variety of well grown fine foliaged and flowering plants. Mr. H. James' second collection was noteworthy on account of the number of fine specimens of flowering Orchids which it contained, while Mr. Turner's third group embodied many admirable features. The principal group, however, was that arranged by Mr. Head on a space of over 800 square feet, forming a bold display around the foot of the orchestra.

Narcissi were in great force, and rarely have they been shown more extensively or in such perfection by Messrs. Barr and Mr. Ware, both of whom contributed full collections of cut blooms. The whole of one end of the transept was occupied by Messrs. Barr's exhibits, which won much admiration, inasmuch as the arrangement was so tasteful, different from what is usually seen. The flowers were arranged in bold masses of one kind, beginning at one extremity of the group with the small cupped section, following with the medium cups or incomparabilis section, and ending with the great Trumpet section. It is difficult to say which class was most beautiful, but most generally admired were the double Phœnixes, particularly Codlins and Cream, which looked like a mass of Tea Rose blooms. Mr. Head had provided Messrs. Barr with an abundance of Moss wherewith to hide the bottles, so that the effect was heightened. Mr. Ware's group was likewise very fine, and was arranged in similar masses. Besides Narcissi he had numbers of interesting hardy plants, which were highly attractive to the visitors. Mr. A. Waterer exhibited from his Knap Hill Nurseries a large gathering of seedling Primroses, which he grows so finely. These were accompanied by a group of new seedling deciduous Azaleas with double flowers in the way of the narcissiflora race. These were a fine feature, being so beautiful and uncommon. Magnolia conspicua and the pretty feathery Spiræa Thunbergi was also shown by Mr. Waterer. Messrs. Carter occupied an extensive area with a collection of seedling Cinerarias, and large groups of Cyclamens were shown both by Mr. Smith and Mr. Clarke, of Twickenham, both of which added considerably to the display. Some splendid cut Roses, chiefly Maréchal Niel, came from Mr. Beach, of Sevenoaks, and Mr. Mayo, of Oxford, which were all uncommonly fine for April.

First-class certificates were awarded to Mr. J. James, Farnham Royal, Slough, for Cinerarias Marmion, Princess of Wales, Lottie Williamson, Lord Beresford, Lord Wolseley, and Kate Williamson. Mr. J. Douglas, Great Gearies, Ilford, for Auricula, (white edge), Conservative, and Auricula, (grey edge), Mrs. Moore, Mr. Charles Turner, Slough, for new Alpine Auricula Mungo McGeorge. Mr. A. Waterer, for Andromeda japonica.

ROYAL HORTICULTURAL SOCIETY.

April 8.

Though there were but few large displays of spring flowers on this occasion, new and interesting plants were unusually plentiful, as may be inferred from the large number of certificates awarded. The centre of attraction was a collection of new varieties of Azalea indica shown by M. Louis Van Houtte from his nurseries at Ghent, where Azalea raising is the one great speciality. The bright group of Rhododendrons and Azaleas from the Berkhamstead Nurseries lit up the conservatory, as did also the grand display of Narcissi from Messrs. Barr and Ware, their collections being scarcely, if at all inferior to those shown at the Daffodil conference, and certainly more effectively arranged.

First-class certificates were awarded to the following plants:—

Azalea Comte de Paris.—Flowers very large, single, and of fine form; petals broad and overlapping; colour salmon-pink, broadly edged with white, spotted and blotched with carmine. Exhibited by the raiser, M. Louis Van Houtte, Ghent.

Azalea Comte de la Torre.—Somewhat similar to the preceding, but semi-double; flowers more crimpled; colour a pale salmon-pink, flaked with a deeper hue and heavily blotched in the centre. M. Louis Van Houtte.

Azalea Baron Nathaniel de Rothschild.—An extremely fine double-flowered variety, one of the best flowered; forms quite a rosette of petals, which are of a rich rose-purple. M. Van Houtte.

Azalea Souvenir du Duc d'Albany.—The largest flowered white variety yet raised; the flowers, which are fully 4½ inches across, resemble those of Rhododendron Veitchianum. They are crisp-edged, snow-white, and show a tendency to become double. M. L. Van Houtte.

Azalea Souvenir du Prince Henri.—A double-flowered variety with full petalled blossoms of a flowering rosy carmine, very floriferous and of good habit. M. L. Van Houtte.

Azalea Mdlle. Marie Stockman.—A semi-double flowered sort; the blossoms of which are snow-white, of moderate size, and handsome in form; one of the best whites shown. M. Van Houtte.

Azalea B. S. Williams.—A very large single variety, the blooms being 4 inches across, colour a rich rosy carmine blotched with crimson. M. Van Houtte.

Azalea John T. D. Llewelyn.—A most beautiful double variety, probably the finest of all the set shown. The blossoms are large and fully double. The colour is a delicate flesh-pink, broadly edged with white and heavily blotched with crimson in the centre. M. Van Houtte.

Azalea Comte Adrien de Germiny.—A very distinct single-flowered variety. The flowers are of moderate size, and in colour a bright rosy carmine, except the upper petals, which are of a rosy purple. M. Van Houtte.

Cypripedium ciliolare.—A new Lady's Slipper in the way of C. Argus, Curtisi, and Veitchianum, and is very handsome. The pouch is a dark purple, the dorsal large, and striped with green and white, while the lateral sepals are of a claret-purple, copiously spotted with very deep claret-red. The foliage is mottled, as in C. barbatum. Exhibited by Sir Trevor Lawrence.

Odontoglossum crispum guttatum.—A variety which appears to be the counterpart of the guttatum variety figured in Bateman's "Monograph." The flowers are of medium size, white, heavily blotched, and spotted with chestnut-red. Sir Trevor Lawrence.

Oncidium cucullatum giganteum.—This is a very handsome and attractive Orchid, differing from the type in its much larger flowers. The labellum is the most conspicuous part of the flower. It measures an inch across, and is of a bluish purple, and profusely spotted, especially towards the centre, with a much deeper colour. The crest is bright yellow, and the sepals are of a chocolate-purple. The plant shown by Sir Trevor Lawrence bore a spike of a dozen flowers. It is different from the variety known in other collections as giganteum, and resembles that called Chestertoni.

Odontoglossum Shuttleworthii.—One of the finest hybrid Odontoglossums that we have seen. It bears affinity with O. crispum as regards the size and form of the flowers as well as its growth. The flowers are 3 inches across; the three outer sepals are almost entirely chestnut-brown tipped with white. The lateral sepals are broad and irregularly toothed. They are white, heavily blotched and spotted with cinnamon-brown. The lip is broad with fringed margin, white blotch the same tint as the petals. Shown by the introducers, Messrs. Shuttleworth, Carder, & Co., 191, Park Road, Clapham.

Davallia Mariesi cristata.—A most elegant variety of the Japanese Hare's-foot Fern, having the fronds terminated by tassel-like tufts. A valuable greenhouse Fern, particularly for cutting, as the fronds are finely divided and elegant. Messrs. Veitch.

Phaius irroratus purpureus.—A highly interesting hybrid Orchid, inasmuch as it is a cross between two distinct genera. The parents are stated to be Phaius grandifolius and Calanthe vestita. The flowers are like neither of the parents in form, size, or colour. They are about 2 inches across, the sepals white, the lip rose-purple. It is, therefore, an attractive plant. Shown by the raisers, Messrs. Veitch.

Narcissus incomparabilis James Dickson.—Undoubtedly the largest and finest flowered variety of the Peerless Daffodil yet raised. The flowers measure between 4 inches and 5 inches across; the sepals are broad, overlapping, and of a deep primrose-yellow. The corona, which is much longer than is usual in incomparabilis, is widely expanded, and of a deep, rich yellow. There is a great future for this Daffodil. Exhibited by Messrs. J. Dickson & Sons, Newton Nurseries, Chester.

Auricula Conservative.—A show variety, with very white edges, black body colour, dense white paste and gold tube, and very round. The flower is of moderate size and of admirable form. The plant—shown by the raiser, Mr. Douglas, Great Gearies, Ilford—bore a spike bearing twelve flowers.

Auricula Mungo McGeorge.—An alpine variety; flower large yellow, centre ground colour deep maroon-crimson, shading to a paler hue. Exhibited by Mr. Turner, Royal Nurseries, Slough.

Narcissus poeticus biflorus.—A number of specimens of the ornatus variety of the Poet's Narcissus were shown by Mr. Herbst, Richmond, each stem bearing two flowers. This twin-flowered form often occurs among liberally-grown plants of this Narcissus, but the committee, by awarding a certificate in this instance, appear to regard it as a distinct variety.

Narcissus bicolor J. B. M. Camm.—An extremely pretty variety with flowers almost as large as those of Horsfieldi and of quite as firm texture. The sepals and petals are white, while the trumpet is of a soft primrose-yellow. Exhibited by Messrs. Barr & Son, Covent Garden.

Narcissus incomparabilis Queen of the Netherlands.—A pretty variety remarkable for the very shallow, deep orange cup of the flower. The sepals are pale primrose-yellow. Messrs. Barr.

Narcissus Leedsi Queen of England.—A lovely sort with large flowers having pure white sepals and clear yellow cups widely expanded. Messrs. Barr.

Amaryllis Zitella.—A hybrid partaking of the characters of the old A. marginata. The flowers are large with recurved segments. The ground colour is carmine, striped and banded with white. Messrs. Veitch.

Amaryllis Virgo.—A very bright variety. Though the flowers are not remarkable for size, they are of excellent shape. The colour, a vivid scarlet banded and netted with white, is most attractive. Messrs. Veitch.

Azalea Princess of Wales.—A variety of A indica having double flowers, pure white, of good shape, and plentifully produced. Shown by Mr. W. Nicoll, Lower Merton, Surrey.

Adiantum cuneatum strictum.—A variety of the common Maiden-hair Fern having an upright growth, all the fronds being borne erect; consequently it is very distinct from the type. Shown by Mr. B. S. Williams.

A few choice plants from the Royal Exotic Nursery, Chelsea, were of interest. These included a white variety of Dendrobium Devonianum, very chaste and pretty; Angræcum dependens, in the way of A. Kotschyi, but smaller; Cypripedium microchilum, the pretty hybrid between C. niveum and C. Druryi; Dendrobium barbatulum, a white, dense-flowered species, beautiful and distinct; Coelogyne ocellata nitida, a variety with white flowers, the first time exhibited; Cypripedium vernixium, a hybrid between C. Argus and C. vil

losum; Lælia flava, the yellow-flowered species not often seen; Azalea Caldwelli, a species in the way of A. amœna and a variety of it, with a profusion of bright Indian red flowers; A. ledifolia, a Japanese species, with double flowers of a rose-purple; and Carnation Harlequin, a fine Tree-flowered variety.

An extensive and much admired display of Narcissi was contributed by Mr. T. S. Ware, Hale Farm Nursery, Tottenham, for which he was awarded a silver-gilt Banksian medal. The collection comprised about fifty of the finest sorts. An admirable group of hardy herbaceous and bulbous plants was also shown by Mr. Ware. These included glorious panfuls of Anemone apennina and its white variety, the sky-blue variety of Iris pumila, Erythronium grandiflorum, E. albiflorum, Zephyranthes Treatiæ, Primula viscosa nivalis, Adonis vernalis, Trillium grandiflorum—all among the best of hardy plants.

A highly attractive group of hardy Rhododendrons and Azalea mollis in pots was exhibited by Messrs. Lane, Berkhamstead, which worthily deserved the silver-gilt Banksian medal awarded to the exhibitors. A silver-gilt Banksian medal was also awarded to Messrs. Cutbush, Highgate, for an interesting miscellaneous collection of hard-wooded plants, for which their nurseries have so long been celebrated. Among these the most interesting were Acacia grandis, apparently synonymous with A. pulchella; Kennedya lilacina, with small Pea-shaped flowers; Choisya ternata; Adiantum Pacotti, a most beautiful dwarf form of the common Maiden-hair Fern; Leschenaultia formosa; Boronia pinnata; and Leptospermum lanigerum.

Once more Messrs. Barr exhibited a group of cut Narcissi similar to those shown a few days previous at the Crystal Palace. Among the dozens of sorts shown were the following new ones, besides those which were awarded certificates: N. Barri albus Beauty, a pretty flower, but not so fine as some of the others of the race; Backhousei, the type of a distinct race of hybrids in the way of Humei; John Nelson, a very fine flower, as large as major, but of a paler yellow; incomparabilis Cornelius Dee, primrose sepals, widely expanded cup of orange; J. B. Llewellyn, deep orange cup, very fine; tridymus and tridymus aurantius, both handsome. A bronze Banksian medal was awarded to Messrs. Barr.

One of the most successful growers of market Pelargoniums (Messrs. Hayes, Edmonton) exhibited a group of the market varieties they grow so finely. The plants shown, about two dozen, were all bushy and profusely-flowered specimens, representing the best sorts. The same exhibitors also showed plants of what they call the new Fairy Rose (longifolia), differing from the ordinary form by the much longer leaflets. To this group a bronze Banksian medal was awarded.

The Bedfont Yellow Wallflower was again exhibited by Mr. Dean, in order to show its persistent flowering property. Myosotis dissitiflora Perfection was also shown by the same exhibitor; also a pretty seedling double Crown Anemone, with very double rich purple flowers. A hybrid Primrose, named Earl of Beaconsfield, was shown by Messrs. Cannell, Swanley. The flowers are 1½ inches across, of a very deep crimson flaked with white, and conspicuous yellow centre.

A group of choice and interesting plants also came from Mr. B. S. Williams' nursery. Among them were some admirable seedling Amaryllises and some new Azaleas, those named Heinrich Heine, punctulata flore-pleno, Mad. Estelie Cuvelier being the finest. Besides these were a few Orchids, noteworthy among which was a well flowered plant of O. vexillarium, representing a fine variety, and to which a cultural commendation was accorded. There was also a very large flowered variety of Cattleya Mendeli, appropriately named gigantea, and the rarely seen Cypripedium Druryi. A finely flowered specimen of Cypripedium lævigatum, with nine flowers on three spikes, was exhibited from Sir Trevor Lawrence's garden. A cultural commendation was accorded for a small basket plant of Dendrobium Cambridgeanum, with three of its bulbs densely wreathed with golden flowers, which came from Mr. De B. Crawshay's garden at Rosefield, Sevenoaks. Messrs. Shuttleworth, Carder, and Co. exhibited a fine variety of O. Wilckeanum, with large chestnut-brown blotched flowers, and a fine panful of the charming little M. Shuttleworthi, each plant fairly bristling with flowers.

The splendid hybrid Lælia Dominiana was shown by Mr. Ballantine, from Baron Schroeder's garden. It is unquestionably one of the finest of all Mr. Dominy's hybrid Orchids, the lip of the flower being so large and richly coloured. Sir Charles Strickland sent from Hildenley Cattleya citrina on wood rafts, well grown and flowered. Each recurring spring Mr. Woodbridge shows, from the Syon House gardens, glorious spikes of Hymenocallis macrostephana, a Pancratium-like bulbous plant with snowy white fragrant flowers. A dozen blooms of the new Rose Her Majesty were shown by the raiser, Mr. H. Bennett, Shepperton, for which a cultural commendation was awarded.

The new Azaleas from M. Louis Van Houtte's nursery at Ghent included, besides those certificated, the following sorts, all of which were first-rate, though some were rather finer than others: Mrs. Harry Veitch, double rose-pink, edged and flaked with white, blotched with crimson; Mad. Aug. Lemonnier, single, deep rose-salmon, flaked with white and carmine; Sir Spencer Wells, single, large brilliant red, blotched with crimson; Mad. Alfred Chaber, single, rosy carmine; F. W. Moore, double, almost the same colour as the brilliant Flambeau; Miss E. Jarrell, a semi-double, white crisped edges; Princess Victoria, double salmon-pink, flaked with white; and Mrs. B. S. Williams, semi-double white, flaked with rose. A few new seedling Amaryllises were again shown by Messrs. Veitch.

Fruit and vegetables.—A first-class certificate was awarded to Messrs. J. Veitch & Sons for samples of Elam's Dwarf Early Spring Cabbage. Mr. J. Wilney, Brayfield House, Newport Pagnell, sent fine heads of Cabbage All the Year Round and good samples of Seakale The Pearl. An excellent dish of Brabant Bellefleur, a fine showy Apple, was sent by Mr. Fennell, Fairlawn Park, Tonbridge; and Mr. W. Horley, Toddington, sent half a dozen seedling Apples for name.

Messrs. Rivers & Son, Sawbridgeworth, showed a fine collection of Apples in admirable preservation. There were between sixty and seventy dishes in all, the most remarkable examples being Blenheim Orange, Forge, Betty Geeson, Cellini, Beauty of Kent, Dumelow's Seedling, Melon, Newtown Pippin, Baldwin, Winter Pearmain, Wageuer, Seek-no-Further, Northern Greening, Lord Burghley, and Green Fulwood. Mr. Goldsmith, Hollander, Tonbridge, again showed some admirably preserved Apples, the most remarkable of which were Northern Greening, Winter Queening or Duck's-bill, very fine, Golden Knob, Court Pendu Plat, Ribston Pippin, and Cox's Orange.

OBITUARY.

WE have to record with much regret the death of Mr. EDWARD MILNER, the landscape gardener, which took place at Norwood on the 26th ult. Mr. Milner's first great work was the laying out the Crystal Palace grounds, at Sydenham, from designs furnished by Sir Joseph Paxton, and since then he has been extensively employed in laying out and improving gardens in all parts of the country and even on the Continent. Some three years ago he was appointed teacher of landscape work at the Crystal Palace School of Gardening, a post which he undertook in connection with his son, Mr. Henry Milner, who has lately been his partner. He was well known and much respected, and will be greatly missed in the department to which he belonged. The many works which he so successfully carried out will form a lasting monument to his memory.

"In affectionate remembrance of JAMES ATKINS, who died at Painswick on the 2nd inst., aged eighty-two years." Such is the inscription on a card which came to us, recording the death of one of the most devoted students of hardy plants, and one of the best growers of them. We never had the pleasure of seeing his garden, though no one could get any plants from him without seeing that they came from a place where they were admirably grown. He was also a very successful hybridist; of this the pretty spring Cyclamen (C. Atkinsi) and its varieties afford, among many others, ample proof.

The late Mr. Harpur Crewe.—A reredos is being constructed to be placed in the church of Drayton-Beauchamp, in memory of the Rev. H. Harpur Crewe. The subject is from the "Sermon on the Mount," appropriate to one who was so devoted to flowers. Messrs. Forsyth are the designers and workmen. The estimated cost is £100. I have no doubt that readers of THE GARDEN who were among his friends would like to join in helping, and I may just intimate that subscriptions for the purpose can be paid into Messrs. Butcher's Bank at Tring, and to Mr. J. E. Bartlett, Bucks and Oxon Bank, Aylesbury. — FREDERICK W. RAGG, *Marsworth Vicarage, Tring.*

Tulips at Clifton.—A considerable number of Tulips was exhibited at the Clifton show, and of these the best were Chrysolora, pure yellow, and very effective; Joost Van Vondel, bright rose, with a white streak; Keizer Kroon, rich yellow, striped with red, one of the best; scarlet, white, and yellow Pottebakker, all good; Proserpine, rich rose, of good substance; Vermilion Brilliant, rich vermilion, very popular; Murillo, double yellowish white; Tournesol, double scarlet and yellow; Imperator rubrum, rich scarlet, double and good; Rex rubrorum, scarlet, double; and Salvator Rosa, bright rose, one of the best doubles.—VISITOR.

Books (*T. L.*)—Lindley's "Descriptive Botany" would probably suit you. It may sometimes be obtained through a second hand bookseller.

Caterpillars (*F. M.*).—The grub you forwarded is the caterpillar of the goat moth (Cossus ligniperda), which lives in the stems and branches of various trees and injures them considerably.—G. S. S.

Diseased Vines (*S. K.*).—The defective root action to which you allude has caused the leaf growth to be weak and impoverished. Numerous mites are running about the leaves, and we observe plenty of eggs, but no fungus. Better root growth will doubtless improve matters.

Scale insects (*G. Fellows*).—The insects forwarded are a species of scale insect very like the Camellia scale (Pulvinaria camellicola), but they are so crushed that I cannot say if they are that species or not. Sponge the leaves of the plant with soft soap and water to which a little tobacco water has been added.—G. S. S.

Deformed Cucumbers—I send you a novel sport in the way of a Sion House Improved Cucumber with a leaf growing from the centre. I have seen two Cucumbers growing together, but never met with this kind of deformity before.—A. C., *Weston Birt, Tetbury.*

*** You will find a Cucumber similar to that which you send figured in THE GARDEN, Vol VII., p. 245. Both in that and in your case the leaf stalk may be seen adhering to the Cucumber for a certain distance, where it separates and produces a leaf.—ED.

Names of plants.—*R. Penrose.*—Your Rhododendron is one of the forms of R. arboreum. This species varies from pure white to the most brilliant crimson-scarlet. The white varieties, as in this case, have the tomentum under the leaf brownish, and are generally found at higher elevations than the brilliant-coloured kinds.——*Miss K.*—Narcissus Telamonius fl.-pl.—*T. M.*—Odontoglossum triumphans——*A. J.*—Narcissus minor (the smaller Daffodil) forms the main portion of the flowers sent, while the common Daffodil (N. Pseudo-narcissus) is among the others we could not detect a third variety.——*May Deutsche.*—Spiræa confusa.——*M. F.*—1, Azalea amœna; 2, Oxalis acetocella.——*S. Dewar.*—1, Gladiolus versicolor; 2, Tulipa Clusiana.——*D. Dowdeswell.*—1, Tussilago Farfara; 2, apparently Potentilla alba (flowers had all dropped); 3, Anemone nemorosa; 4, Stellaria Holostea.——*W. Walker.*—Dendrobium Devonianum; Gongora atropurpurea; Goniophlebium subauriculatum (with spores); send other Fern when the fronds have spores on it.—*A. P. H.*—A Grevillea (cannot name species).—*J. M. Harvey.*—Pancratium rotatum.——*A. J. H.*—a, Celsia cretica; b, Adonis vernalis.——*Mrs. M. A.*—1, Tulipa Clusiana; 2, Gladiolus blandus; 3, Gladiolus versicolor.——*K. A. S.*—Acacia armata; Aubrietia Hendersoni; Deutzia gracilis; Narcissus incomparabilis (accidentally triple-flowered); Berberis dulcis.——*W. G. Marshall.*—Apparently Tulip Rose Luisante.——*G. F. Donald.*—1, white Azalea indica; 2, Epacris onosmæflora; 3, Rhododendron ciliatum variety; 4, Rhododendron ciliatum.

No. 648. SATURDAY, April 19, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WILD GARDENING IN DERBYSHIRE.

IT is always pleasant to hear of people turning their attention to hardy plant growing, and more particularly to wild gardening, which unquestionably is the most fascinating of all the phases of hardy plant culture. That is what Mr. G. H. Cammell is doing in his garden at Brookfield Manor, Hathersage. He has evidently a clear conception of what wild gardening ought to be—a fact indicated by the progress which he has already made in converting a portion of his grounds into a wild garden. So far he has been most successful, but then he has had the advantage of an almost unique situation and a variety of soils, which, taken together, constitute half the battle of successful wild gardening. A more delightful spot for carrying out any kind of open-air gardening could not be found than Brookfield Manor, one of the most beautiful localities in picturesque Derbyshire. It is situated a mile or so from the village of Hathersage, in the heart of the county and in the valley of the Derwent. Surrounded by heathy hills, it is completely sheltered on all sides save the south; in fact, the place is quite a sun trap as it were, though of course, as in all inland districts, it is cold at certain seasons. A stream from the high moorland runs through the grounds and lends an additional charm to the place. The little ravine-like valley behind the mansion has been selected by Mr. Cammell for his wild garden. Here he is favoured with almost every variety of aspect, open and shaded, sheltered and exposed, moist or dry. The greater portion of the wild garden, however, is in shade, under a tall plantation with little or no undergrowth, though with sufficient surface growth to protect the uprising growth of the numerous exotics that are being naturalised.

The idea of Mr. Cammell is to create bright woodland effects at certain seasons by planting bold masses of one kind, and, judging by what we saw, he is evidently progressing in the right direction to attain this end. Hence he has breadths of such plants as Lily of the Valley, Saxifraga cordifolia, Solomon's Seal, Forget-me-nots, Foxgloves, Snowdrops, Daffodils, Primroses, Grape Hyacinths, and the like, while lesser masses consist of Squills, Trilliums, Cypripediums, Swamp Lilies, Day Lilies, Apennine Anemones, Hepaticas, Dog's-tooth Violets, and American Cowslips. The day we saw the garden there was a beautiful colony of hardy Cyclamens in flower growing out of a rocky ledge almost on a level with the eye. These were growing in a light, sandy soil enriched with leaf-mould, and were in almost full shade. The kinds were hederæfolium, europæum, and vernum, and seldom have we seen Cyclamens so thoroughly at home. Down by the margin of the brook, out of harm's way of the winter's floods, Mr. Cammell has little gatherings of Trillium grandiflorum and hardy Cypripediums, both in partial shade and in a light, moist soil rich in leaf-mould. In a similar position, too, is the beautiful Swamp Lily (Lilium superbum), which is always grateful for shade and shelter, in addition to a deep, moist, peaty soil. Near the water's edge also is the Royal Fern (Osmunda regalis), just the position for such a plant, as it likes abundance of moisture and does not mind being entirely submerged.

Masses of the bold-leaved Funkias will have a fine effect presently when they become thoroughly established, which they will do in such a generous soil. There are a host of exotic plants suitable for naturalising in this beautiful plantation which Mr. Cammell intends to plant. In course of time these exotics, combined with the natural growth of the wood, will create bright effects, particularly in spring and early summer, when the wood is carpeted with such things as Wood Anemones, wild Hyacinths, Primroses, Snowdrops, and Daffodils all following each other in quick succession.

The chief enemies to gardening of this character are rabbits and mice, the former being by far the greater nuisance. In this case Mr. Cammell has completely surrounded his garden with wire netting, and in order to make it more effectual in keeping these pests out he has placed the wire a few inches below the surface, and bent it almost at right angles, in order to prevent the rabbits from burrowing beneath it.

Besides the wood garden Mr. Cammell has set apart an open portion of his grounds where he intends next autumn to plant all those kinds of herbaceous perennials that need a strong soil and an exposed position. This list will include such genera as Ferula, Onopordon, Telekia, Polygonum, Gunnera, Rheum, Crambe, Senecio, Cephalaria, Heracleum, Lathyrus, Lavatera, Symphytum, Ligularia, and many others, which will produce a fine effect if properly placed, as the foliage of most of these plants is bold and handsome. Bulbous plants, too, are being planted in broad masses, both on the Grass and beneath groups of deciduous ornamental trees, and which in a few years will become quite naturalised in such a spot. Wild gardening is not the only phase of hardy plant gardening carried out at Brookfield. Recently there have been some spacious borders stocked with the finest of hardy perennials arranged in colour masses, which have been so much advocated in THE GARDEN. The greater portion of the plants has been selected with the view of rendering the garden gay just at the grouse shooting season. This was an easier task in the midlands than it would have been in the south, as vegetation there generally is fully a fortnight later. We hope to give at some future time a list of the plants employed to produce a bright effect in the middle of August.

ROSES IN APRIL.

WE have cut several Maréchal Niel Roses in the open this week, a fact sufficiently rare to be made a note of. Safrano is also out on a wall and others are rapidly following. A nice collection of Teas on a south wall is mostly showing bloom, and the foliage is a sight to see, large and clean as the finest Rose foliage in June or July. The beautiful rain of last night (this was written on the 7th of April) has fallen most opportunely for the general collection of Teas and Perpetuals in the open just pruned. The buds are swelling up superbly right down to the bases of the plants, and one can fancy, though of course it must be fancy only, that they have grown since the rain fell. The wind has veered round to the north, and the day has been dull and cold like a day in Scotland or Switzerland after heavy rains, even in summer, when the air is not seldom cooled down to something like a wintry coolness by the snow on the mountain tops, that at times almost look near enough to be touched through the shifting mantle of mist. Just the sort of weather for our Roses. Would we had a few weeks of it to give the buds time to fill up well before they burst into foliage or are hurried into bloom. Rose shows in May would be very delightful no doubt, but the after results on the trees would probably prove so disastrous that after all it is to be hoped that the normal season of blooming may not be too widely departed from. With a warm April this year Roses in May are likely to be as plentiful as they are usually in June. But a cool and dripping April will hinder rather than check precocious growths. And it is the former, not the latter, that is wanted. In Rose growths prevention is better than cure. In fact, few things are more destructive in Rose culture than severe checks. The few stinging frosts and parching winds we have recently had have produced mildew in a few specially early Teas on walls, such as Safrano; and had others been as early, they would probably have been equally affected. But, on the whole Roses, were never cleaner nor more healthy or full of promise than they are this April, and with such weather as has already been indicated, there seems little doubt of a prosperous season.

ROSE CUTTINGS in the open air have also rooted so freely, that, writing in general terms, it may be said that all have formed roots. Teas and Perpetuals have rooted with equal freedom. In a whole row of Maréchal Niels there does not seem to be a single failure, and La France and other Perpetuals and Teas have rooted equally well, with one notable exception, Marie Baumann, thus affording further proof, were that wanting, of the shy-rooting properties of this magnificent Rose. Among all the others, which consist of most of the best Teas and not a few of the finer Perpetuals, there is but little difference in the rooting with the exception of Marie Baumann.

THE DORMANT BUDS on the Briers also look remarkably well and promise fine flowers. Some of them, however, that were partially cut back in the autumn are already in full growth, and need careful support at once to prevent their being blown out by the first high winds. The Brier shoots should also be at once cut back to the base of the Rose buds if not already done. This is also a good season to top-dress or mulch Rose roots. The best material for this purpose is strong and juicy farmyard manure, that is, for Roses grown, as all Roses for showing ought to be, out of the flower garden proper, where surface tidiness, sweetness, or appearance is no object. Such enriching surfacings not only preserve the strength of the soil from dissipation by winds and sun, but likewise add to the richness of the Rose root runs, conserve their moisture, and keep them cool during the scorching droughts of summer weather. Those whose main object is their flowers, will care but little though the Rose grounds are more like sheep-folds than gardens for the next few months, and few things contribute so much to the development of size and quality in Roses as these liberal surfacings of rich manure. Where these abound and are to spare in quantity sufficient for the purpose, a surface-dressing of the Briers for budding pays well, fostering such strong and early growths, as to render early budding possible and a sure take and a rapid growth afterwards certain.

D. T. FISH.

A BLUE-FLOWERED BROMELIAD.

(PUYA CŒRULEA.)

THIS remarkable plant belongs to the largest-growing section of the Bromelia or Pine-apple family. The genus Puya itself, along with the gigantic Brocchinia from British Guiana, and several Pourretias, comprise plants which would be considered far too large for any but the largest houses. P. cœrulea, better known as P. Whytei, under which name it is figured in the *Botanical Magazine*—is, however, a comparatively small species, which may be accommodated in an ordinary greenhouse. We have some recollection of this plant having thriven for several years out of doors somewhere in Cornwall and producing a flower-spike; but, except in very sheltered situations indeed, it requires the protection of a greenhouse for its safe cultivation. At Kew it is grown in the intermediate portion of the succulent house, in company with other strong-growing Bromeliads, Aloes, &c., where it appears to be quite contented, and is now bearing a spike of its singularly coloured flowers. We do not remember to have seen in any other plant so strange a combination of blue and green as is shown in the flowers of this Puya; some have called it ultramarine blue, others a peculiar shade of green, but the nearest resemblance to it is to be seen in looking at a green lawn through a piece of blue glass. The flowers are large, bell-shaped, and borne in a cluster on the upper portion of a stout spike, each flower having attached to its base a large, brown, papery bract. The anthers are bright yellow. Altogether this is a singularly handsome plant, worthy of being included among brightly-flowered, weird-stemmed Cactuses, Aloes, and Euphorbias, and other vegetable wonders gathered together in the "Old Curiosity" house at Kew—a

house in which the display of flowers is unusually attractive just now.

TREE FERNS AT KEW.

The large wing attached to the tropical fernery at Kew, originally intended for the reception of Tree Ferns, but which until recently was occupied by a number of large straggling Angiopteris of rather unpicturesque appearance, has this spring been rearranged with a view to the development of the collection of tropical Tree Ferns, and the result is a great improvement. The centre is occupied by a large number of tall-stemmed healthy Ferns, many of which are rare, and these towering one above the other make a striking picture of a miniature Fern forest. A liberal use of fresh cow manure, of which a thick layer is placed over the soil in which each plant is growing, has, even in the short time during which it has been applied, had a wonderfully stimulating effect on the growth and vigour of the plants. It is evident that at Kew the natural conditions under which Tree Ferns are known to luxuriate in their native wilds are reproduced and even improved upon, a steaming atmosphere being kept about the plants all the day through by means of a frequent use of the syringe and watering-pot. It should be borne in mind by all Fern cultivators that treatment such as is here described is necessary to the healthy development of all Ferns. The side stages of this tree fernery at Kew are now occupied by peat-clothed Fern stems, upon which various species of Davallia, Polypodium, &c., are planted and are rapidly assuming a pleasing appearance. Upon the tops of these stems, the collection of Platyceriums is arranged all round the house, an arrangement which is better suited to the requirements as well as to the proper display of the ornamental characters of these plants than that under which they were previously grown. A healthy plant of the Lattice Leaf (Ouvirandra fenestralis) is to be seen in this house.

PLANTS IN FLOWER.

Semi-double Anemones.—The semi-double Anemones are very striking just now; they are perhaps as effective as the good double and single kinds are. We have a noble bunch of them from "St. Brigid" from Howth, where they seem to grow admirably.

Rhododendron Countess of Haddington.—This noble kind comes to us beautifully grown by Mr. Mangles. We have never seen it so rich in leaf or full in flower; and this we attribute to its being planted out in a peat bed in a cool house and otherwise well treated.

Rhododendron virgatum.—This species comes to us from Mr. Mangles. It is very distinct and pretty, the flowers being produced in quite a different way from any Rhododendron that we have hitherto seen, making it somewhat resemble a Weigela. Mr. Mangles informs us that it is hardy. It is one of the smaller species, and if it prove hardy generally it will be a welcome addition.

Rhododendron Forsterianum.—This very lovely Rhododendron comes to us from Mr Mangles. We had the pleasure of seeing a large basket of these finely fringed flowers as grown by him, and a more beautiful sight we have not enjoyed. R. Forsterianum is a hybrid between R. Veitchianum and R. Edgeworthi, raised by Herr Otto Forster, a renowned Rhododendron grower in Austria; as grown and bloomed by Mr. Mangles it is an immense white flower and very sweet scented.

The Spider Orchis.—I send you a spike of this Orchis (Ophrys aranifera), being one of several culled from the open ground this morning. I find this species to be far more difficult to cultivate than O. apifera, the latter having flowered for several years in succession in my garden. If we cannot grow our native Orchids out of-doors and in good bold masses, their cultivation as frame plants should, in my opinion, be discarded, there being but little to be obtained from the cultivation of these plants under glass.—A. D. Webster, *Llandegai, Bangor.*

Pandanus odoratissimus. — The large specimen of this Screw Pine, which has long been one of the most striking plants in the Palm house at Kew, is now bearing several of its large cone-like inflorescences. The flowering of Screw Pines is as rare an event in gardens in this country as is that of the equally popular Palms whose charms for the cultivator are those of foliage rather than flowers. The Pandani bear the female blossoms on one plant and the male ones on another. The Kew plant is a female, but the production of fruit is not possible, unless a male plant should happen to flower before these female blossoms are over. Some months ago a male plant of P. ornatus bore an immense inflorescence, which for several days emitted a powerful and delicious odour. We believe that the whole of the Pandani have this sweet penetrating odour in their male flowers.

Rhododendron pendu'um.—A very interesting and beautiful species which grows on trees in Sikkim comes to us from Mr. Mangles. The under sides of the leaves are densely covered with down of a most beautiful softness and delicacy of colour. The flowers are waxy white, about 2 inches across in small trusses. It is planted out in the canvas house at Valewood.

Hybrid Polyanthus.—Flowers of a seedling Polyanthus, said to be a cross between a Gold-laced Polyanthus and a Cowslip, have been sent to us by Mr. Robert Veitch, Exeter. The flowers are very pretty, about the ordinary Polyanthus size, with a maroon ground colour and bright yellow centre. The petals are margined with an even and well-defined lacing of gold. Mr. Veitch also sends us samples of his strain of Gold-laced Polyanthuses, all of which are uncommonly fine, scarcely inferior to named sorts, and probably superior as regards constitution.

Anthurium Andreanum.—There seems to be considerable variation in this new Aroid as regards size of spathe. In some forms the spathes are about twice the size of those of others, though cultivated in the same way. One of the finest spathes that we have seen has been sent to us by Sir William Marriott, from the Down House, Blandford. This measures fully 8 inches in length by 5¾ inches in width, hence very showy. From the Down House garden also came a grand three-flowered spike of the spring flowering form of Angræcum sesquipedale and a spike of Odontoglossum vexillarium with flowers 3½ inches across the labellum.

Plectranthus fœtidus.—This is a tall growing Salvia-like plant, whose leaves have a strong and not altogether disagreeable odour, while the flowers, which are borne on long, branching, terminal spikes, are a pleasing shade of light blue. It has been in bloom for some weeks in the Palm house at Kew, and as it is as easy to manage as a Salvia—in fact may be grown along with the batch of Salvia plants which are grown in most gardens for the decoration of the conservatory in winter—it may be recommended as a useful plant for flowering in the warmer houses during the earliest months of the year.

Double crimson Primroses.— Rarely have we seen a more beautiful double flower than a double crimson Primrose, which is grown in perfection by Mr. Jennings, at Ascott House, Leighton Buzzard. This variety must either be very scarce or new, as it is so seldom seen. No Primrose with which we are acquainted has such double flowers; they form a perfect dense rosette of petals of the deepest velvet crimson without a suggestion of any other tint. It is a profuse flowerer, and the blossoms remain in perfection much longer than the single sorts. It is admired by every one, and no one sees it but desires to grow it.

Finely flowered Bomarea conferta.—When we gave a coloured plate in The Garden last year of this new South American plant we little thought that we should so soon see the enormous clusters of bloom which the introducers of the plant, Messrs. Shuttleworth and Carder, stated the plant produced in its native wilds. Their assertion is amply verified by an enormous flower cluster that came to our office the other day from Colonel Gascoigne's garden at Portarlington. This cluster numbered no fewer than 53 flowers, each of which was 2½ inches long, and of a bright orange-red colour, spotted interiorly with very deep crimson. Such an extraordinary specimen as this much surprised us, as the most we had seen hitherto in a cluster was from two to three dozen blooms. We cannot conceive a finer sight in a greenhouse than a large plant of this new Bomarea trailing under the roof or festooning a pillar with such heads of bloom as that sent to us. The slender growth of the plant gives a natural grace to it, and as the flower clusters invariably hang vertically on slender stems, the effect is all the more uncommon. We should much like to know the conditions under which this fine specimen has been produced, which admirably shows what a valuable greenhouse plant this Bomarea is. It, moreover, shows that it is unwise to judge new plants the first time they flower. They should become thoroughly established, as in this case, and be grown by expert cultivators before their merits as garden plants are determined.

Finely grown and flowered Deutzia gracilis.—In 1882 I sent you a short account of the way in which Mr. W. Elkin, of Fairhope, Eccles, managed plants of this Deutzia. I again saw them a few days ago; many of them were 3 yards through, untrained and loaded at every joint with lovely white flowers. When will growers learn how to grow such plants? Mr. Elkin does not cut out the old blooming wood, as many do, but instead he has all the bloom stalks cut off when the petals fall, and encourages growth for a time before exposing the plants out of doors during the summer months. I have never during a long practice seen such Deutzias.—D. J. N.

From the Hill of Howth again comes some of "St. Brigid's" double and semi-double Crown Anemones, which she grows so well. They are of all colours that Anemone coronaria is capable of producing, brilliant blues and purples, fiery scarlets and soft whites. All the blooms are unusually large, and a handful of them makes a floral display in itself. Truly, a beautiful garden may be made of Anemones alone, and we are pleased to bear that "St. Brigid" is making a speciality of this genus. If she grows the other species as well as she does the A. coronaria, her garden will be a fine sight throughout the summer, and even in the dead of winter it will be lit up by the brilliant hues of the Crown Anemones, flowers of which her garden never lacks.

Auricula Maud Browne.—Some flowers of this lovely Auricula have been again sent to us by Dr. W. H. Browne, Aldborough, Hull. Its blooms measure fully 1¾ inches across, are perfectly circular, and of good substance. The colour is a rich port-wine tint, shaded towards the margin with a lighter hue. The centre is primrose-yellow and quite circular. It is a real addition to an already numerous class of Auriculas. Dr. Browne also sends a truss of a new seedling Polyanthus, also uncommonly fine. The colour is a deep velvety blackish crimson, with bright orange centre. The peculiarity about it is the prolongation of the tube, which forms quite a six-lobed crown, and as it is of a paler yellow than the rest of the centre, it is conspicuous.

New Primroses.—Mr. Gilbert, of Burghley, seems to be paying special attention just now to raising new sorts of coloured Primroses, judging by a fine gathering of seedling flowers which he has sent to us. These exhibit a wonderful diversity of colour, and the majority of them have large symmetrical flowers, such as would nearly conform to the ideal of a perfect Primrose. There are a few named sorts among them. First must be named the lovely variety Harbinger, which was sent some time ago. Near to this is one named Bright-eyed Beauty, the flowers of which are as large and fine as those of Harbinger, but the ground colour is not so white and the eye is of a deeper orange colour. Another, named Circular, is somewhat similar to the preceding, but with a paler centre. A very beautiful sort is one named Florence, whose flowers are large, of a deep velvety crimson ground colour, yellow centre, and has a conspicuous silvery edging to each petal. The somewhat uneven edges of the petals mar the symmetry of the blooms, but it is, nevertheless, a most attractive and pleasing sort. Several of the unnamed sorts, too, are beautiful.

Insects (*C. Griffiths*).—The larvæ is that of the common cockchafer (Melolontha vulgaris); it feeds entirely on roots and is very injurious to those of various trees and plants. Destroy all you can find.—G. S. S.

Indoor Garden.

ARUM LILIES.

In many gardens these are grown in small and medium-sized pots, and no doubt for general purposes small pots are best; but large plants are so effective in conservatories, that a few should be grown expressly for them. When well grown Arum Lilies are plants of noble port, with abundant leafage, massive and striking in appearance. But I must add that spathes are not produced in proportion to their extra size. The individual spathes are, however, larger, and they tower up above the leaves, and have altogether a more stately bearing than smaller examples. This is the best time in the whole year to commence forming specimens. The size of the plants will of course depend on the diameter of the pots used. We find that pots from 18 inches to 20 inches in diameter are not too large, as in such sizes we can grow specimens worthy of the name. If single plants large enough to shift on into such large pots are not comeatable, two or three or more can be added to form sufficient crowns to fill up the space. In any case the roots should not be seriously disturbed. The old drainage and about one-third of the old soil should be shaken away from the roots, and the plants distributed so as to fill up the pot. They like a soil composed of three parts loam and one part well rotted manure, and the drainage should be liberal in order to allow any excess of water to escape until the soil gets full of roots. When potted, let them stand in a shady corner of a cool house, and in order to keep the leaves from falling about, they should be supported with two or three sticks and ties. Early in June they may be taken to the open air and placed in the shade, where they must remain until the end of September. They will require liberal supplies of water all the summer, but although the Arum Lily is an aquatic, or nearly so, it does not require to be constantly deluged with water until it has plenty of leaves. If kept moderately moist, that is sufficient up to the end of the year; at that time the plants will be making great progress, and then is the time when the supply of water should be increased. Arum Lilies are gross-feeding subjects, and the best resnlts are obtained when the plants are liberally supplied with liquid manure. I ought to remark that large specimens are not so well adapted for forcing as smaller ones, but, nevertheless, large plants may be had in flower by the middle of March with a very little increase of temperature. J. C. C.

Poinsettias.—As a rule, these are propagated too early. Many start their plants into growth now in order to secure cuttings, which in the majority of cases grow into long lanky plants before flowering in November. On the other hand, when the old plants are not forced into growth until May is well advanced, and the cuttings are rooted in June, dwarf plants, beautifully furnished at flowering time with robust leaves from the pot upwards, are the result.—Cambrian.

SHORT NOTES.—INDOOR.

Cinerarias.—I send you a few flowers of Cinerarias. Some of the plants which I have taken them from measure 3 feet through, and have a very dwarf, bushy habit. They are also densely covered with flowers.—J. C., *Kircassock.*

**** Very good blooms, but inferior to the new varieties which Mr. James, the Cineraria raiser, has exhibited in London this year.—Ed.

Large Cinerarias.—Mention was made in The Garden recently of some flowers of Cinerarias that measured 3 inches across. I was in Messrs. Lucombe, Pince & Co. nurseries at Exeter about a month ago, when we measured some flowers of Cinerarias and found them to be as nearly as possible 3½ inches across. The strain is justly called the Wonder of the West.—J. C. C.

Salvia Griggi.—I see this plant spoken of in The Garden as being quite hardy. In may be so in Jersey or Guernsey, but it is certainly not so in Ireland. It may be best described as a dwarf form of S. Grahami; its full stature when planted out is 2 feet, rarely reaching even that. The first frost kills it to the ground, whereas S. Grahami is quite hardy, and hereabouts grows into bushes 5 feet or 6 feet high and wide, with thick woody stems.—T. Smith, *Newry.*

A STOVE IRIS.

(MARICA CŒRULEA.)

One of the most easily grown of all stove or warm greenhouse plants. Its flowers are also most beautiful. That they are not of longer duration is perhaps a matter for regret, but wherever interesting plants of singular habit are appreciated this Marica should find a place. It is easily increased by means of the young plants, produced viviparously from the old flower-scapes, and whether grown in baskets suspended from the roof or in pots it is alike effective. Our engraving shows a flower natural size. The three outer petals are pure white; the three erect, recurved inner ones are heavily marked with velvety blue, as shown in the accompanying sketch. M. Northiana is a

Flower of Marica cærulea.

larger growiog plant, and with M. cœrulea well deserves a place in all good general collections.

F. W. B.

STEPHANOTIS FLORIBUNDA.

There are few plants that have so many good properties as this well-known fragrant favourite—easily grown, a profuse bloomer, the flowers opening in succession over a considerable period, and lasting well individually. From its first becoming sufficiently known it has always been admitted as one of the best of all bouquet flowers, its pure white, long, tubular blooms arranging admirably with anything else. Those who grow flowers for the London market treat it so as to have a long succession of blooms. Even a single plant, when it has attained a considerable size, will keep on flowering for several months. It will grow in either peat or loam, but as it does not like shakiog out or its roots disturbing often, it is better to grow it in loam, as this will last longer than peat. It strikes freely from cuttings made of the preceding season's shoots, using portions that have not got too hard. If cuttings consisting of a couple of joints of these are, during the winter, put in thickly in 5-inch or 6-inch pots and stood in a temperature of 60°, they will callus over in a few weeks, when they may have 10° more warmth, which will enable them to root freely, or young shoots such as break from the old stems in spring may be taken off when 8 inches or 9 inches long with a heel of the old wood. These, if kept a little close and in a temperature similar to that named for cuttings of the mature wood, will root directly. When well rooted put them singly in 4-inch pots in good fibrous loam, with sand added proportionate to the nature of the soil. They will grow away if kept in a temperature of 60° or 65° in the night with a rise by day. It is of twining habit, and as soon as the plants begin to grow they will require a stick to each to support them. When the shoots have reached a couple of feet in height remove two or three of the top joints to cause the production of two or more growths. The plant comes from Madagascar and can stand a good amount of heat; consequently, on through the summer months it will bear a temperature of 65° to 70° by night with from 70° to 80° in the day. It likes a somewhat drier atmosphere than some stove subjects—that is, it does the best with a liberal admission of air in the daytime so as to permit of the air of the house getting drier than where less is given. It requires no shade further than is found necessary to keep the leaves from scorching. If by the beginning of July the pots are found full of roots, move into others a couple of inches larger. Syringe the plants in the afternoon during the growing season until September, when give more air and reduce the root moisture as well. From 55° to 60° night temperature will answer through the winter, with just as much moisture in the soil as will keep the leaves from shrivelling. About the beginning of March raise the temperature, increasing it still further as the sun gets warmer. Give more water to the roots, and as soon as growth has commenced move into pots 4 inches or 5 inches larger, using loam, which should be of a good turfy character that will not soon decompose. Ram the soil quite firm, and either fix trellises on the pots whereon to train the shoots, or run them up wires or strings over the roof if intended to be grown in that way. Before the shoots begin to grow stop the points to cause them to break. The young growth will most likely produce some flowers, but the principal object this

Second season should be to get the plants as large as possible, for upon the size and strength they acquire and being well maintained will depend the quantity of bloom they make the ensuing year. Treat in every way as in the preceding season, keeping the shoots regularly trained. If this is not attended to they get entangled in a way that does not admit of their being regulated afterwards. Give plenty of air through the latter part of summer and autumn, with a drier condition of both atmosphere and soil, so as to get the growth fully matured. Winter as before. Do not reduce the shoots at all previous to growth commencing, and if all goes well the plants will produce a large quantity of flowers. When the blooming is over the shoots may be shortened back, and pots from 4 inches to 6 inches larger should be given. Treat during the summer as previously, and also through the autumn and winter. The pots to which the plants were last season moved will be large enough for the next two years, giving manure water at the time of active growth. Cut the shoots back so far as necessary after blooming, as advised the preceding season, and treat as before. The plants will last for many years by removing a few inches of the surface soil and replacing it with new. Although I have spoken of their being grown on trellises in specimen fashion, still they do better close under the roof near to the glass, and even if they are wanted to bloom on the trellises the shoots should be trained near the glass during the growing season, and then wound round the trellis when fully matured. But in no way is the plant seen to so much advantage as where permanently trained under the roof, and if, in addition, it can be planted out in a bed of well-prepared soil 4 feet or 5 feet square, it will keep on growing and flowering for many years. Where there is plenty of room for the head to run, a plant will continue blooming for months.

Insects.—From the leathery texture of the leaves Stephanotis is not liable to the attacks of such insects as aphides and red spider, and if these make their appearance they are easily removed by

syringing, but the worst pests, like scale and mealy bug, are very partial to it; should these affect it, a thorough dressing with insecticide ought to be given when the plants are in a dormant state during the winter, repeating the dressing so as to make sure of destroying not only the mature insects, but also their eggs.

T. Baines.

EARTHING UP LILIES.

This practice is not, I believe, now so general as it once was. The reason of this is, I think, explained by the fact that the present race of cultivators recognise the importance of planting the bulbs deeper than was formerly the custom. Whether that be so or not, the practice still holds good, because in the case of large bulbs it is not always practicable to get them sufficiently deep to do away with earthing up. Many varieties of Lilies, especially those belonging to the lancifolium section, send out a number of roots from the stem, and observant cultivators very properly conclude that the roots so formed are designed to add support to the stem. To preserve and nourish these roots is therefore good practice; and if the bulbs are not planted deep enough to furnish food for these stem-roots, it is necessary to add fresh soil on the top, and this should consist of lumps of turfy loam about the size of a hen's egg packed closely all round the stems so as to form a low cone of earth all over the pot, except near the rim, and there sufficient space must be left to receive water enough to reach the roots. In regard to watering, it would be better if this earthing could be dispensed with, as it necessarily occupies space that should be devoted to the reception of water for the roots; but as, if neglected, it involves the probable loss of these stem roots, the cultivator must be prepared to use more care in watering, and to water them two or three times over instead of once.

J. C. C.

Ferns.

CHOICE SMALL FERNS.

Nearly all classes of plants have their pigmies as well as their gigantic representatives, and so have Ferns, the dwarf species of which have this advantage over larger kinds that more of them can be accommodated in a given space, an advantage in many cases not to be overlooked. Besides genera whose members are nearly all of a dwarf and neat habit, such as Nothochlæna, Pellæa, Doodia, Woodsia, Cheilanthes, &c., nearly all others, even those comprising large growing kinds, such as the genus Davallia, are represented by species of diminutive growth, yet full of interest. Who, for instance, could help admiring the captivating little D. parvula when grown either in a pan or on a root or rockery? That little gem which in Borneo is found growing in masses on trees, covering them with a uniform carpet of its pretty and many-times divided tiny fronds, is not adverse to cultivation, for in the late Mr. Rucker's collection it was the admiration of every visitor, and with the equally small-growing D. alpina, whose fertile and barren fronds are so entirely distinct, shared the honours of the house in which they undoubtedly proved the most important features. Again, when the name Acrostichum is mentioned, one generally pictures to oneself large and robust plants; and yet what is more lovely than A. peltatum, also called Rhipidopteris peltata, and its variety gracillima? The culture of these as well as that of the two above named Davallias is not by any means surrounded with difficulties. In a warm house and potted in fibrous peat with a good dash of silver sand they grow very freely, and one may even say rapidly, if accommodation is provided for them under a bell-glass or in a glass case of small dimensions; what they seem to dislike most is a lofty, spacious house.

In the genus Adiantum we find by the side of tall and gigantic growing kinds such pretty and thoroughly distinct dwarf species as A. assimile, a New Zealand plant of small stature an provided with underground rhizomes, making i the cool house a most agreeable display of very elegant little fronds; the silver-dusted A. scabrum, from Chili; the very curious and always attractive kidney-shaped A. reniforme, from Madeira and the Azores, and its closely related, although of somewhat larger proportions, A. azarifolium, from Madagascar. This species, although producing fronds twice the size of those of A. reniforme, and of the same remarkable shape, seldom attains more than 8 inches in height, and requires more heat for its perfect development. Besides the species just enumerated, too, the genus Adiantum also furnishes us with remarkably handsome, though dwarf, varieties, which from time to time have been found among seedlings and propagated, in every case retaining their peculiar dwarf character. Foremost among these is A mundulum or Pacotti, a very compact and dwarf-growing form of A. cuneatum; though of Continental origin, it has made its way rapidly in English gardens, as cultivators have not been slow to appreciate its good qualities at their full value. The fronds, besides being produced in profusion, and being much smaller than those of the typical plant, are erect, stiff, and of a much harder texture than those of any other kind belonging to the same genus; they are also more finely cut and attain just a size sufficient for mixing with flowers for button-holes and bouquets. The plant itself, on account of its dwarf and compact habit, is extremely useful for table decoration. Then there is the A. Victoriæ, which only lately made its appearance, when it created quite a commotion in the horticultural world, and was not long in falling into the hands also of market growers, who at once recognised the new-comer as an acquisition. In this case, the plant, which is of a dwarf and compact habit, produces fronds which, although short and numerous, bear pinnæ as large as those of the better known and general favourite A. farleyense; they are also of a most pleasing pale green colour, when mature contrasting beautifully with the ever coming and partly developed ones which, in their first stage, are of a light claret tint, gradually gaining a yellowish tinge previous to becoming pale green, a colour which they retain as long as they are on the plant. Then we have A. Luddemannianum and Legrandi, both variations from A. cuneatum; the former, a charmingly compact habited plant, whose emerald-green corymbs or little tufts are borne on erect ebony-black stalks, which seldom attain more than 4 inches or 5 inches in height; whereas the latter, whose dimensions are about the same, seems a contracted form of the well known A. gracillimum, from which it differs in having its fronds much shorter and a great deal more compact, though as finely divided; when in a young state and during their partial development they are of a lovely red colour, and the whole plant has the appearance of being thickly studded all over with numberless little beads of various tints of pink and red. Even A. Capillus-veneris has produced several handsome varieties of very dwarf habit, prominent among them being A. daphnitis and fissum, both of which have been raised in this country, and are wonderfully well adapted for growing on small rockwork or for covering a brick wall in the cool fernery. The former grows from 3 inches to 4 inches only with erect fronds, whose pinnules, of a glaucous green, are agglomerated towards the apex where they become fasciated, and the latter, which is of a totally different aspect, with finely cut pinnules, which, besides, are deeply lacerated, fully illustrates the old adage that "Nul n'est prophète en son pays," as although it has been in commerce several years, yet it has not become very popular with the generality of amateurs; whereas whole walls in greenhouses are to be found in some private places in America completely covered with it, and a very pretty sight it presents.

Other genera principally made up of strong-growing kinds such as Lomaria, Lastrea, Polypodium, Pteris, &c, have also their dwarf representatives, all of which are deserving of special attention. The Lomaria alpina, for instance, and the charming L. crenulata from Japan, besides being both very hardy in constitution, and although of exceedingly dwarf habit, scarcely measuring a few inches in height, are, nevertheless, very useful for the cool rock fernery, where they make a very fine display all the year round. The neat habited Lastrea sancta from Tropical America, which one now so seldom sees in collections, is wonderfully pretty with its dark shining fronds, finely cut and disposed in rosettes, giving the little plant an appearance quite peculiar to itself. Could the deliciously scented North American Lastrea fragrans be too highly praised? and is it not worth a place in every collection however limited? Yet it is also a dwarf-growing kind, whose narrow, lanceolate, and highly fragrant fronds seldom exceed 4 inches in length. The lovely little Niphobolus rupestris, Pteris geranifolia, scaberula, and Acrophorus hispidus certainly deserve growing for their own sakes, independent of the many uses to which they can be put in the way of decoration. But besides the plants enumerated above and a great many more yet unnoticed, notably the various dwarf forms of Asplenium, the great bulk of species forming this class is contained in the genus Pellæa, the representatives of which are mostly of a glaucous hue and very handsomely shaped; their pretty fronds are borne on wiry stalks varying from a dark prune colour to shining black. They are mostly natives of North America, although a few come from New Zealand and Australia. Next we have the genera Cheilanthes and Nothochlæna, whose members are all very attractive plants, mostly of small dimensions. But the two genera Doodia and Woodsia must not be overlooked, for they contain some of the prettiest among the many choice exotic Ferns of small dimensions. The following is a list of the most desirable species and varieties suitable for the stove and also for the greenhouse:—

STOVE.

Actiniopteris radiata
Acrostichum peltatum
  gracillimum
Adiantum Legrandi
  Luddemannianum
  mundulum
  Victoriæ
Asplenium elegantulum
  formosum
  resectum
  hemipteron
  viviparum
Cheilanthes farinosa
  hirta
Cheilanthes Ellisiana
Davallia alpina
  parvula
Fadyenia prolifera
Hemionitis cordata
  palmata
Lindsæa cultrata
Nothochlæna flavens
  nivea
  sinuata
  trichomanoides
Pellæa cordata
  ternifolia

GREENHOUSE.

Acrophorus hispidus
Adiantum assimile
  daphnites
  fissum
  scabrum
  sulphureum
  reniforme
Asplenium alternans
  attenuatum
  ebeneum
  flabellifolium
Cheilanthes elegans
  lentigera
  microphylla
  mysorensis
  tomentosa
Doodia aspera
Doodia aspera multifida
  caudata
Doryopteris palmata
Lastrea fragrans
  sancta
Lomaria alpina
  crenulata
Microlepia anthriscifolia
Pellæa andromedæfolia
  Bridgesi
  ornithopus
  rotundifolia
Pteris scaberula
Woodsia ilvensis
  hyperborea
  polystichoides Veitchi

S.

Birds and seeds.—I have always found that long manure put between the rows of young Peas and similar crops invariably protects them from the depredations of birds. I take it that birds and mice eat Peas, &c., to satisfy hunger, and have come to the conclusion that if the customary "red herring," in the shape of something good to eat from a bird-and-mouse point of view, is carefully trailed across the scent, it will most assuredly divert the hunt. My Peas, &c., are always intact, although my neighbours suffer invariably if they omit to do as I do, and I cannot help thinking that this principle could be applied to other crops, fruit included; blackbirds, thrushes, and starlings, however, are not to be kept from fruit by this means. While on this subject, I might also mention that many people suffer from the depredations of mice in greenhouses and other structures where bulbous plants are grown, and that the vermin will not go into a trap of any sort. The best bait is flour, and when this is of no avail

(which it will become in time), I find the only way to save one's bulbs is to feed the mice, and oats are the best food. Just now is the worst time, as the mice have not yet taken to outdoor life, but in a few weeks not a mouse will be found in the greenhouses, provided their food supply be stopped. —J. Pratt, *The Cedars, New Barnet.*

Flower Garden.

THE DAFFODIL CONFERENCE.

Mr. Engleheart has mistaken me if he thinks I intended to speak hardly of Mr. Barr with regard to the question of Narcissus nomenclature. On the contrary, I paid him the compliment of saying that it was to him we were so much indebted for the trouble he has taken to introduce them to the public in a manner quite beyond the commercial point of view which is taken by most nurserymen. If I used the words "enormous mischief," it was in the sense that by the multiplication of long latinised descriptive names for florists' flowers which have no place in Nature, he ran the risk of doing great mischief to his own business. For we know very well that when we have bought at a high price a plant under a new name which turns out to be so slightly different from what we already have that only a specialist can see the difference at all, we are rather shy of such varieties afterwards, and, notwithstanding all that has been written to the contrary, some people seem to have a strong dislike to Latin names, even for natural plants. Therefore I think Mr. Barr will, by restricting the varieties he cultivates to such as are really distinct, and by giving those which are not already well known and figured under scientific names, such names as are given to other florist flowers, will not only serve his own interest, but earn the thanks of all Narcissus lovers, which, indeed, as was proved at the conference, he has already done. At the meeting of the committee on nomenclature on the day after the conference, it became evident that it was in several cases impossible to say how much of the blood of the original species existed in the hybrids, and sometimes we could only guess at what the original parents were. If we erred at all, it was on the side of allowing names to forms which were not clearly shown to be distinct, and I am sure when the new catalogue comes before the public, it will not be said that we have cut down too much. We tried as far as possible to classify all the forms before us natural varieties, garden varieties, or hybrids of certain species, and to indicate the amount of variation or difference by placing them under the five categories which Mr. Baker indicated in his excellent speech at the congress. I think we have as far as our time and materials allowed succeeded in doing this, but time will show.—H. J. Elwes.

—— The late Daffodil conference at South Kensington is doubtless the outcome, more or less direct, of the revival of the true gardening instinct which has been silently making its way for the last ten or fifteen years in our midst, but which is silent no longer. The love of hardy flowers, strengthening every year, is becoming an enthusiasm which Nature and art agree in commending. What more likely, then, that one of the fairest of them all, the Daffodil, which three hundred years ago delighted our forefathers, should tempt the horticulturist of to-day at least to recover favourites long lost, and that in making the attempt a host of new garden forms and hybrids should have sprung up to reward his pains. Hence, indeed, the conference. It was not the early history nor even the poetry of the Daffodil which drew together so large a company of interested persons as met the other day at South Kensington. The majority came to see and admire, but the learned came together to discuss questions (of consequence to the botanist and gardener alike) of species and nomenclature and culture. It is a well known saying of a late eminent horticulturist, Dean Herbert, referred to by one of the speakers, that the botanist cannot get on without the help of the gardener, and the gardener is landed in a maze of confusion without the help of the botanist. It is possible to go a step further and to add that the life-giving interest and enjoyment of each go equally hand in hand. The gardener especially, who thinks lightly of the work of the botanist, as gardeners are sometimes apt to do, makes a mistake and closes the door upon a source of intelligent acquaintance with the nature of his own wares. The botanist, as a rule, is wiser, but sometimes depreciates the practical work of the gardener. The question raised by Mr. Elwes, "What is a species?" is one which ought to be quite as interesting to the gardener as to the botanist, if we grant that no man so thoroughly enjoys his plants as he who knows something of their native habitats, their distinctions, their good or bad qualities, their structure and habits, yet all these belong to the province of botany. A species, then, at the Daffodil conference was defined to be a well-marked type of any plant found growing wild in sufficient numbers in its native country and with distinct peculiarities to separate it from other plants of the same genus or group One main object of the meeting was to settle the question of the species of Daffodils (or Narcissi, to give the genus its name of widest application); in other words, to decide how many distinct and unchangeable forms can be reckoned as well marked wild plants. In a printed list hung up for the instruction of visitors, twenty-three distinct species were named, but several of these during the course of the discussion were withdrawn, as probably mere variations, a small proportion out of some 200 garden forms and hybrids named in Mr Barr's catalogue. Out of this admission there naturally arose a second question—"What is a variety?" and this standpoint was made so plain by Mr. J. G. Baker in his able and interesting speech, that it will be instructive to give here his short analysis. To make the following terms clear, it is needful to enlarge further upon some of the divisions, and to explain that the genus Narcissus is one section of the natural order or family of Amaryllids, which is again sub-divided thus:—

Natural order:	Amaryllis.
Genus:	Narcissus.
Sub-genera:	{ As Ajax or Trumpet Daffodils.
Species.	
Sub-species:	{ Garden forms.
Varieties:	{ Hybrids.

By sub-genera are meant the three distinct groups into which the genus naturally breaks up. These are marked chiefly by the length of the crown or tube, which is a distinguishing feature of all Narcissi, and are ranged under the three heads of—1, long-tubed or Trumpet Daffodils; 2, intermediate or chalice Daffodils; and, 3, short-crowned or true Narcissi represented by the Pheasant's-eye or Poet's Narcissus. These sub-genera contain under each head certain well defined species, *e.g.*, under the Trumpet section we find the large single yellow Daffodil (N. major), our own wild Lent Lily (N. Pseudo-narcissus), and the Hoop Petticoat (Corbularia), all clearly marked types differing in form and shade of colour, yet essentially agreeing in all important points. And so on with each group in turn. If the matter rested here the gardener and the botanist might shake hands, and be at peace with each other. But the Daffodil, even in a natural state, is so fertile in seedling forms differing from each other, that it becomes a serious task to distinguish between sub-species, varieties, garden forms, and hybrids. To the solution of this difficulty, and to the no less onerous task of deciding upon a simple nomenclature for the different forms, the select committee have set themselves with right good courage, and it is for all gardeners to wish them success.

Happily, the task of growing these fine hardy plants is not difficult. The exceptions were stated by Mr. F. W. Burbidge to be five or six in all, and these are mostly small and delicate South European or Algerian species, which the ordinary cultivator will not greatly regret, while the magnificent kinds of easy culture, which are almost as hardy and free growing as the Grass itself, are left to him. Our own wild Lent Lily, though left behind altogether by the glory of some of the new Daffodils, is fair to see. Only a few days since I stood on the lawn of an ancient and picturesque manor house 200 years old or more, girdled round with meadows full of them—a "jocund company"—waving above the crisp turf, fragrant with purple Violets. How they came there no one at this date can tell, for they are not abundant in the neighbouring pastures, and are, in all probability, a relic of days long past. We cannot spare or detract from one jot of the beauty of these wildlings which transform our English coppices and meadow-lands into gardens. But Daffodil growers themselves could hardly form an idea of the exceeding loveliness of the different cultivated forms of their favourite flower until they were brought together in masses on the exhibition table and seen as they were to be seen on the 1st of April at South Kensington. Are these all Daffodils? was the question which again and again was heard; and it may be hinted that possibly the rhythmical translation—dear to English ears—of Narcissus into the Daffodil conference may tend to cloud the public mind, for though all Daffodils are undoubtedly Narcissi, we may hesitate to say that all Narcissi are Daffodils.

From January—beginning with the new Trumpet Daffodil, Mr. Barr's latest introduction, to which we must wait to give a name until the labours of the committee of nomenclature are finished—to June, when the season ends with one of the loveliest of all the double forms of N. poeticus, there is an unbroken succession of species and varieties, new and old, single and double, tall and dwarf, with which we may make our gardens beautiful at little expense. It is true that as yet some few are costly, like the primrose self-tinted volutus, which in colour and form is as near perfection, one would think, as can be, and which is priced at 10s. 6d. a bulb, but many magnificent sorts, such as bicolor, Empress, and Horsfieldi, the white cernuus pulcher, the deep yellow major luteus and maximus, and, daintiest of any, perhaps, Queen Anne's primrose-coloured double Daffodil, are to be bought at prices varying from 2s. to 6d. each, while other most desirable kinds are quoted at much less. Many and many a gardener has to content himself with buying a single bulb of a good species or variety, and to wait with patience until, by good culture, he is able to attain a sufficient stock; and with most of the Narcissi this may be done without fear if necessary, because, under ordinary care, the single bulb in the course of a year or two may safely be reckoned upon to multiply itself to many. A good root is therefore a good investment. An important hint was given by an experienced grower as to cultivation with regard to the best time for

Transplanting Daffodils. For this June, July, or August should be chosen, during which months, according to the time of flowering of late or early kinds, growth will have ceased and the move will not seriously affect the well-being of the bulbs. At all other seasons it is next to impossible to transplant or divide them without causing injury to the growing fibres of the root. A well-drained garden soil suits all the strong growing kinds, but a good mulching of leaf mould or stable litter a month before the flowers appear is of the utmost benefit, and it may be noted that the white Daffodils are rather less robust than the yellow-flowered sorts. There is one variety, the double Poet's Narcissus, which has a trick of going blind, *i.e.*, the flower buds wither in a disappointing way when they have nearly reached the opening point. This is probably induced by over-crowding, but even more by want of sufficient moisture at the roots, so that a mulching in the case of these is especially required. To see Daffodils in perfection they should grow upon grassy verges by woodland walks, or in colonies by the banks of ornamental water, or in some sheltered half-wild position where the growth of the leaves is never interfered with. It is a lesson not yet learnt by heart by some that all bulbs suffer and do not flower well the following season if after blooming their leaves are cut off for

the sake of "tidying up," and a year or two of such treatment destroys them altogether. This is a common error in the case of a churchyard for one to fall into where the Grass has to be cut at stated intervals. Nevertheless, let us brighten the church garden with Daffodils; no flowers are more suitable, and trust to time and experience to teach the lesson. As cut flowers the rarest Orchids are not more beautiful or welcome, and we shall do well to bear in mind the fact recalled during the conference, that to bloom them in perfection in water, they should be cut in the bud state, while the points of the flowers are still held together at the tips. It was said, most probably with truth, that the whole of Mr. Walker's splendid collection was so cut and opened indoors, thus avoiding all chances of disfigurement by wind or weather. One lesson as practical as any introduced into the subject of the day was taught by the table whereon stood various beautiful arrangements of cut blooms of Daffodil, the work of a lady well known for her exquisite taste and knowledge of art, as well as of the highest and best methods of natural gardening. The bowls and vases of clear glass used were of different sizes and shapes perfectly adapted to their purposes. Amongst them, one tall glass was set up with noble flowers of the yellow maximus, relieved by bronzed foliage of Mahonia and the polished green of Alexandrian Laurel. Another bowl, perhaps the most beautiful of all, was filled with white Trumpet Daffodils, single and double, resting against dark evergreen foliage, and a third contained the lovely double cream coloured form of incomparabilis. The true art of arranging cut flowers may be attained by all who study simplicity, but no word-teaching on the subject can convey the lesson taught by the sight of these perfectly grouped glasses at South Kensington.

—— The Daffodil Conference, successful as it was, is, as I and others hope, only an augury of other and better things—of conferences, other and many and varied, to come. Fancy a Rose conference, at which all the best varieties, single as well as double, could be shown! The Iris, the Lily, and the Rhododendron amongst other hardy blossoms are well worth treating after the manner of the Narcissus. Then may we not have a Pear conference, and a similar meeting devoted to the Grape Vine? Or let us divide the kitchen garden interest into a fruit conference, led off by a paper by Mr. Barron, Mr. Rivers, or Mr. Lane and a vegetable conference, at which Messrs. Gilbert, Miles, or Pragnell could tell us much that it is necessary that we should know. A hardy flower meeting in June or July would be worth a journey to see; and, lastly, let us see what a display the market growers could give us in say May or in September. That we must have a Chrysanthemum conference in November goes without the saying; indeed, we have put the plough into a fertile field, and let it not be said of us that we have looked backwards.—D.

CULTURE OF VIOLETS.

It may appear early to recommend at present the transplanting of some of one's stock of Violets, yet it is not a day too soon if their flowers are in request for as long a season as possible. We invariably commence transplanting them in the beginning of April, and in doing so choose those that have been in flower during the greater part of the winter in pits and frames. It was the custom not many years ago to make Violet beds in shady situations, under trees, and in odd corners, and often in very poor soil, when they were expected to produce their coveted blossoms for years in succession. But experience has proved that they will repay a good situation and a moderately rich soil. The ground in which our Violets are grown has a dressing of either decomposed hotbed manure or that from a spent Mushroom bed in quantity equal to that given to most vegetable quarters. The ground having been broken moderately fine in digging, we commence by lifting some of the plants and pulling them to pieces, that is, all straggling runners are drawn off with a heel and the old bunch is also divided; two or three of the runners are then taken in the hand, their heads are placed all at one height, and one piece of the old crown is added; they are then planted in rows a foot apart and 9 inches asunder in the row; they are planted with the trowel, taking care that the stalks and roots are put down full length, and not curled up within a few inches of the surface. Whether the weather be showery or not, these clumps of plants should have a good watering through the spout of a watering-can, and not through the rose, the object being to wet the soil to the lowest part of their stems—not a mere surface dribble, that dries up under the first hour's wind or sunshine. I have planted many hundreds during the driest and hottest of weather, and have not had a gap to make up. Should the weather prove dry after planting, they must be regularly watered, as they require moisture until they have taken root. We plant in different aspects and situations, and find that we get the best results from one place one year, and another year from another place, but as a rule an east or west aspect suits them best. I find that on the sunny side of a wall the plants are liable to suffer from red spider, and scarcely make any leaf, but flower well in the early spring. On the other hand, I find that on the north side of a wall the crowns do not get sufficiently ripened; the foliage is soft and liable to be carried off in the winter months by damp, especially when put under glass and kept close. Nevertheless, we shall never think of abandoning the cultivation of Violets in this situation, as it is from these in hot summer we get our first blooms, usually early in August. The planting out may continue from the beginning of April till the beginning of June, but May would be quite soon enough for the main crop, as it would be a great sacrifice to divide the plants while in bloom. C. W. C.

Gentiana verna.—We have tried a good many experiments with Gentians at Oakwood—have grown some of the rarer species successfully, and find Gentiana acaulis (Gentianella) flower profusely in several situations, but Gentiana verna is still a puzzle; a good many patches have from six to a dozen flowers and buds, but the clumps do not increase. In Cheshire, at my friend Mr. Wolley Dod's, I saw large clumps full of flower, but thought his climate was perhaps more suitable than ours; but now I find in a garden almost adjoining this two patches of Gentiana verna quite at home. I measured one of 6 inches each way with fifty-two flowers and twenty-two buds; it was a sheet of blue. As some of your readers may mean, as I do, to grow this Gentian well, I send the particulars given to me. In 1881 Miss F. Brown sent the plants by post from Bagnères de Bigorre; they were planted in a bank made of old roots, with common garden mould thrown over them. The bank faces west, and the plants are about 3½ feet from the ground; it gets rather dry in summer, and is not often watered. Snails are a plague, and have to be diverted from the plants by cut Turnips and to be killed down.—George F. Wilson, *Heatherbank, Weybridge Heath.*

SHORT NOTES.—FLOWER.

Marie Louise Violet.—I do not know that I have anywhere read or heard that this Violet is much darker coloured in spring than in winter. I have only within the past fortnight noticed that such is the case. I do not think the change any improvement, for in the winter months the colour is, I fancy, more soft and pleasing. The flowers are also much smaller and the flower-stalk longer than in spring.—J. C. C.

Alyssum saxatile Tom Thumb.—We have received from MM. Huber et Cie, Hyeres, a specimen of a very dwarf and compact-growing variety of Alyssum saxatile, which they specially recommend for mosaic culture, or carpet bedding, as we term it. The whole plant is not more than an inch in height, and forms a dense tuft. If it flowers freely it will be useful for spring bedding, and no less so for the alpine garden.

SINGLE DAHLIAS.

For a private grower I think I have paid as much attention to these flowers as most people. I was early in the field, and have raised and flowered many hundreds of seedlings. I grew Paragon and others as soon as they were sent out, and I must confess that I am in some measure disappointed with them. Their greatest merit is that they are easily raised and that they are capital autumn flowering plants; indeed, they will go on flowering until frost cuts them down. Rain, too, does not injure the flowers so much as it does the double varieties. But as to their individual beauty, if we except Paragon, I cannot say that they possess much, and as cut flowers they fade so quickly, that I shall be disappointed if they do not go out of fashion faster than they have come in. If they should continue to find admirers, there is no doubt but what something more distinct will be forthcoming than has yet been given, but as yet we do not get varieties to equal the type; so we are not advancing. In point of colour we certainly have received some valuable additions, but in form of flower and in the charmingly shaded bars that characterise Paragon I have not seen one that can come near it. There is, therefore, still a wide field open for the hybridiser, and experience has shown that the work of raising new varieties must be carried out in a systematic manner to be profitable. When I first began I raised more than a hundred seedlings from Paragon alone, and the progeny was such a mongrel lot, that I threw them all away. I have, however, since purchased named varieties no better. I felt disappointed that the variety did not reproduce itself more correctly, but perhaps that was hardly to be expected; indeed, none of them can be relied upon to reproduce themselves from seed, but a packet of seed will in all probability furnish as good varieties as can be purchased, unless distinct colours are wanted for special purposes. For every other purpose, with the exception of Paragon, the best way to grow single Dahlias is to treat them as annuals.

The seed should be sown about the 1st of March thinly in pans, and the plants should be raised in heat. As soon as they show the second pair of leaves they should be put singly into 3-inch pots. When this is done they should have a position on a shelf near the glass in a temperature of 60° by night and from 70° to 85° by day. About the middle of April they will require more root room; they should then receive a shift into 5-inch pots and be taken back to the same position again for another fortnight. To promote a vigorous growth the soil in which they are growing must be of the most substantial character; three parts good mellow loam and one part well-rotted hotbed manure and some sand is the proper compost for them. Early in May they should be placed in a pit or light, airy house where they can have plenty of light and be gradually inured to the air, but at the same time they must be sufficiently close and warm to be kept growing, and if carefully treated they can be had from 9 inches to 12 inches high by the first week in June. I have grown these Dahlias as single specimens and in masses the same as ordinary bedding plants, and, although I am aware that they look very well in mixed borders, to my mind they are more effective in rather large masses where they cover the whole of the surface and are not more than 2 feet to 2½ feet high. When intended to form masses, the plants should be put out 2 feet apart each way, but I should have said before that plants intended to form masses should have their tops taken off about a fortnight before they are planted out. If they are to make an early display, it is useless putting out weak, spare plants; they should be stout, stocky material, and if the tops are pinched off in good time they will have three or four side branches at bedding-out time. In fact, the foundation of a robust growth will be laid if other things are equal. This brings me to the question of

Soil and planting out. It cannot be too widely known that a thoroughly rich and deep soil is necessary in which to grow these flowers successfully. The fact that they keep growing

and flowering until quite late in autumn is sufficient to show that good soil is indispensable. The first week in June is quite soon enough to have them planted out. Previous to doing so they should be well hardened by having the lights taken off them during the day for a week before they are taken out of their hardening quarters To induce the plants to cover the surface of the bed as soon as possible, they should be laid in a slanting position instead of standing erect when planted out. The branches, as they grow, may want a little regulating with a few short sticks and ties, but very little is required in this way when grown in masses; but they will require plenty of water in dry weather, and as they seed freely it is very important that all the decaying flowers be picked off, or they will form so many seeds that the number of flowers will be reduced, as the strength of the plants will be divided between matuiing a crop of seeds and a crop of flowers, and unless seeds are required it will be an unnecessary tax upon the resources of the plants to allow them to mature seeds. J. C. C.

HOLLYHOCKS.

We have just finished planting out our Hollyhocks. Being hardy, there is no danger of their receiving any injury from frosts in April. We grow the named varieties only, and it is best to cultivate two sets of plants. Those propagated from eyes the previous summer will flower earliest; indeed, some of them have made considerable growth now, and with good cultivation will begin to flower in July. The later flowering plants are produced from cuttings taken from the old stools in January or February. If removed with a heel attached they soon form roots in a gentle bottom heat. Each cut ing ought to be inserted in a 3-inch pot in light sandy soil. When rooted pot them on into 5-inch pots, and gradually inure them to the open air before planting them out. In certain positions in the flower garden the Hollyhock is unequalled. Its stately spikes of flowers, towering to a height of from 8 feet to 10 feet or more, have a striking effect in front of shrubberies where the Portugal Laurels rise a few feet higher than the Hollyhocks; the dark green leaves contrast well with the paler leaves of the Hollyhocks and the bright and vivid colours of the flowers. They may be planted in groups, consisting of from six to a score of plants together, allowing at least 3 feet between each plant. They do well in the centres of large beds, or as a background to wide herbaceous borders. The Hollyhock has a place that cannot be filled by any other plant, and yet it is not popular at present—not so popular as the Sunflower, for instance. Even people possessed of good taste are beginning to see beauties in the Sunflower. Well, everything in its place; the time for the Hollyhock will come round again. It is a gross-feeding plant, and requires a goodly supply of rich stimulating manure and a deep, well-cultivated soil. During hot dry weather in summer the leaves should be well syringed daily, and the roots should receive a good supply of water twice a week, and be mulched with short manure. Seedlings from the best varieties will produce flowers about as good as the parents, and the plants are usually much stronger than those raised in other ways.

J. Douglas.

Solanum betaceum hæmatocarpum.—Some ripe fruits of this new variety of Solanum differing in colour from the type have been sent to us by M. N. Charles Huber & Cie, Hyères. In the latter they are orange-yellow, whilst in this new variety they are a rich orange-red. They are about the size of pigeon's eggs and of similar shape, and a plant well furnished with them must be highly ornamental. This Solanum requires a greenhouse in order to grow it successfully, but in the Riviera it is quite hardy. In the temperate house at Kew a fine specimen of the typical form may be seen planted out in one of the borders, where in autumn it usually bears numbers of fruits. We learn from M. Huber that this new variety was received direct from Brazil, and was first described by M. Naudin.

NOTES.

Japanese Bamboos.—One might write a very big book and then leave much unsaid as to the extreme grace and beauty of these shrubby Grasses. Japanese artists may be said to have worshipped the Bamboo, since it finds a place or a use in almost all their best work. Like many other really valuable and beautiful things, Bamboos are also very useful; so much so, that it is difficult to name a use that is not possessed wholly or in part

Sprays of Bambusa Mazeli and B. Metake.

by this ubiquitous plant. Here in our gardens their beauty is not as yet sufficiently appreciated, but that they will grow freely in warm soils and sheltered positions is a fact. The Japanese varieties seem hardiest and best, such as B. Metake, B. Mazeli, B. (Arundinaria) falcata, and one or two others. B. Metake should always be the first tried as a test plant; if it succeeds, others may be tried. I saw one some time ago planted on the side of a bank near a pond. These Bamboos are generally supposed to like the vicinity of water, and at Fota and elsewhere certainly grow most luxuriantly when near it, but I thought it instructive to notice that this particular plant of B. Metake was creeping rapidly up the bank and away from the damp ground at the edge of the pond. To see a bush of Rhododendron arboreum with say fifty trusses of its blood-coloured flowers, and beside it waving in the March wind a Bamboo 15 feet high, as I did yesterday in County Wicklow, opens one's eyes a little as to outdoor gardening; of course climate and shelter is the great secret in all successes of this kind.

On pruning Orchids.—Every now and then some well-known practical man suggests experiment, or counsels a practice in which he thoroughly believes and practises himself, and then the rigidly orthodox pounce down upon him like hawks on the young pigeon, and it has been so with regard to the pruning of Orebids. I do not know how long ago it is since "J. S. W." started this question, but I do know that time enough has elapsed for growers to have tried it for themselves, and to either affirm or deny the advantages of the practice. If it has been tried at all, I am afraid it has been in a half-hearted way—perhaps on half dead or debilitated plants to commence with; at any rate, we have, as yet, no direct evidence that it is wrong as a practice, carefully applied. After all, it is not much to our credit as gardeners that we know so little of our business, that no one among us can say definitely that the practice of pruning biennial Dendrobes is right or wrong. This is a question with which one would imagine the physiological botanist would be familiar, but of late years that august personage seems to have left gardeners to find out things for themselves. If a gardener is successful in his practice, there are many scientific people to back up the results of his labour; but if he fails? Ah! that is enough. Science does not trouble herself about the failures of an ordinary gardener. Science at South Kensington years ago left the Orchid spot an unanswered query, as to-day she leaves this question of Orchid pruning.

The dwarf Iris.—Several different forms of Iris pumila are now very beautiful in Barr's bulb grounds at Tooting, and visitors thither on Daffodils or Narcissus beauty intent should spare a few moments to look at these charming flowers. The main varieties are light blue, dark purple, and pale yellow, but perhaps the rarest is the one called Iris pumila var. bicolor, a pale lilac with a rich purple blotch on the "falls," as the outer perianth divisions are usually called. As cut in the bud stage and brought indoors, these Iris blossoms are most lovely, opening out as clear and as brilliant as Cattleya flowers. With a minimum of cultural care they may be grown in a cottage garden as well as in a royal parterre.

Parti-coloured Narcissi.—These have been noticed by gardening authorities long since but the other day Mr. Walker, of Whitton, gave me a singular flower of the Sulphur Phœnix variety of N. incomparabilis, one half the blossom being true Sulphur Phœnix and the other half had yellow perianth divisions, as in the form known as Butter and Eggs. Even one of the petals was half white and half yellow! I do not know if this particular freak has been observed before among the Narcissi, but Mr. Turner once had a Chrysanthemum bloom half Mrs. Rundle or white while the other half was yellow like Mrs. Dixon Azalea and Camellia flowers are not unfrequently half white and half red, but we may, I expect, long look in vain for the origin of this parti-coloured peerless Narcissus, N. incomparabilis. Orange Phœnix often comes of a lovely flesh colour, but, alas, we know not the cause, and so cannot take precautions to ensure a repetition of such beauty.

The great Daffodil.—"Have you noticed the length of time Narcissus maximus lasts fresh and fair? I had four blossoms this year; two I gathered to paint, and the other two are still bright with unsullied gold—apparently as fresh as when they opened their gold-green buds a month or more ago." Thus writes a fair lover of Daffodils, and the statement bears out my own experience of this grand variety. In answer to numerous inquiries, I may say that the true N. maximus is grown by the Dutch florists, and is easily recognised by its peculiarly narrow twisted foliage; but if you order it by the hundred from Holland

you get a most profuse mixture. Thus you ask for N. maximus, or Trumpet maximus, and you get everything in the way of big yellow Daffodils, N. major, N. spurius, N. propinquus, N. Telamonius, and others, and if you get ten per cent. of N. maximus true you must feel grateful.

Freesia Leichtlini alba.—As raised from seeds every season these pretty little bulbous flowers are extremely variable. Like the fiery little Anomatheca cruenta, they succeed perfectly treated as annuals, sowing the seed as soon as it is ripe in well-drained 5-inch pots, in which they may remain until they bloom the next season Variable and beautiful as are the forms of this graceful genus, none are prettier than the one known under the above name. Either in pots treated like Lachenalias, or as planted out in the bed of a cool greenhouse near to the glass, the result is a good crop of its fragrant blossoms. Cut in the bud state and arranged with their own soft pale green foliage, no other flowers, whether Orchids or stove blossoms, can well be more beautiful. It cannot be too widely known that, like the Cyclamen, seedlings of these dainty little trumpet flowers blossom within twelve months from the time their seeds are sown, and that they do so in a greenhouse temperature is an advantage.

A wall garden.—We are told that Solomon knew all "green things," from the Cedar of Lebanon to the Hyssop which sprang from the wall, and there is no doubt that wall gardening began soon after walls themselves were made. The beautiful wall garden which Nature had made on the ruins of the Colosseum is now destroyed, but the Wallflowers and Catchfly yet linger on the sunny castle rock at Nottingham, and the ruins at Conway are a study every summer, so beautiful is the Centranthus, which sows itself among the stones. At Dinan the top of an old entrance doorway is made beautiful by means of a drapery of Ferns and weeds, with delicately poised Bellflowers and Yarrow heads white as the salt sea foam. Wherever old walls or ruins exist in gardens or pleasure grounds, it is easy to beautify them by sowing seeds of the many beautiful flowers which luxuriate in such positions. Wallflowers, Snapdragons, Erinus, and some species of Dianthus grow perfectly well, naturalise themselves, in fact, on sunny walls, while on shady damp ones many Ferns grow equally well, often better on a wall than elsewhere. A good plan to get Ferns to grow on a damp, shady, old wall is to wash off the spores from Asplenium Trichomanes Scolopendriums, Ceterach, Wall Rue, &c., into a pail of tepid water, which may then be dispersed over the wall by means of a syringe.

Daffodil beauty of form.—There is to me always a delicious and ever-changing pleasure in watching the gradual growth and expansion of Narcissus buds and blossoms. No two are alike, but all are beautiful, each individual having some charm or subtlety of curvature or colouring lacked by its neighbour. A single blossom with its own pale green leaf is a study from its earliest bud stage until the colour fades from the open flower. But the pleasure is in being able to see and appreciate this varying beauty so that it shall satisfy and never cloy. Thus a lady writes to me: "I am charmed with the graceful form of the Tenby Daffodil. Do you not often find that the beauty of even a well-known flower seems to strike one with a sudden increase of admiration? A good essay might be written on the difficulty of seeing what we are looking at—a most rare power—and one which I for one feel it would take me a hundred years to attain!"

Renaming the Daffodils.—"To be, or not to be, that is the question." If the Narcissi are to be renamed, I hope to assist some day at an Orchid conference, and shall have great pleasure in proposing that hybrid Orchids also be renamed. Then, how about seedling Clematis, and the hundreds of garden plants of known origin which now enjoy their Latin names undisturbed by the voice of the botanical agitator? Mr. H. J. Elwes has so often and so strenuously opposed the use of popular names in The Garden, that some of us were fairly electrified at his proposing English names for the Narcissi at the conference. It is never too late to mend, however, and without a doubt Latin names for garden seedlings and hybrids are a fertile source of confusion to all concerned. But what man is doing in the garden Nature is doing for us abroad, and the main point to decide, once for all, is, where are we to draw the line? As we have often said before, this is a broad question, and one not to be settled in a jaunty, imperious, or off-hand way.

A noble Camellia.—There is just now blooming in Baron Schroeder's garden at The Dell, Egham, one of the finest white Camellia bushes we have ever seen. It is 24 feet broad and nearly as high, and is covered with hundreds of snow-white buds and blossoms. Such a noble shrub is rarely seen. It makes its growth unprotected, and has no doubt done so for well-nigh a century, but its harvest of snowy flowers is protected now by a temporary covering. It was originally nailed to an old brick wall (a portion of which still remains), but is now quite free and untrammelled. Some of its main limbs which branch near the ground level are 6 inches or 8 inches in diameter, and the bush, large as it now is, would naturally have been still more extensive but for repeated prunings from time to time. Such a noble specimen is no bad index of our southern climate, and is well worth a special pilgrimage to see. We have seen fine bushes in Devon, Cornwall, and in Ireland, but none healthier than this specimen.

Erica codonodes, an old species of Heath, robust in habit, free flowering, and quite hardy near London, is now blooming abundantly, and deserves culture wherever hardy flowering shrubs are valued. It likes a boggy, or at any rate, a peaty soil, and luxuriates along with Kalmias, Ledums, and Azaleas of the Ghent or hardy seedling race. Erica arborea and E. ramulosa are also very beautiful where they thrive well, but this is even more useful, as it comes into bloom naturally just as the varieties of E. carnea are past their best. When we see hardy Ericas well grown, as they are in some Scotch nurseries, or in those at Darley Dale, Derbyshire, one can only wonder that such a charming race of hardy shrubs is so much neglected.

Narcissus calathinus, which has hitherto always been considered to be a rare species, is now flowering very freely in a little frame at Tooting, where Mr. Barr would appear to have no difficulty whatever in its culture. True, its blossoms are not quite so large as were those sent to us by him some years ago by the late M. Blanchard, of Brest, but we have no doubt but that it is the same plant modified by a different cultural environment. As Mr. Burbidge pointed out at the Narcissus conference, this plant must now be referred to N. triandrus, of which it is the largest form or variety. The flowers are one to five on a stalk with long white cups, and with reflexed or Cyclamen-like perianth divisions. The leaves are flatter than in N. triandrus proper, and do not stand erect, but affect a tortuous position on the surface of the soil. It is a dainty and desirable kind not often seen, but so distinct and beautiful when compared with Narcissi generally that any trouble in growing such a graceful plant would be well rewarded when it flowered.

The Siberian Crab in bloom.—I say the Siberian Crab, but, as a matter of fact, there are many varieties of this pretty fruit tree. The one of all others now most beautiful is the scarlet-flowered variety, of which a splendid little specimen is now in bloom in the garden of St. George's Villa, Garrett Lane, Tooting. Visitors to Mr. Barr's Narcissus ground should peep over the wooden fence which divides the garden from the road, and the result will surprise them. Scarcely a leaflet is to be seen; nothing but scarlet buds and rosy blossoms. When I first saw it I thought of M. Van Houtte's plate of Malus floribunda, published some years ago, for the sight of this tree at once brought that highly-coloured picture to my mind's eye. Apart altogether from its autumnal fruitage, the Siberian Crabs—more especially this variety—deserve extended plantation for the sake of their dense clouds of blossom in spring. As some one long ago well said, it is a pity our fruit trees are useful, as undoubtedly were they not so, they would be far more extensively grown for their beauty alone.

Freesia refracta alba.—This beautiful plant has been called "the refractory Freesia," because it is sometimes as uncertain in growth as it is beautiful in blossom. For cutting there are but few flowers more pleasing; no other, perhaps, of its race is so refined in colour and deliciously fragrant. You cut a spike or two just as the first bud opens the tips of its petals, and bud after bud gradually becomes a silvern star. In a cool airy room lamp-lit, these spikes will endure "fresh and fair" for ten or twelve days if treated to fresh water now and then, and they, like all other indigenous flowers, never look better than as naturally arrayed along with their own soft pale green leaves.

Choice aquatic plants.—Your correspondent "J. M.," who writes at p. 297, does not appear to be aware that the name Herpestis reflexa is a synonym for the plant I alluded to in a previous issue of The Garden as Myriophyllum proserpinacoides. The last is the proper and correct name, I believe, although not so short or euphonius as Herpestis reflexa. In Ireland and in the southern counties of England this plant is nearly, if not quite, hardy; at any rate, it is quite at home in a cold house during the winter months. Its flowers are very diminutive and inconspicuous, all its beauty being concentrated in its light green, feathery leaves. As a companion for the Cape Pondweed, or Aponogeton, this plant is well worth culture.

First-class certificates, as given by the Royal Horticultural Society, have been in times past so highly esteemed, that we naturally expect that they are—indeed, look upon them as representing value received in distinctness or in floral beauty when awarded by the South Kensington committees. But the award of one of these high-class certificates to Narcissus ornatus biflorus recently was a great mistake. The occurrence of two-flowered scapes in any variety of N. poeticus is simply an accidental circumstance, which may or may not be repeated next season. Wherever N. poeticus is grown in quantity, as at Ware's or at Barr's nursery, there you can select two-flowered scapes by the hundred. At Mr. Walker's grounds at Twickenham the other day we saw a three-flowered scape of N. Empress, and at Leyden two-flowered and three-flowered scapes of N. bicolor primulinus are common; but no one who knows anything of Narcissi and their accidental vagaries would think of giving these variations certificates of the first order of merit. Cypripedium Lawrencianum is a wild species or variety introduced from a natural habitat 10,000 miles away; it is now admittedly one of the best of Lady's Slippers, but it was not certificated at Keosington, and yet the committee there attach first-class importance to accidental vagaries like the Narcissus we here allude to. How is this explainable?

Veronica.

5181.—**Dumesnil's fertilising Moss.**—Much might be written on the merits of this Moss, yet no one seems to have a word to say, bad or good, in answer to "S. M.'s" enquiry concerning it in a late number of The Garden. I have been trying it for more than a year, and, from my experience, think it admirably suited to "S. M.'s" purpose. It is to be had from nurserymen and seedsmen in sealed bags, price 2s., each bag containing printed directions for its use. My plants growing in it have not, I must confess, supplied a precedent by taking any long journeys, never having been out of Ireland, or very far in it, but on one occasion it was inevitable to keep some of them two whole days and nights in their travelling basket, and, so far from suffering from the confinement, they came out looking even better than at the beginning of their journey. This would not have been the case had they been packed in a box with solid sides, for they

must have air to breathe, but in one of the box-shaped baskets now so common, each plant loosely wrapped in thin, crisp paper, they might travel to any distance without the slightest injury, giving them at the end of their journey either a tepid bath or a sprinkling, and placing them on a dish where they can enjoy light and air without danger of draught. When first planted in the Moss every care must be taken to prevent the leaves from flagging, and even to adepts in the art of "mossing," this is always an anxious time, but your plants and you soon begin to understand each other, and with the reward in view of being able to carry your garden with you from room to room and from place to place, who could begrudge any amount of trouble? As "S. M." may like to know what plants I have experimented on with the best results, I may add that they consisted of many kinds of Ferns, Aralia Sieboldi, Japanese Hyacinths, Fairy Roses (these are the gems of the collection), Primroses, Acacia lophantha, double Daisies, Geraniums, &c. For striking Pelargonium cuttings nothing can be more suitable or convenient, the plants being made bushy and well shaped. In short, there seems to me no limit to the capabilities of Dumesnil's fertilising Moss, and yet it rests with one humble individual to sound its praises!—C. L.

Fruit Garden.

WALL FRUIT TREES.

The glorious weather which we have been lately enjoying set in just in time to suit wall fruit trees, which showed plenty of bloom-buds, and these have opened strongly, and a large portion of them have set well. Therefore now, except any very sharp frost or other unfavourable change occurs, there is a certainty of a heavier crop this season than we have had for many years past. Apricots are unusually abundant and are now swelling fast; therefore, thinning will be the next operation, and if done early, the fruit will be acceptable for tarts. For this purpose it should be steeped in hot water or slightly stewed, and the water changed two or three times, or it is apt to be bitter and unpleasant to the taste. The first opened blossoms of Peaches and Nectarines seemed to have a hard struggle, but those which expanded later came in for more sunshine and have set well. All that is wanted now is a continuance of warm weather to help it along. Aphides will soon be making their appearance, and these must be watched for, as when allowed to get a hold on the leaves they quickly cause them to curl and speedily cripple the growth. The best way of dealing with green fly is to go over the trees and disbud them, taking out all such shoots as can be spared; then insects can be attacked successfully. Some use liquid insecticides but most of them are dangerous, as when applied sufficiently strong to kill aphides they are apt to injure the young downy skin of Peaches and stop their swelling. I have had them suffer in this way more than once. I therefore prefer Tobacco juice pure and simple, mixed with water to the right strength. Tobacco juice may be bought or made, the one way of obtaining it being, perhaps, about as cheap as the other. A pound of Tobacco will make three gallons of juice quite strong, and water may be added so as to double the quantity. The plan which we pursue is to steep the Tobacco in boiling water, and after straining off the first lot, we put on more and squeeze the Tobacco out. We then put the whole liquor together, when it is ready for use. The most economical mode of applying it is to have a large spray producer, which distributes it like fine mist, and sends it in amongst the leaves where the insects lurk in greatest numbers. Anyone dexterous in the use of a syringe may also apply Tobacco water without much waste, but it can only be done through a jet broken up by the finger so as to scatter the stream.

Another way of eradicating green fly in the case of Peaches and Nectarines is to use Tobacco dust, which may be puffed on by means of a distributor. If this is done while the trees are moist from night dew, it will adhere all the better and be more effectual, but after being on a few hours it is a good plan to wash it off again. This may be done by using a powerful syringe or the garden engine, from either of which a well-directed stream may be sent, which will not only wash away the Tobacco dust, but rinse off the aphides and leave the trees clean. Plums when set may be dealt with in the same way, and also Morello Cherries. As to red spider, there is nothing like clean water, and plenty of it. The great plague in the case of dessert Cherries is black fly, which takes a good deal of killing. The way in which I have been most successful in dealing with this pest is to dip the shoots in rather strong Tobacco water. This may be done easily and quickly when they become long and before nailing them in. All front growths on the spurs should be stopped by nipping out the points, which will prevent fly on them and cause a more full and free development of the back buds, which will plump up and crowd round the base. Apricots need treating in much the same manner, but any shoots at all well situated should be selected and laid in to fill vacant spaces on the wall, as such shoots, being so much better situated than the spurs as regards shelter, often fruit when the spurs fail. Apricots suffer little from insects, the only pests that are at all troublesome with them being a maggot that rolls the leaf and feeds on the foliage. Hand-picking is the only remedy, or rather a squeeze given by the thumb and finger, which, as the caterpillars or maggots are soft, smashes them up. There is one thing connected with wall fruit trees to which I would call special attention, and that is mulching, which is not thought of by many, and yet it is of the greatest importance, as it shades the soil, conserves the moisture, and thus is of great service to the roots, which it not only encourages nearer the surface, but feeds from the washings rain or watering may carry down. Trees so favoured are well able to swell and perfect their fruit, and not only that, but Peaches and Nectarines mulched seldom suffer from red spider, which generally follows on the heels of poverty and generally attacks trees in distress. S. D.

INSIDE AND OUTSIDE BORDERS BEST.

By many the foliage made by Vines in inside borders is considered not so good in substance, and more liable to the attacks of red spider than that produced by Vines in outside borders; and in the case of stone fruits the bloom is thought to be more liable to drop, or otherwise not to swell off so satisfactorily. This is due chiefly to two causes. In the first instance inside borders are made of too light or open material; and secondly, they do not get a tenth part of the water which they require when in full growth. By way of illustration I will just state what came under my own observation a few years back. Calling one day on an acquaintance who was a good general gardener, we came, in going through the garden, to a good-sized late vinery three years planted. "These Vines," said he, "are not as satisfactory as they might be, and I am sure no one could take more pains in making the border than we did. It contains a foot or more of good drainage, and is composed of good strong fibrous loam and clean lime rubble in equal parts, with a liberal allowance of good rotten manure, and a few half-inch bones, all chopped up and mixed well together in a heap previous to use. The border is 3 feet deep and 9 feet wide, and although the Vines have made good growth and large foliage, and produced fine bunches, the red spider attacks them before the Grape are finished, and they colour badly, yet we keep up plenty of moisture, and have no plants in the house besides the Vines. Now, in the houses in which the borders are outside the foliage is bright and leathery and as clean as possible. This is the first inside border I have had to do with, and I think it will be the last."

The Vines in this, as in many similar cases, did well in the early part of the season while the weather was cool and the foliage growing. The moisture in the border was then sufficient, but when the foliage got full grown the demand for moisture was much greater, and the rapid evaporation under a powerful sun soon dried the border, causing the foliage to look bleached and thin and to be attacked by spider. On examining the border it was found to be dust-dry, except 2 inches or 3 inches on the surface. This is the cause of nine-tenths of the failures that occur with fruit trees in pots, as well as in inside borders; the waterings are too far apart when the trees are in full leaf and fruit. A good watering should be given every day. In my opinion borders both inside and out are a great convenience both for Vines and stone fruit. In the case of very early Vines, the inside border with 2 inches or 3 inches of rotten manure laid on the surface and supplied with water at 85° starts the roots into growth with the branches, while in the outside border the roots start much later and come in to support the Vines when the demand on the roots becomes greatest. Moreover, Vines that have ripened Grapes in the beginning of April require to be kept as dry and cool as possible, in order to prevent them from making a second growth in August. The inside border can be kept quite dry, while the roots in the outside border will supply the foliage and keep it green as long as it need be, and is the secret of preventing a second growth. In the late vinery, too, the atmosphere can be kept cool and dry, while the supply to the roots in the outside border is sufficient to keep the fruit plump and sound. I am no believer in either deep borders or old ones, and therefore where there are borders both inside and out it is an advantage, inasmuch as either the one or the other can be renewed without loss as regards the crop. In fact, it is a gain, as fresh compost always improves the colour, and good colour means good flavour.

Inside borders do not require so much drainage as outside ones do, nor yet as open a compost. Where an inside border has to be constantly deluged with water, its nutritive properties are soon washed out of it. I prefer, for Vines, fresh turf, with the Grass cut short and of a calcareous character if it can be got. It should be chopped up roughly, and, in making the border, beaten firmly with the back of a four-pronged fork. Sufficient drainage should be provided in all cases to allow the extra water to run off, and the turf, being put together fresh, forms, as it decomposes, a mild bottom heat, which gives vigour to the roots. In planting young Vines, a 4-foot border inside and 4-foot outside give an equal start, and 3 feet or 4 feet addition should be made as required till the border is complete. In making fruit borders by instalments it is a good plan to face the outer edge with a row of bricks set in fresh cow manure mixed to the consistency of mortar, by keeping them moist during the growing season. Inside the bricks will be found a network of roots ready at once to enter into a fresh additional width when the bricks are removed. The latter can be used again for the same purpose.

Waterdale, St. Helens. James Smith.

MILDEW ON VINES.

My first experience of mildew on Vines dates back close upon thirty years. I have good reason for remembering my acquaintance with it at that time, as I had the misfortune to see one of the finest vineries within twenty miles of London rendered quite useless for one season, not altogether from mildew, but from the remedies adopted to destroy it. Many will remember that it was about that time that mildew appeared in its most virulent form in many places at wide distances apart, and all sorts of remedies were suggested and tried, with very little effect. It was so in the case I have just mentioned. Days and even nights for a time were devoted to the application of the various remedies suggested. Soot and sulphur were dusted on the Vines, and sulphur was made into a paste and the stems were painted with it, and also the hot-water pipes. Still, there was no abatement of the disease; the condition of the

Vines, and also that of the crop on them, were miserable. To understand the case to which I more particularly allude properly, it is necessary to say that the head gardener had also charge of a rather large outside estate, so that he was not much in the garden, the principal charge devolving upon the second man, who, seeing that there was no possible means of stopping the spread of the mildew, in the absence of the gardener sent to the nearest grocer's for some stone brimstone. Placing the brimstone in saucers, he put some hot coals to it, and placed the saucers on the hot-water pipes in the front of the house, and shut it up for the night quite in ignorance of what the result would be. What that result was it is not difficult to guess, for when the house was opened in the morning every leaf was shrivelled and the berries looked as if they had been parboiled. As a junior hand, that was my first experience of mildew on Vines. Since that date I have had several times to do battle with this disagreeable pest, and although I would much rather remain in ignorance of its existence, I do not look upon it with the same amount of dread as I did years ago, because experience has taught me that if remedial measures are taken in good time, that is, as soon as the first spots of white mould are visible, its effects may be greatly mitigated by the timely application of flowers of sulphur. It must, however, be applied in the most vigorous manner. Every part of the stem, the foot-stalks of the leaves, and their under and upper surfaces must be dusted and covered with it by the aid of a proper sulphur distributor. When this is done, keep the air of the house as dry as possible, and allow the sulphur to remain on the Vines for four or five days; after that time it must be washed off with a syringe as clean as it is possible to do so. At the time at which the sulphur is applied the fire must be lighted, especially at night, to keep up the temperature and to keep the air of the house dry. There should also be a constant circulation of air in the house. In dealing with mildew, I have found that half measures are useless; to be effectual, the sulphur application must be thoroughly well done, and when the time has come for it to be cleared off the clearsing must be as effectually done; for, although a little sulphur left on the leaves will do no harm, if any is left on the berries it will disfigure them by bringing on a kind of rust on the skin.

The after management of Vines thus dealt with should differ slightly from that of others not affected. In the first place, the temperature should be kept very regular, allowing 60° by night and 75° by day, and to obtain this temperature it may be often necessary to light the fire. If at the expiration of a fortnight after the first sulphuring has been washed off there should be another attack, the sulphur dustings must be repeated. The cause of mildew, under all circumstances, is difficult to explain. Some tell us it is caused by the roots being in a dry border; others say it is owing to a wet one. In my own experience I have found that neither a dry border nor a wet one will make any difference, for it will go and come just the same under both conditions. It is quite possible to favour an attack of mildew by keeping a close, moist air in the house, but here again all is conjecture, because I feel satisfied that if this was the only cause mildewed Vines would be the rule instead of the exception, for the great body of Vine growers find that they get so much better crops under the conditions that are supposed to bring on mildew, that they would and do run the risk of inviting it, and they would not do this if they had well-grounded faith in its supposed cause. Most of us know what would be the result of continuing for any length of time a dry arid atmosphere in our vineries, and therefore the opposite of this course is pursued; yet there are those who would make us believe that by doing so we are in great danger of favouring an attack of mildew. That, however, is not so, as every-day practice in vineries clearly testifies.

How to prevent mildew is a question that may very properly be asked, but it is a question which it is easier to ask than to answer. My opinion is that in places where mildew is likely to occur we should work out a medium course in the treatment of both roots and branches. The roots should not be kept either too wet nor too dry, and in all serious cases it is advisable to work the internal conditions of the house as regards moisture by wet and dry bulb thermometers. These useful instruments will enable the cultivator to more correctly manage the degree of moisture in the air of the house, and enable him to avoid extremes either way. Careful ventilation and observations of these instruments will do more than anything else to mitigate the effects of an attack of mildew. The house in which Vines are grown which is liable to periodical attacks of this pest should not be wholly shut up either night or day. From the time the first leaves are developed until the Grapes are ripe there should always be a little air left on at the top or back sufficient to prevent an accumulation of stagnant air. While there is a slight movement in the internal air there is not much danger of there being an excess of internal moisture, and a little air admitted as suggested will accomplish this. J. C. C.

INSIDE V. OUTSIDE VINE BORDERS.

In reference to the discussion relating to inside v. outside borders, allow me to relate an instance that came under my observation. In the spring of 1881 I had occasion to examine the border of one of our vineries. It has an inside border of about 6 feet in width and an outside one of 18 feet. I first set about examining the outside border. I got a three-tined fork and removed about 10 inches or a foot of soil when I came to the roots, which were there in abundance and in a healthy state. After ascertaining that the drainage was right, and having given the border a good top-dressing of fresh material, I next took in hand the inside border. Having plenty of good soil at command, I cleared out all the old material, so as to be able to examine the roots minutely. The Vines had been planted inside, the front wall being built on arches to allow the roots to ramble whichever way they liked. Some of the strongest seemed to have taken to the inside border, but all of a sudden—they appeared to have altered their course—turned back and run into the outside border. A few roots, however, still remained inside, but only a few. Having brought as many small roots inside as I possibly could without injuring them, I next set about giving them fresh material that I had already in store for them, consisting of loam from an old pasture in turves about 4 inches thick, some good rotten manure from the farmyard, old mortar, wood-ashes, and a good quantity of half-inch bones. After all were replaced I gave the whole a good soaking of liquid manure to settle all down. That season stronger wood than hitherto was the result. In 1882 and 1883 I had stronger wood still and larger bunches and finer berries. This spring, on examining the border, I found that the top-dressing on the outside border is a mass of fine healthy roots, but in the inside border roots are not nearly so plentiful. I may add that on one half of the inside border I put a quantity of Thomson's Vine manure, and I find that roots are being formed in greater numbers there than in the other half, where none was given. John Gordon.

Ernespie, Castle Douglas, Kirkcudbrightshire.

SHORT NOTES.—FRUIT.

Diseased Vines (*J. C. C.*)—Your Vine stems appear to have been gnawed by some insect, very probably by the grub of the black vine weevil (Otiorhynchus sulcatus), but the injury is by no means recent. The stems and rootstock seem much decayed, and I imagine the Vines have died from other causes than the injuries of insects. They appear to me to have suffered from a kind of canker.—G. S. S.

Top-dressing fruit trees.—Poverty in the soil is the cause of a great many evils to fruit trees, and indirectly leads to the attacks of insects. To go on employing insecticides when the trees need food is of no permanent benefit. A good dressing of rich manure will be useful to many an old fruit tree at this season. The surface of the soil, or part of it, should be taken off and renewed. After the top-dressing has been applied and the weather brighter and warmer, liquid manure may now and then be given.—E. H.

GARDEN FLORA.

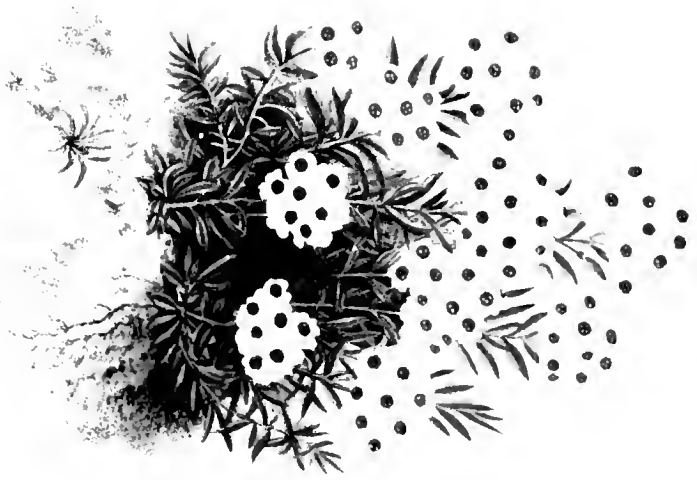
PLATE 436.

ALPINE ANEMONES AND ÆTHIONEMAS.*

Anemones.—Of the many families of alpine plants now cultivated none are more useful or decorative than the Anemone. The greater portion of the species are so easy of culture, that there are few garden soils in which they will not grow. Among the alpine species properly so called, that is those found at elevations, say, from 4000 feet to 8000 feet, are A. alpina, baldensis, Halleri, narcissiflora, ranunculoides, sulphurea, and vernalis. Those which descend from 3000 feet to the sea coast are A. apennina, A. blanda, A. coronaria and its numerous varieties, A. fulgens, A. pavonina, A. nemorosa, A. n. var. Robinsoniana, A. stellata, A. sylvestris, A. Pulsatilla, A. palmata and its white variety. The different species of Anemones are so well known, that I do not propose or think it needful here to speak of them, with the exception of one or two which may to some be little known. A. baldensis is, I believe, comparatively rare in gardens, though well worthy of a place in them. I have seen it in its native habitat at from 7000 feet to 8000 feet elevation it, has white circular flowers a little larger than those of the wood Anemone, borne on sturdy, leafy stems from 2 inches to 4 inches in height. Growing side by side with this was the beautiful little A. vernalis, with its silky blossoms, bluish outside and white within. These are supported on tiny stems only an inch or two high, which rise out of the midst of a tuft of deep green, leathery, lacerated leaves, only about 1 inch in length. Anemone alpina and A. sulphurea, though different in colour, are looked upon as the same species. A. alpina has large handsome white blossoms, while those of the latter are pale sulphur, though in some varieties I have seen them bright yellow. A Halleri is similar in general habit to A. Pulsatilla, except that the foliage is clothed with a greyish white tomentum. The flowers are about the same size and lilac in colour. There are two other alpine species which deserve mention, viz, A. narcissiflora and A. ranunculoides. The former, a herbaceous plant, grows from 12 inches to 18 inches high, and supports a cluster of erect white Narcissi-like blossoms, which are very pretty, and I think if grown in quantity, would be useful in a cut state. The other, A. ranunculoides, is one of the first harbingers of spring, flowering simultaneously with the wild wood Anemone (A. nemorosa). Its flowers are bright yellow, and a little smaller than those of the last named.

Culture and position.—I think it may be taken as a general rule as regards the whole of the Anemone family, that they like a somewhat stiff loam; at least I prefer that kind of soil for them even if thought desirable for some species to add a little sand. The only exception noticed by me is A. narcissiflora; where I saw this plant so fine and in such vast quantities, there was a considerable proportion of peat or vegetable matter in the loam. It also prefers a cool, shady position. A. palmata likewise appears to thrive best in deep sandy loam and peat. A. vernalis should be placed in such a position that it cannot become too wet during the winter months—that is, it may be fully exposed to all the vicissitudes of the weather, provided the wet does not lodge round the crown. Nearly the

* Drawn in Messrs. Backhouse & Son's nursery at York by the late Mr. Noel Humphreys.



whole of the other species named are suited for general garden culture.

ÆTHIONEMAS.—These make pretty neat growing rock plants; in fact they are so essentially subjects for the crevices of rock gardens, that it is difficult to keep them healthy in so damp a climate as ours is, unless planted in this way or protected by means of a glass frame, and even then they must not be kept close, or they would be liable to damp off. Amongst them are several species well worthy of culture. Æ. grandiflorum is perhaps the most showy of the genus. I remember seeing a fine display of this plant in the Wellington Road Nurseries, St. John's Wood some years ago. The plants were 9 in. or 12 in. high, hemispherical in shape, and formed a complete sheet of rosy pink flowers. Æ. saxatile is a South European species, which, when well established, forms handsome irregular tufts with heads of small Arabis-like blossoms. Æ. pulchellum is similar in general habit, but has deeper coloured blossoms. There is also one from the Pyrenees, viz., Æ. pyrenaicum, but it is not worth growing, having small dirty white flowers. Æ. coridifolium (Iberis jucunda) is a little gem; it is a miniature species from the Lebanon range. Its blossoms are large and waxy, deep rosy pink, and borne in clusters on sturdy little stems about 2 inches high. All the species are evergreen; the leaves are small and more or less glaucous. R. Potter.

SEASONABLE WORK.

FLORAL DECORATIONS.

Gardenias will now be yielding an abundant supply of their highly fragrant flowers. We find it a good plan to cut them before they are fully expanded, as thus treated they keep their colour longer. Flowers that begin to open early in the morning are fit to cut the same day. If it is desired to keep any for a few days they should be put into a cool, dark place till wanted. Where the stock of plants is large and healthy the best plan is to cut them with stems sufficient to secure some of their own foliage, than which nothing with which they can be associated is so suitable. They may be arranged effectively in a flat glass dish in company with buds of Madame Falcot Rose, a little fresh Moss or Selaginella making a nice groundwork for them. Stephanotis, which will now be coming on fast, may be arranged in a similar manner with the same kind of Rose, or with a pink or dark red variety instead. The Flamingo Plant (Anthurium Scherzerianum) is now expanding its showy spathes, but it is a pity to cut them except for very special occasions. They look best, perhaps, when cut, arranged in specimen glasses with a spike or two of Hoteia japonica and fronds of a durable Fern, such as the smaller kinds of Davallia. Spikes of either Lachenalia tricolor or pendula we find to be most serviceable, and also very durable in a cut state. They associate well with white Azaleas, Deutzia gracilis, and a dark self-coloured Cineraria. Lately we have used the same spikes in several different arrangements, finding them to keep so well. For specimen glasses Camellias are still doing excellent service, and trusses of Azalea mollis make a pleasing change. For entwining around the slender stems of glass vases, or for suspending from tall trumpet vases or epergnes, an excellent subject is just now in perfection, viz., Chorozema Chandleri, than which nothing in the way of a conservatory climber is prettier at this season of the year. We have it here festooned over an arch about 10 feet high, allowing it full freedom of growth. From this plant we often cut long sprays for the purposes just named. For coat flowers or button-hole bouquets there is now an abundance of appropriate material from which to select. Buds of Tea-scented Roses are always admired, and among the very best are Souvenir d'un Ami, Niphetos, Madame Falcot, and Josephine Malton. Small sprays of Epacris Eclipse are also very effective when nicely arranged. Carnation Grenadin is just now becoming invaluable for this kind of work.

INDOOR PLANTS.

Daphne indica.—Young or medium-sized plants that have done flowering should at once be placed in an intermediate temperature, for if only treated as ordinary greenhouse stock the progress they make is slow, and the flowers they produce small and wanting in quantity. As to the amount of pot room given, it is necessary to adopt a medium course, for although this Daphne cannot bear over-potting, yet if the opposite extreme is followed, it gets into a stunted condition, out of which it is difficult to move it. Old examples are much benefited by the use of weak manure water at the time when they are making growth.

Room plants.—These are now in such general request that sufficient must be provided to meet the demand. In the selection of varieties, particularly of such as are grown for their handsome leaves, it is advisable to choose those that are capable of keeping up a healthy appearance under the adverse conditions by which they will be surrounded. Amongst the species and varieties that will bear the atmosphere of living rooms where gas or oil is burnt are some of the hardier kinds of Palms, the green and variegated forms of Aspidistra, the India-rubber Plant, and small-growing green kinds of Dracæna that will thrive in a greenhouse, such as D congesta, D. lineata, and D rubra. The Aspidistra may be increased by division of its creeping underground stems now when commencing growth. The Palms are raised from seed, but their propagation is better left to those who raise them in large numbers. Small plants beginning to show their natural habit can be kept in a healthy state in very little pots by the use of manure water through the summer season whilst the most active growth is going on. Palms will grow in almost any description of soil, but where they are to be subjected to the rough usage indispensable from being located in rooms, loam imparts more substance to the foliage. The India-rubber is easily increased from cuttings made of the young shoots with some two or three leaves each; they will root if kept confined under a propagating glass either with or without heat, but where they can have warmth the rooting process will be sooner effected. Each spring a sufficient quantity of this description of stock, to take the place of that which gets too large, ought to be provided. Amongst Ferns that will bear full exposure to the atmosphere of a room may be mentioned Davallia canariensis, Adiantum cuneatum, A. pubescens, Pteris serrulata, and some of the crested forms of this Fern, which attain a much larger size than the type, and P. cretica and its variegated variety. These, if regularly supplied with water and allowed to make their growth in the rooms in which they are to be kept, will produce fronds of a hard, enduring character, that will last much better than those that are grown in plant houses and afterwards moved to the rooms.

Pelargoniums.—Exception is often taken to the formally-trained examples of the large-flowered and fancy varieties of these plants seen at exhibitions, and for ordinary decorative purposes it is not necessary nor desirable to either grow them to the size of exhibition plants or attempt the same form of training. But in other matters the general cultivator will do well to adopt the treatment that the exhibitors follow, which is first to induce the greatest amount of root formation of which the plants are capable, and afterwards to sustain them by liberal stimulants in the shape of manure water applied at the right time, which is when the flower-trusses are formed in quantity; without this the bloom will be deficient in size, and the foliage will be wanting in the rich green colour that adds so much to the general appearance. If the plants have all along been kept, as advised, through the winter close up to the glass, the shoots will be so stout and short-jointed as to require not more than half-a-dozen small sticks to each to give the requisite support. Many of the newer varieties of zonal Pelargoniums are alike remarkable for the size of the individual flowers and for the size of the trusses, but where the bloom is much required for cutting this is a questionable advantage, as small bunches forthcoming in quantity are generally more useful. It is, therefore, well to select such kinds as will best meet the purpose required. In the case of young stock propagated last autumn it will be advisable to stop the shoots sufficiently often to lay the foundation for bushy examples with a view of having them at their best towards the latter part of summer, when the ordinary spring-flowering plants are over.

Primulas.—Some seed of these, if not already sown, should at once be put in, so as to give time for the plants to get large enough to bloom strongly in the last month of the year, for if the stock is late and weak their flowering will be proportionately meagre. Hardy Primroses, such as the different coloured varieties of P. cortusoides with P. japonica, are deserving of pot culture wherever there is a greenhouse, for when well managed they are beautiful objects in no way inferior to the more generally grown Chinese varieties. Now is a good time to get up a stock; small plants procured at the present season will, if well cared for, make strong examples before the end of summer that will bloom freely next spring.

FLOWER GARDEN.

Herbaceous borders.—All plants in these will now be above ground, and therefore as soon as the necessary digging and manuring have been done all vacant plots should be filled up with Gladioli, Hollyhocks, Campanulas, Antirrhinums, Pentstemons, Foxgloves, Violas, Pinks, Sunflowers, Sweet Peas, and other suitable annuals. The whole of the border should be lightly forked over, and stakes should be placed to kinds liable to be injured by winds or heavy rains. Delphiniums, Dielytras, and the flower-stems of Geums are among those that at the present time need support. Any bare spots near the margins of borders should be sown with Mignonette, Virginian Stocks, and dwarf Silenes, or, as soon as weather permits, be planted with Lobelias, variegated Mesembryanthemums, Verbenas, and Heliotropes.

Planting hardy bedders.—In order to keep pace with the work to be done at the general planting-out time, every kind of plant that can now be put out should be so. Edgings and groundworks consisting of hardy Sedums, Saxifrages, and Cerastiums are what we are now planting; next will come Violas, Verbenas, Calceolarias, the hardier succulents, and Golden Feather Pyrethrum, and when these have all been planted the remaining vacant plots will be labelled and the plants put out as soon as they can be safely exposed. Meanwhile some of the plots will have special attention as to soil; those for Alternantheras will be given a dressing of half decayed leaf-mould and horse droppings; plots for Calceolarias, Violas, Fuchsias, and Verbenas will receive an extra good dressing of manure, and all the plots will be forked up and left rough till planted in order that they may be subjected to the ameliorating influences of sun and wind.

General work.—Cuttings of tender kinds of bedding plants may still be put in, others may be potted off, and so should seedling sub-tropical plants. The earliest sown Castor-oils and Solanums will now require a shift into 5-inch pots; old roots of Cannas must be divided, potted, and placed in warmth, and in order to make room for these gradually remove from the pits all the kinds that will stand a degree or two of frost. Tuberous Begonias should now be started into growth. Plant them in boxes, placing the tubers about 3 inches apart. The soil should be at least half leaf-mould; they will then transplant with abundance of fibres. Seedlings of the present year to be of much service during the coming summer will still need all the heat that can be afforded them, and

about the middle of May they may be removed to cooler quarters. Our experience in the use of the current year's seedlings of these plants is such, that to any who may be depending on plants of that age we would say, "Don't." Be content to wait another year, and in the meantime grow on the seedlings as vigorously as possible; the tubers will then be in good order for next summer's arrangements. Tubers or roots of every other kind should also now be taken out of their winter quarters, and be placed in pits to start them steadily into growth. In the open air the most pressing duties are the completion of pruning shrubs and hedges, and the placing of supports to and mulching the roots of recently moved trees, an operation which the still continued cold weather renders necessary. Newly-sown lawns should be frequently rolled, and if neatness be valued, do not neglect to mow, and also to dress with soot or wood-ashes any portions of the turf that have a sickly hue.

ORCHIDS.

East India house. — During the last few days the sun's rays have been sufficiently powerful to injure plants exposed to them; but the careful cultivator, while he does not shade too much, will doubtless have prevented such an occurrence. Some Orchids will stand sunshine better than others; consequently they must be arranged according to their requirements in this respect. Vanda teres and V. Hookeræ do not yet require shading. All the deciduous Dendrobiums do well, at least such as require a high temperature in the lightest part of the house. The evergreen species, too, of the D. thyrsiflorum type, after having been rested in a cool temperature, should be placed in the cool end of this house, *i.e.*, if a Cattleya house temperature is not available. Cypripediums must be placed in a rather shady position, as some of them are easily injured by sunshine. We have had the leaves of C. Veitchi (superbiens) injured even under the shading. Last season a number of seedlings between that kind and C villosum placed amongst other hybrids, although shaded with a thick blind, were injured, while the others were untouched. The whole of the Phalænopsids must be on the shady side of the house. Angræcums, too, do not succeed on the sunny side. We had a plant of A. articulatum which was doing well at a distance from the glass; thinking to get better growth, it was suspended about 18 inches from the roof, when it ceased to do well. It has been placed in its old position, and is slowly recovering. All plants making growth must be freely supplied with water.

Cattleya house. — Watering and shading must now receive special attention. The leaves of Cattleyas seem to absorb heat very rapidly; if touched by the hand after the sun has shone upon them in the morning for about a quarter of an hour, they will be found to feel quite warm, and if they were to be exposed for some time longer they would certainly be hurt, even if they did not show the injury immediately. We keep our thermometer in a partially shaded part of the house, and when it has risen about 5° by means of sun heat the blinds are let down. If the day should be sunny with few clouds they are left on until the sun has passed so far to the westward that no harm will be done, but we like to have sufficient of his parting rays to again raise the temperature a little. Then as to watering. If such Orchids as Cattleya Mossiæ are examined, a mass of fine healthy roots will be found pushing out from the base of the last-formed pseudo-bulbs; they are mostly above the surface of the potting material, and it is best to let them alone. We have known lumps of peat, &c., to be put over them to induce them to root into them, but it is better not to do so; they will run along a little on the surface and then push downwards. All plants that are doing this should be well supplied with water, and a moist atmosphere is also very desirable. Odontoglossums, such as O. vexillarium and O. Roezli, are pushing new roots freely from the base of the growing bulbs, and also require a considerable amount of water. O. citrosmum is now starting freely into growth and showing its flower-spikes, from which slugs must be kept; if these pests are numerous the young spikes must be protected by means of cotton wadding. O. grande and O. Insleayi, both autumn-flowering species, should be kept rather dry at the roots; indeed, it is best not to water them until it is seen that the compost is quite dry. We have tried these two species in the cool house, but they did not succeed; they are now doing much better in the Cattleya house; still, we have seen them do well with cool Orchids. Evaporating troughs should now be kept filled with water, and the house ought to be damped twice daily.

Cool house.—Many have their Odontoglossums and Masdevallias placed in a lean-to house facing the north; in that case but little shading will be required until the sun gets round on afternoons of sunny days, when it may be necessary to shade for an hour or so. If the house is exposed, say a span-roofed one running north and south, the shading will have to be let down very soon after 7 a.m. on the east side, and that on the west side about two hours later. Nearly all the plants in this house will require very considerable supplies of water; they seem to do best when the Sphagnum on the surface is growing freely. No rule can be laid down as to the quantity of water to be given, or how often it should be applied. Plants that are established and that have well filled their pots with roots will require it much oftener than newly potted ones, and much, too, will depend upon the form and position of the house. One advantage of a lean-to facing the north is that the plants neither require so much water nor so much attention as those in a different aspect. Any Orchids that have been wintered in the warmer house may now be removed to this one. If the temperature of the two houses vary to the extent of say 10°, it would be well to increase that of the cool house say 5°, in order to meet the requirements of the plants newly placed in it half way. Our experience in exhibiting, as well as in shifting plants from one house to another, has taught us that the fewer changes Orchids are exposed to the better, and cool Orchids are quite as likely to suffer as those from the East India house. We had about thirty Orchids in flower which were left at an exhibition last year for a week, many of them from an East Indian temperature, and none of them suffered except the Masdevallias, most of which lost their leaves. The temperature of the house falls now to about 50° at night, seldom lower, even with the ventilators open a little all night.

PROPAGATING.

Selaginellas.—The propagation of these is generally regarded as but a simple matter, which is indeed true as regards the majority of them, but there are a few that are rather difficult to increase. All the creeping kinds may be divided to any extent desired, and the more woody ones, such as africana, Wallichi, Lobbi, and Wildenowi, may be broken up and separated into as many pieces as have roots attached to them. Cuttings of the branches, too, of these large growing kinds may be put in, and if kept moist and close for a time soon root. Difficulty is often experienced, however, with the propagation of those Fern-like kinds in which the young fronds are unfolded from a single crown, and which, therefore, do not admit of division. Concerning this latter class, of which involvens and paradoxa may be cited as examples, cut off some of the fronds, and lay them on the surface of well drained pots or pans filled with light sandy soil, securing them in their positions with small pegs, in order that the undersides of the fronds may press on the soil; then place them in a close case, and keep them moist. Atmospheric moisture alone will keep the fronds fresh, when after a time buds will be developed on various parts of their upper surface; from these roots will descend, and thus young plants will be formed, which when large enough must be pricked off. Besides this, Selaginellas may be raised from spores, which in the majority of cases are freely produced. These spores should be sown and treated in every way the same as those of Ferns.

Stove plants, such as Dipladenias, Franciscea, Stephanotis, Rondeletias, Gardenias, and others, may now be struck from cuttings made of the young shoots; they must not be allowed to flag, and therefore it is best to cut off but a few at a time. After inserting them, give them a good watering and keep them close and shaded. That useful Palm, Rhapis flabelliformis, may now be increased by division. With a little care the old plant may be turned out of its pot and the suckers removed, repotting the plant. In taking off the suckers make sure that roots are attached to them before separating them. Use good, loamy soil, with a slight admixture of sand, put them in as small pots as possible, and plunge them in a gentle hotbed.

Tuberous Begonias will now require pricking off in pots or pans of good light soil—that is to say, seedlings of them, while tubers started a month ago will in many cases have grown sufficiently long for the tops to be taken as cuttings if required. When put in keep them close and shaded, but do not over-water them, as they are somewhat liable to damp. The useful double Matricaria inodora is rather difficult to winter, but those that survive, turned out of their pots now and divided into as many pieces as possible, will soon yield a good stock if placed in a cold frame, where they grow away freely.

FRUIT.

Hardy fruit.—If not already done, Figs may now be pruned and nailed or tied to the walls, care being observed that a space is not left to admit of a current of air behind the shoots. As we have before observed, pruning should simply consist of thinning out the shoots and arranging the past year's growths, so as to have an even spread of well-ripened shoots, studded with embryo fruit, all over the space allotted to the tree, and as all the fruit of any value will be found near the points of the shoots, the latter should never be shortened at the spring pruning unless young breaks are wanted to fill up vacancies. Apricots bloomed very strongly, but not so early as we at one time anticipated. Where bread coping boards and heavy coverings have been used, a little judicious management in their removal will be necessary. The boards will, of course, remain for some time longer, but the canvas must be taken off every day and put back at night on the approach of danger. Disbud gross shoots and keep a sharp look-out for the active little grubs, whose whereabout is easily detected by the rolled-up appearance of the points of the young shoots. Peaches and Nectarines will require constant attention to keep them from aphides until it is safe to apply the usual dressing. Already Tea Roses on open walls are teeming with green fly, and unless the wise precaution of winter dressing the trees and walls with some insecticide has been observed, Peaches and Nectarines will soon be affected. Avoid the use of dangerous insecticides until their strength has been properly tested.

Cucumbers.—With increased daylight and sun-heat these hard-worked and often abused subjects will now take heavy supplies of generous liquid, particularly where the roots are in pots and the plants have been in bearing since the end of the past year. Good syringings overhead after the house is closed will also play an important part in keeping the foliage clean and healthy, as old plants in hot-water pits are sure to get more or less infested with spider, and it is only by constant application that this troublesome insect can be kept in check. From this time forward healthy plants will make rapid growth, and the usual stopping and dressing will require attention at least twice a week, as nothing more quickly resents neglect or suffers more from the handling and pulling about which invariably follows neglect. It sometimes happens that old plants show signs of faltering under bright sunshine, and require shading more or less every day. When this is the

case, make speedy examination of the roots, remove all old manurial top-dressings and inert soil, dust with quicklime, or water with lime water to destroy worms, frequently the cause of the mischief, and top-dress with fresh turfy loam, charcoal, or old lime rubble. Renovate the bottom heat, and when fresh root action sets in feed with clarified liquid, but avoid the use of manure as a top-dressing. Damp the floors and walls two or three times a day. Syringe the foliage overhead about 3 p.m when fine, and close with sun-heat, which will run the house up to 90°. Maintain a good heat in manure pits and frames. Train and peg out the growths, add large stumps of turf and pieces of charcoal to the hills as the roots appear, and still be very careful in the application of water to the foliage, as the nights are very cold, and sudden depressions when the leaves are wet very often produce mildew. Sow a few seeds at short intervals, for succession, and throw away all surplus plants before they become infested with spider.

Pines.—When the flowering process is over, the early batch of Queens will derive great benefit from a light dewing over with the syringe after the house is closed for the day, care being observed that the quantity of water used is not sufficient to concentrate in the axils of the leaves and saturate the soil about the collars of the plants. Examine the plants once a week, and, while avoiding indiscriminate watering, see that those actually requiring it do not suffer. If they are not over-potted and roots are plentiful, give warm clarified liquid in a diluted form and weak guano water alternately, and produce a stimulating atmosphere by sprinkling paths and drying surfaces with the same when the ventilators are closed for the day. Ventilation through the months of April and May (two uncertain months) will require constant vigilance, otherwise sudden external changes will cause great fluctuations, at all times injurious to plants which have been kept at a high temperature through more than half the winter. The safest and best course to follow is to keep a good heat in the bed, which will always prevent sudden depressions, to shut off fire heat early, and to give sufficient air to draw moisture off the foliage before the sun strikes the roof of the house on bright mornings. If the latter is glazed with large squares of glass, a very thin shading for two or three hours each day may be necessary, until the still tender foliage becomes firmer and better able to stand bright weather, but, the roots being right, its continuance will not be needed. The old-fashioned practice of driving the fires to maintain a given temperature throughout all weathers having been given up, 65° to 70° at night and 80° to 85° by day, with a bottom-heat of 85° to 90°, will suit Pines in every stage after they are started into fruit, and successions will do very well under an all-round reduction of 5°. If extra stock is not wanted, do not let fruiting plants carry more than once sucker each. Remove all gills from the stems at the base of the fruit, and secure the latter in an upright position by placing two sticks to each plant and passing bands of matting above and below the fruit.

Melons.—Keep the atmosphere of the house in which early Melons are setting their fruit moderately dry with a circulation of air; fertilise all blossoms on fine days, and give very little water to the roots until a good set has been secured. With pot plants this is not difficult, as the most troublesome setters can be brought into subjection by the application of bottom-heat and withholding water from the roots. As soon as the fruit begins to swell, syringing may be resumed to keep them free from spider; but water must be sparingly given at first, as a flush before the fruit attains the size of Walnuts would most likely cause it to turn yellow and go off. If the compost—stiff calcareous loam and bone dust—is dry and in a fit state for use as a top-dressing, see that it is made as warm as the soil in which the plants are grown before it touches the stems, and guard against injuring them in its application, as canker is often brought on by undue pressure or the use of cold materials. As soon as the roots have taken to the top-dressing apply warm stimulating liquid as often as the plants can take it. Keep the bottom-heat at 85°, syringe at 80° on fine afternoons, and run up 5° to 10° after closing. Give a little front air at the close of the day, and let the night heat range about 70°.

Thin out and train the laterals on succession plants, pinch the points of leaders where they have covered two-thirds of the trellis, and induce a firm wiry growth by giving plenty of heat and air through the early part of the day. Make fresh sowings for succession and for planting in pits and frames after Potatoes and other forced vegetables are cleared away. Hardy kinds like Golden Gem answer best for this culture. In pits and frames keep up a bottom-heat of 85° by means of linings and cover the glass at night Earth up with fresh friable loam as the roots require it, using lumps of charcoal or broken brick to keep the soil away from the stems of the plants. Avoid wetting the foliage until the weather becomes warmer, as moisture is generally abundant where fermenting material is used as a heat-producing agent.

KITCHEN GARDEN.

Now is a capital time for sowing a good quantity of Peas. We generally form miniature Celery trenches for their reception, and earth up by cutting down the sides of the trench. When earthed they become level with the rest of the ground. Our special variety is Laxton's Standard, a really good bearer and otherwise excellent Pea; but we have many more that are perhaps equal to it. Pride of the Market and Stratagem are both good where 6-foot stakes and plenty of room is no object; Telephone and Telegraph are likewise two grand varieties. Broad Beans have now become an indispensable vegetable; eaten when about the size of large Peas, they are both delicate and delicious. Green Windsor and Mazagan are as yet the best; they are so easily satisfied that they will succeed almost anywhere provided the soil is rich. Stretch the line on the ground proposed to be planted, and dibble the seed in on each side of it at from 6 inches to 9 inches apart. Keep the hoe well at work amongst Lettuces and Cabbages, and, in fact, amongst all growing crops.

MARKET FRUIT GARDENS.

Grafting is now an important operation. By means of crown or rind grafting, Apples, Pears, and Plums are converted from unsatisfactory trees into fruitful and profitable ones. Top-dressing trees recently planted must no longer be delayed; it is the drought in spring before the roots get established that is so much to be dreaded. Last season a large quantity of Cob Nuts and Filberts were planted late on a south slope, and a severe drought followed. The greater portion of these bushes had each about a barrowful of manure spread over their roots, and amongst them not one failed, whilst of some left bare nearly half died, and the rest only just kept alive, but made no growth like those that were mulched. Orchards on Grass, to which farmyard manure was applied during the winter, will now need bush harrowing and rolling, at the same time picking off stones and forking up Docks, Thistles, or Nettles. Orchard Grass should never be made into hay, but fed off closely, as is just now being done by ewes and lambs. Orchards or fruit gardens dug up roughly in winter should now have the soil made fine by means of prong hoes. Strawberry beds must be divested of weeds and heavily mulched with fresh stable manure, the good properties of which will get washed down to the roots by rain, and thus stimulate growth and form a clean, dry bed for the fruit to rest upon. Birds must be kept off fruit buds either by powder and shot or some other means, for if allowed undisturbed access to trees and bushes but little fruit will come to maturity. Sparrows are especially troublesome to Gooseberries, and bullfinches to Plums, Cherries, and Apples. In young plantations recently planted the work of putting in a row of Potatoes will now need attention; a furrow made with a plough and the sets laid in answers well. Potatoes and fruit do well together for the first year or two after planting.

KITCHEN GARDEN.

KITCHEN GARDEN BRIDGES.

These should form part of the tools belonging to all carefully worked kitchen gardens. The edgings which surround the vegetable quarters, no matter whether they be boxwood, stone, tile, or wood, cannot be wheeled over with impunity, and all who study economy and neat appearance in their gardens would not tolerate dilapidated edgings. Where much wheeling has to be done odd pieces of board or any kind of makeshifts are never satisfactory. Small bridges made specially for the purpose are best, and should always be used. Of these we have two in use, both good. Fig. 1 is sawn out of a solid block of wood, and then a little archway is cut out in the centre sufficiently large to clear the edgings. This is rather heavy and for some might be too expensive, but Fig. 2 will meet all cases. It consists of two boards each about 2 feet long nailed to a cross-piece in the centre; other two pieces are then nailed across to hold it up about 6 inches so as to form a protection to the edgings. The boards may be about 1 foot or more in width and anyone who can use a hammer and a saw may make such a bridge. With one or two of either kind in a garden no edgings need ever be injured let the amount of wheeling over them be ever so great.

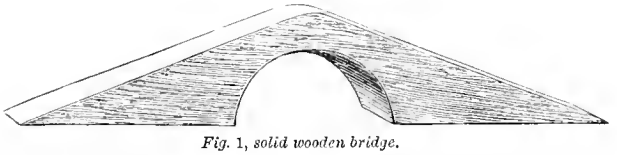


Fig. 1, solid wooden bridge.

Fig. 2, bridge made of boards.

Margam. J. Muir.

Preserving Asparagus.—It is stated in a German paper that Asparagus may be preserved in a perfectly fresh condition throughout the year. When cut it is carefully wiped and the butt end dried; then it is placed in a tub, the bottom of which has previously been covered with 3 inches of dry bran with which a little salt has been mixed. The tub is filled by placing alternate layers of Asparagus and of bran and salt in mixture about 6 inches thick. The tub is then closed by placing on the topmost layer of bran a large plateful of melted suet which has been allowed to partially cool. If stored in a dry place and kept from frost, Asparagus thus treated will keep perfectly

fresh for a year. When a barrel is opened the whole of the contents must be at once used, and, therefore, it would be advisable that the receptacle should be of small dimensions.—J. C. B.

Paraffin casks for covering Seakale.—Those who, like myself, have paraffin casks at command, and a brisk demand for Seakale, may use them as follows: Plant six crowns instead of three in groups 4 feet apart, to be covered when required with the casks. Before using the latter they must be burned out, scrubbed, and sawn through the middle, the ends being taken out carefully to form lids. From under these casks I have cut (the second year after planting) from 6 lbs. to 8 lbs. of good stout Kale from one group. I cover only with Oak leaves except in case of severe weather, when a layer of stable manure is laid on the top to assist in keeping up the temperature.—Daniel Harris, *Munstead, Godalming.*

Dandelion.—Where salads are in daily request, blanched Dandelion leaves will be found useful for cutting up with the other ingredients, especially when blanched Endive is scarce. Many eat the young leaves of Dandelion when green and tender between thin slices of bread and butter. Seeds of it may either be sown, or crowns may be taken up, planted in rows 9 inches apart, and 4 inches from plant to plant; or cuttings may be made of the young roots, choosing the strongest for the purpose. Cut them into lengths of from 6 inches to 9 inches, and plant them in rows the same as crowns. If grown in the garden, care must be taken to cut off all flower-stems as they appear, in order to prevent the dispersion of the seeds. During November lift the roots and store them in a cellar, covering them with sand. A few may be potted and put into a warm, dark place, so that the leaves may get perfectly blanched before using them. During summer they may be blanched by covering the crowns in the rows with boxes or flower-pots. The broad-leaved variety will be found more productive and better than the common kind.—Wm. Christison.

Trial of Kidney Beans.—On February 18 we sowed in pots quantities of Jefferies' July Surprise, Cooling's Ne Plus Ultra, Osborn's Forcing, and Canadian Wonder, and their order of merit is according to the way in which their names stand. July Surprise is quite new. Its seeds are very small and pure white in colour. The plants grow about 18 inches high, have peculiar-looking very dark green leaves, and the pods produced are abundant; indeed, the whole of the stems are one mass of them. They are from 4 inches to 6 inches in length, narrow and excellent, and in point of earliness this Bean has surpassed all its competitors. Ne Plus Ultra is a capital variety, being only a little later than the preceding, and almost as prolific, but it is more luxuriant in growth, which is a slight drawback under glass culture. The pods acquire a good size, are light green in colour, and, in short, it is a variety which merits attention. Osborn's Forcing, I fear, is falling into the background, as it is not so early by ten days as either of the foregoing. Its pods, too, are shorter and not so numerous, which throws it a long way behind those just named, with which it certainly cannot compete. Canadian Wonder is a strong-growing Bean, but neither early nor prolific.—J. Muir, *Margam Park.*

SHORT NOTES.—KITCHEN.

Long Cucumbers.—Anyone in search of long Cucumbers will find them in Kelway's Conqueror. This grows 42 inches in length. Prince of Wales is quite distinct from Conqueror, being smooth and light in the skin. It has scarcely any neck and is a good bearer.—J. C. C.

Red Cabbage.—I consider the end of March to be quite early enough to sow red Cabbage, because it is a well-known fact that the more they are subjected to frost the brighter their colour will be; but if sown in autumn they will not keep till the frost comes, but will require cutting in August or September.—G. C

Early Cabbages.—We are cutting some very good heads of Imperial and Old Enfield Market Cabbages. Our Sugarloafs all ran to seed, though all were sown and planted out at the same time. Of All Heart about two in a dozen have run to seed. We are scarcely ever troubled with the Enfield Market running to seed.—G. C.

NOTES ON CURRENT TOPICS.

Primrosee.—Should not the text of the next congress be Primroses? It would be hard to say whether Daffodils or Primroses are most popular, but the Primroses are likely to win in the long run, their variety and richness of colouring rendering them valuable for general planting and pot culture, forcing, &c. Some of the high-coloured kinds are equal to some of the most intensely coloured Cinerarias. None of the garden varieties, however, equal the wild form for profusion of flower, and wherever you detect its parentage there also you find the same freedom of habit more or less developed. We have all the Primroses in large masses distinct, and the wild one, two year old seedlings principally, eclipses any other for abundance of flower. Nowhere over the surface of the bank where they grow is there a blank, but flowers about, touching each other everywhere. The neat little Primula rosea is a rockery gem, and very distinct and effective in good patches, but it is eclipsed in splendour by the common coloured kinds, among which, however, none are found of exactly the same rosy shade, numerous as the colours are.

Tropæolum speciosum.—How this creeper does grow in the far north in Scottish mist and drizzle! A hamperful of roots sent us a little while ago were more like Horseradish thongs in size than anything else. The friend who sent it says it is a weed with him, scrambling like Bindweed over everything. One gentleman has had it sent from his Scotch place by the cwt. to his Lincolnshire garden and has not succeeded in establishing it yet. There is a great deal more in climate than we generally imagine, and gardeners have not yet fathomed the mysterious influence which "a change of air" exercises on plants, indoors or outdoors. In many instances it would appear to be only of less importance than a change of soil. Those who cannot grow T. speciosum will find a by no means bad substitute in the tall-growing scarlet Nasturtiums.

Planting tuberous roots.—Unlike bulbs of the Daffodil and Hyacinth type, tuberous roots do not appear to keep well out of the ground, no matter how carefully they are stored. We hear complaints of such subjects as the fine Anemone fulgens failing to grow when the roots have been stored in the seedshop or elsewhere for a while. Just when the roots should be sprouting they are found to be a mass of rottenness. In our own case established roots of Anemone fulgens are in leaf and flower, while autumn planted tubers are just peeping above the ground of those which have lived, for of the autumn-planted roots from the shop one half have died. This is just our experience of several tuberous-rooted plants, Begonias, for example, or Caladiums, &c., none of which like to be dried off. Even the Potato is no exception to the rule, and it is long since it was first discovered that Potatoes for sets were best stored in dry soil or sand till planting time. Moral: Do not keep any tuberous-rooted plant long out of the soil, but, like Lilies, lift and plant at once at the right season. When such roots cannot be planted at once, they should be preserved in soil.

Dendrobiums.—How very pretty and useful are the two popular forms of this Orchid called thyrsiflorum and chrysotoxum! A fortnight is about the limit of their flowers' endurance, but they are singularly rich and beautiful while they last, and plants in flower make fine vase subjects. They are free flowerers, too, chrysotoxum particularly, which makes a fine specimen. The bulbs are so stout and strong that they need no support, and the flower-spikes are equally self-reliant. Both varieties should be included among the easily grown Orchids for the warm or intermediate house, as they do well in either. Their extraordinary rooting power no doubt accounts for their wonderful vitality, and they are not nearly so particular about compost as some others are provided they are well set up above the pot and well drained. In deciding what kind of compost is best for Orchids it is manifest that the constitutional vigour of almost every variety must be considered, for no two are quite alike in that respect. The fine D. formosum giganteum, on the other hand, a noted authority says, is one of those Orchids that sometimes go back, and it needs careful potting. In a pot filled with nothing but charcoal lumps lined on the top with a thin layer of growing Sphagnum Moss alone it will be found, however, to root as vigorously as chrysotoxum and to grow as freely.

Lath shadings.—The striking feature of many French garden appliances is their utility and cheapness. Although lath shadings are dear at first, they are found cheapest in the end Mr. Baines appears to be under a misapprehension regarding them, and there never appears to be any "exceptions" to his rules. It seems, to use his own words, he "required nothing more than a sight of these blinds to be deterred from using them," but fortunately most other people require more than that. There are more than one kind of lath shadings—those, for example, made of hamboo, as used and sold by the New Plant and Bulb Company and others. A good few years ago the late Mr. Pearson, of Chilwell, recommended these lath shadings in The Garden, and neat models of the same were on view at The Garden office about the same time. That they may not prove a substitute for canvas or cotton in all cases may be probable, but they are perfectly convenient in use in every way. A house full of plants was exhibited at the last Paris exhibition that had been permanently shaded by common lath blinds the whole season, and the plants looked remarkably well notwithstanding. Mr. Baines' hypothesis on the subject of cotton threads *v.* laths (p. 261) is based on false premises, as a little further enquiry on the subject of optics will prove to him. Shadings made of wood need not necessarily exclude more light than those of cotton fabric. In principle the two are alike, for both are simply intended to obstruct direct rays of the sun, and the only difference between lath shading and a cotton one in that respect is that the bars are broader and the spaces wider in the one than the other. The lath shading is constructed on a similar principle to the Davy safety lamp, which, though only covered by a netting of wire of a certain gauge, cannot ignite the highly explosive gases in contact with the outside. In the same manner shadings, so long as they exclude or divert the direct rays of the sun, it does not matter whether the meshes be wide or narrow within certain limits, and the degree of obstruction may be exactly the same in both cases. Practically, if the spaces between the laths were very wide, the sun's rays would scorch as usual; but when they are reduced to a certain width, the clear light is still admitted, but so diffused that it does no injury.

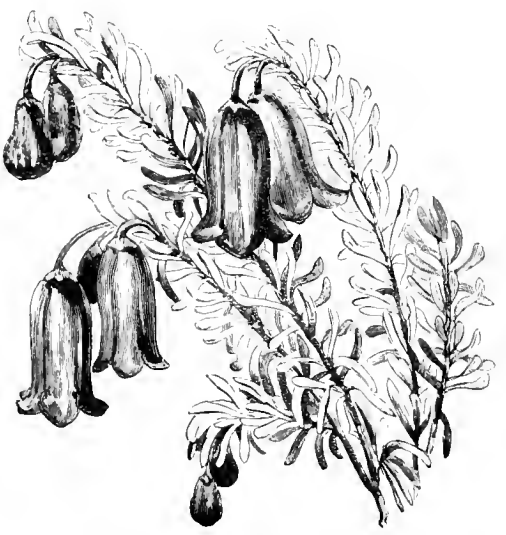
Pine growing.—"Cambrian" has a poor case when he has to place poor and inferior St. Michael's Pines against the best English grown samples to make the latter appear to pay. He says, p. 307, that St. Michael's Pines were last week selling for 2s. and 3s. each and English at 2s. per pound, whereas the lists from which he professed to quote gives English Pines at 1s. 6d. and 2s. per pound, and St. Michael's at from 2s. and 3s. to 8s. each, and as the last do not as a rule exceed 4 pounds on the average that figure gives the highest price; the lower prices are for damaged fruit. Nothing shows the depreciation of English Pines so much as present prices, viz., 1s. 6d. and 2s. against 5s. and 7s. 6d. that used to be given before the St. Michael's came in. Mr. Groom hits the nail on the head when he points how market growers have to pay for many necessities of Pine culture which "Cambrian" and other private growers do not debit their account with at all. One fails to see the purpose of bolstering up a losing game like Pine growing as a paying one at the present time.

Pruning Calanthee.—The mention of this little inconsistency of practice in certain quarters has been a palpable hit, and has had the effect of causing "W. B. B.," of the *Chronicle*, to abandon Dendrobiums, his former text, and take refuge behind Coelogynes, which it has never been proposed to deprive of their last year's bulbs, but

only to thin out their older and leafless ones. We invite "W. B. B." to return to his Dendrobiums again, and show wherein they differ from Calanthes except in the fact that they need their old bulbs less, having permament roots, which Calanthes have not. Commonsense becomes a factor in this discussion. The non-pruners have been found out as it were advocating the planting Potato sets whole as the secret of all successful culture, and cutting their sets in practice with the same object. Says "W. B. B.": "We admit we have pruned away the old bulbs of Calanthes, and continue to do so now, because we found no evil results attend the practice." There is, therefore, nothing left for him now but to treat his Dendrobiums on the same principle, because he cannot and does not attempt to tell the difference between the one and the other. The strong testimony from America in last week's GARDEN will no doubt help him to this conclusion. As it is we hear of much pruning of old withered Dendrobium bulbs lately in some places.

Narcissi and climate.—It will be discovered by-and-by, I am afraid, as we get more familiar with the Daffodil family, that some varieties that are reckoned hardy enough will not succeed so well in the north as they do in the south. Here, in a late part of Yorkshire, I notice a marked and constant difference between newly planted and established roots, viz., that the latter produce the tallest leaves and most luxuriant growth generally and flower the least, and this in not over rich, but good loamy soil. The old common double Daffodil and dwarf single variety (minor) are the two most constant, and so is the double Poet's Narcissus, but the single variety and little nanus are very sensitive to situation, not flowering at all where shaded or on a northern exposure, but requiring the warmest and sunniest border we have. N. maximus, Horsfieldi, and bifiorus prefer the warm spots, too. Newly imported bulbs of the Hoop-petticoat (N. Bulbocodium) planted early in autumn bloom freely, and the leaves are not more than 6 inches or 7 inches high, but on established plants they are 14 inches high and flowers are scarce, and this is in one of the snuggest spots in the garden. Established plants of N. Horsfieldi and poeticus nanus have at the present moment leaves 2 feet long and few flowers, while the same sorts, imported bulbs planted last autumn on the same spot, are only 10 inches high, every bulb flowering. We have large quantities of N. poeticus, and some years since distributed masses among the trees on the Grass, where they are rather shaded, and I have not noticed a flower on any of them since the first season. I would therefore advise beginners in the north and in cold localities to plant in favourable situations, at first at least, to prevent disappointment. J. S. W.

Tropical Rhododendrons.—We find some very beautiful Rhododendrons in Europe and in America, but the head-centre or focus of the genus seems to be in the East, and it was from the Sikkim Himalayas that Dr. (now Sir Joseph) Hooker introduced those magnificent species which grace our cool houses and more sheltered pleasure grounds in Cornwall and Devon or in Ireland. Some of the Malayan species are peculiar; the one now illustrated is especially so, being an epiphyte, and singularly like an Erica in general appearance and habit, even when in bloom; hence its specific name, R. ericæfolium. The flowers are wax-like and of a scarlet colour. R. stenophyllum has larger bells, not unlike those of Fritillaria pudica, and the foliage is dark green and linear, in whorls like that of a Sciadopitys, or "Umbrella Pine" of Japan. R. jasminiflorum, from Mount Ophir, in Malacca, is well known, so is R. javanicum, and their now numerous and beautiful progeny are "familiar in our mouths as household words." R. Curtisi is a gem, and others of equal interest and beauty await introduction.—F. W. B.



The Heath-like Rhododendron (R. ericæfolium).

SINGLE V. DOUBLE FLOWERS.*

THE taste for single flowers has been brought about simply by a more correct taste being the order of the day. A great many ideas and opinions considered immutable a few years ago are now exploded; nothing will be taken for granted now-a-days unless it can be proved with precision, and all phenomena connected with it fully explained. The flowers that bloom in such rich profusion in our gardens and fields most certainly have not escaped observation. Of coarse it is well known that it is not simply to show off their rich and gorgeous colours or to delight the senses by their fragrance and beauty that is the only, or even the principal, part of their functions. The reproduction of the species is the first and primary function. Now, it is well known that double flowers as a rule do not produce seed so freely as single ones; in fact, in not a few cases, I believe, they refuse altogether to perform the function for which flowers were chiefly intended. Our gardens would, however, be bare indeed if deprived of double flowers. While admitting this, however, I may venture to question if so-called improvements, the results of hybridisation, have always been in strict accordance with good taste. What is called good taste is, however, difficult to define. It has always appeared to me that the very essence of good taste consists in being perfectly natural, nothing artificial; broadening and deepening the lines and laws that operate in Nature. That is my idea of the first principles of good taste. Royal Academicians ought to be the true exponents of good taste. Well, it is seldom one sees their pictures of flowers anything but the true types of what flowers ought to be. Who ever heard of a true artist painting a double Dahlia or a ribbon border? Roses and Carnations they may paint and do paint well, but much oftener is seen on canvas the delicate petals of the wild Rose, the Cornflower, Poppy, or open-eyed Daisy. Look at any modern paperharger's book of patterns; there is the Marguerite, the Poppy, the Sunflower, the Clematis, and single Dahlia, with a host of others too numerous to mention—very rarely will one see a double flower. Now, the reason of this I think may in a great measure be attributed not to the caprice of fashion alone—that perhaps may have something to do with it too—but more to a correct taste permeating society. I will venture to affirm that the taste for single flowers, such as Dahlias and Marguerites, Sunflowers, &c., is in the right direction as bearing on horticulture. In pointing out what I consider to be a step in the right direction, I may be allowed to point out what I consider to be steps in the wrong direction, and in the forefront I would put what is termed

RIBBONING AND CARPETING. Some think they are in the best of taste in laying out their beds and borders in lines and circles with all the colours of the rainbow, and with combinations that were never seen in a rainbow. Others prefer a quieter style; they go in for what is called carpeting. Why, it may be asked, should beds and borders be filled with intricate and fanciful patterns and figures that can be exactly reproduced in hearth-rugs, carpets, plaids, shawls, and such like household gear? I am drawing no fanciful picture, for I have heard the same opinion expressed by men who are generally credited with having what is called good taste. Let us see what connoisseurs of good taste offer in exchange for what they condemn. They will point to stately rows of Hollyhocks, sadly crippled, alas! by disease, but "still beautiful in decay;" to majestic rows of Sunflowers, with their black or green centres, fringed with rows of golden petals, and every flower as large as a harvest moon; to groups of single Dahlias, ranging in their pure and chaste colours, from the purest white to the deepest crimson and scarlet, from the most delicate primrose to the deepest orange; while magenta, mauve, and the deepest purple vie with each other in profusion of bloom and delicacy of colouring. Then they will show with pride beds and specimen plants of Marguerites, with their gold and silver stars, while in contrast will be seen flaunting Poppies, bold and striking, with all the varied hues that belong to this highly coloured race. In spring the borders will be red and yellow with Wallflowers along with many and other well-nigh forgotten plants, scenting the air with odours, bringing us back to the old scenes and forms belonging to years gone by. In the autumn Chrysanthemums, with their varied hues of purple, gold, crimson, and white, will stand out in royal magnificence when there is little else but dissolution and decay.

I may be told that we have all these flowers in our gardens. That I grant, but it must be admitted that many of them have been very much neglected, while Pelargoniums, Calceolarias, Petunias, Fuchsias, and the various varieties of Echeveria, Sedum, &c, that go to make up the ribbon and carpet bedding have been pushed to the front and made the most of, while other plants that cost far less trouble and expense have been put in the background and by many lost sight of altogether, but which, I maintain, are as much worthy of a place in the garden, and where cut

* Read by Mr. James Henderson, Seaton Cottage, at a meeting of the North of Scotland Horticultural Association.

flowers are much in demand, of even far more value than what are generally known as bedding plants. The question, however, may be asked, are we to discard all the modern bedding plants for the sake of single flowers that have been taken up and thought so much of by a certain section of the public? Are Roses, Carnations, &c., to be discarded because they are double? Certainly not. To do so would not be a step in the right direction. Lives have been spent in bringing such flowers to the state of perfection they are in, and the want of them would leave our gardens bare indeed. It is not the want of beauty or interest in those flowers that makes the new school condemn the old; it is the combining and contrasting of colours which they condemn as being unnatural. I am safe, I think, in saying you will see nothing on the face of the earth like a ribbon border. In Nature we have spots and dashes of colour here and there, one plant mingling and blossoming with another, making a harmonious whole that ribbon border or carpet bed can lay no claim to. I do not say that we should go to the hillside or the open moor for a copy for the arrangement of our gardens, but we may go there and learn a lesson. Every hillside, if Nature hath clothed it with any vegetation at all, every wood and tarn, every river and stream, if they are as Nature formed them, is a model for us to go by, adding a little here, toning down a little there, but still keeping in view the grand conception of Nature—no colour preponderating, no contradictions, every day adding fresh beauties, instead of that eternal sameness that characterises a ribbon border. What sentiment can rows upon rows of Pelargoniums, Calceolarias, Verbenas, Golden Feathers, &c., excite in any human being? Unless it be the sense of utter weariness at such a lavish display of glaring colours. A rage once existed for double flowers. Because the Rose, Carnation, &c., were considered to be improved by being double, everything else had to be double, and as the demand arose, the supply inevitably came; every flower was doubled; Nature was made to produce in many cases monstrosities that had as little apparent relationship to the parent as they had resemblance. I have been told that people are even trying to double the pure and lovely Marguerite. Would you believe it? I bought one, but was justly punished for my inconsistency, for it turned out to be my old single favourite. Speaking of the Marguerite, what flower has received more abuse. "A worthless weed," "a horse gowan," "a common looking thing," are some of the mildest terms applied to it; yet in bonnet or hat you will see everywhere an imitation of the Marguerite in some form or other. It is the fashion. Why, even the artificial Roses are so loose and full blown, and show so much heart, so to speak, that on an exhibition table they would be disqualified at once, that is to say, if they were natural flowers. Speaking of an exhibition table reminds me that

Flower shows, if properly conducted, serve to advance horticulture considerably, but to me it is a sad sight to see at our autumn shows rows upon rows of double Dahlias. Double Dahlias, it must be admitted, are fearfully and wonderfully made; they are, however, quite opposed to the natural idea of what a flower ought to be, and in my estimation they are only redeemed from utter worthlessness by their glorious colours. Flower shows, I have no doubt, have done a great deal in educating the public taste, but are flowers and plants staged and judged in a natural manner? To a certain extent judges are powerless. There are certain properties that must appear in certain flowers, properties that if absent make the variety of the flower, however pretty, absolutely worthless. This law is like that of the Medes and Persians—irrevocable; but who made those laws? Who so bold as to say to Nature, thus far shalt thou go and no further? Last year there appeared on this table two or three bunches of lovely, fragrant, and beautiful seedling Carnations and Picotees, which to my mind were the very essence of beauty; but I overheard one person say to another that there was not one single flower in the whole lot up to the florist standard. I felt ignorance all over me to my very toes, but I resolved I should see a Carnation and Picotee up to the mark on the first opportunity; well, the flower show came, and I along with the rest went to be "educated." I saw the boxes of Carnations, Bizarres, Flakes, and Picotees, and poor solitary individuals they looked, every one of them dressed out in a paper collar as if their very existence depended upon it. Well, I must say I preferred the despised seedlings. If those flowers with the paper collars had been shown in a bunch they might have been preferable, but still I think it a pity that because a certain colour may cross a certain defined line that that should make a flower worthless, that is not following the dictates of Nature—*i.e.*, if irregularity is Nature's chief charm. Diversity and not monotony is Nature's attribute. In showing plants and flowers for competition some sort of regulation and grade of excellence, I apprehend, is necessary for the guidance of judges; but how often do we see judges, in giving their decisions, awarding a prize to a new plant, simply because it is new and rare, irrespective of any other merit; and if there is a double variety, the fate of the single variety is sealed.

NOTES FROM NEW ENGLAND.

Harrison's Yellow Rose.—A few years ago I gave an account in The Garden (Vol. XVII) of all the American-named Roses up to that date, and among them Harrison's Yellow, which your correspondent "J. C. C." notices and speaks of as a valuable little Rose, whose parentage was unknown to him, but which appears to be a hybrid between the Persian yellow and some of the Scotch ones; and, further, that from whence this Rose came is not of much consequence. Now I differ from him somewhat, as I think it quite important to know the parentage of every fine plant or fruit, that we may know what hybridisation has accomplished, and as some slight guide to what we may expect in the production of hybrids. I gave the full account of this Rose in the *Magazine of Horticulture* in 1835, pretty nearly half a century ago. It was named before the Persian yellow was introduced to this country. At the time of my visit to Captain Harrison he could not state what varieties were the parents of his yellow Rose, as he rarely kept any account of them, but made it a practice to fertilise with any variety then in bloom, and it is probable that the parents were the yellow Scotch and perhaps the Austrian Rose. But of this we may be sure that if the grand Maréchal Niel came by successive fertilisation from the old Noisette Rose, we may yet expect, with the same perseverance and skill, a yellow Rose much finer than the Harrison.

Clematis Jackmanni.—M. Lavallée is certainly a good authority for the names of many shrubs and plants, but the *Florist* is quite right in asserting that "M. Lavallée is altogether in a fog respecting the true Jackmanni." I have not seen the C. hakonensis, but I had supposed the origin and history of C. Jackmanni were as well established as that of any plant we cultivate. The reputation of the raiser of this invaluable variety now rests upon its production, to say nothing of others of remarkable beauty, and to tell us at this late day that Mr. Jackman did not originate it is to take away the well-earned labour of one who has done so much to improve one of our most ornamental plants.

Evolution.—What have the evolutionists to say in regard to the remarkable statement made by Dr. Schweinfurth in reference to the mummy flowers, of which he gave a recent account? These flowers were taken from a floral wreath on the mummy of Princess Ugni-Khouna, of the twenty-first Egyptian dynasty—perfect flowers of the Corn Poppy (Papaver Rhæas var. genuinum), flower-heads of Centaurea depressa, and of Picris coronopifolia. "It is worthy to note, too," he states, "that the character of the Poppy var. genuinum, although gathered more than 3000 years ago, is identical with that of the same variety known at the present day." With respect to Picris coronopifolia, the author remarks, "not a single peculiarity is apparent by which it might be distinguished from the recent small form, with low spreading branches, now so common on the outskirts of the desert." Three thousand years, it appears, have failed to accomplish the least change in these flowers.

Seedling Amaryllis.—A correspondent, evidently an American, asked for information about raising Amaryllids. I have a thousand or more bulbs now three years old and some of them are flowering, and this, too, with neglected treatment, that is, planting them out in a frame in summer, keeping them dry in boxes of soil in winter, and planting out again the second year; many of them are now showing bud in the boxes stored away under the stage, and all will be planted out again in May; undoubtedly every one will bloom next year. If they had been potted early and brought along in a warm house, probably most of them would now be in flower, two years from the seed. Amaryllids are easily raised, planting the seeds as soon as mature, potting them as soon as large enough to handle, and planting out in a frame in the summer, repotting again the second winter, and growing them on either in pots or planting out the second year. The very large number of bulbs and want of space prevented me from pushing them along any faster. Seedlings from A. Hendersoni fertilised with other fine kinds have flowered, and promise some very distinct and beautiful varieties.

Hard weather in America.—Mr. L. B. Case has given you a good account of the weather, and what gardeners have to contend with. It has not been so cold in Massachusetts as in the places he has named; it has not been below zero but three or four times—once as low as 12° below. We have, however, had a most trying winter, with snow and rain in quantity, and less than ten sunny days the entire winter from December to March. Yesterday (March 29) the snow had disappeared, the frost out of the ground, and the temperature 48°. This morning the thermometer was 12°, the snow 4 inches deep, the wind blowing almost a gale, and the air filled with the drifting snow—not very spring-like, you will say. You can appreciate the anxiety of cultivators who left their greenhouses at midnight with the temperature at 40°, to find them nearly frozen up at sunrise, with a fall of 28° in six hours. The temperature is now only 18°, with a probable fall to 8° or 10° before morning, and from 4 inches to 6 inches of snow. After so much continued snow and rain we were looking for an early spring, but this puts us back and seriously interferes with gardening operations.

C. M. Hovey.

GARDEN DESTROYERS.

AT WAR WITH THE SLUGS.

An opinion is often expressed that a severe winter destroys a good many slugs and other enemies of the garden, but I have invariably found as many slugs after a hard winter as a mild one. However, whether that be so or not, we who have charge of gardens are sure soon to have our share of slugs, as the time of year is come when we may expect them and other depredators to appear, and our business will be to destroy them, or to adopt such measures as will prevent them doing serious mischief. As regards myself, I have more faith in preventive measures than in anything else, and the best preventive against slugs is a clean garden. By this I mean that no unnecessary accumulation of rubbish of any kind should be allowed to lie in heaps a day longer than is necessary, as anything that will afford shelter is sure to encourage them. At most periods of the year there is necessarily a good deal of succulent matter in the garden, but where slugs are troublesome only that should be allowed to remain that is absolutely necessary. If old Cabbage stumps and leaves, the refuse of Celery and Lettuce, are allowed to lie about, they will attract our enemies. Slimy walks, damp borders, and the accumulation of the leaves of fruit trees afford favourite haunts for destroyers of all kinds. If there is one thing which they dislike more than another it is to be frequently disturbed;

that is what they cannot endure, and where it is practicable to work out this plan there is no remedy that will beat it. Keep the Dutch hoe, the rake, and the broom constantly at work about their haunts and they will soon seek fresh feeding grounds. It may of course be very properly urged that owing to the scarcity of labour it is not always possible to wage a constant war with garden enemies, but that is beside the question. It is in neglected gardens where slugs most abound, and in old gardens where the Box edging and other live boundary lines are allowed to remain overgrown. Neglected bush fruit quarters and Strawberry beds and old fences in a dilapidated condition offer snug quarters for all kinds of vermin. It therefore becomes a serious question in view of further contingencies whether it would not be good practice to clear away overgrown edgings and other matters that are well known to entice garden marauders; and if so, some well defined arrangement of the garden crops should be carried out. Much too often we see all the quarters of a kitchen garden more or less stocked with fruit trees. Now in gardens where slugs are troublesome such an arrangement is bad. A certain amount of litter is inseparable from fruit tree culture at certain times of the year, and there is at all periods less inducement to keep such quarters constantly moved, because the principal crops are not usually grown in such positions. The fruit garden, where practicable, should be separated altogether from the vegetable department, but where both must be grown within the same boundary certain quarters of the garden should be set aside for fruit trees. Other preventive measures should consist in doing away with live edgings to walks, and where the latter are rough and out of condition the surface should be made even with a fresh layer of gravel. Where any parts of the garden are bounded by live hedges the surface over the roots for a space of 2 feet on each side should be thoroughly cleared from all weeds and other refuse, for these are just the quarters from which slugs and snails sally forth in formidable armies to devour every tasty bit of vegetable matter that comes in their way. As to

Remedial measures, I must confess that my faith is not strong in any of them, except it be "catching and killing them"—doubtless the best of all remedies. This sort of warfare can, however, only be successfully carried on in the evening and early in the morning. On walks and other places where the ground is solid a good many can be crushed with the feet, but the most certain plan is to get a flower-pot and a long-handled iron spoon and collect them, and pour boiling water on them. A good many may be caught by laying down fresh brewers' grains in small heaps, say a quart in each place. They contain something to which slugs are very partial, and by examining them in the morning and evening a good many may be taken; heaps of fresh Lettuce leaves also make a capital trap. In regard to the dustings of lime, &c., so frequently recommended, they are but of little use; both slugs and snails have a great dislike to fresh soot, but this is so powerful, that it can only be used in certain places in sufficient quantities to be of any value. Barley chaff while dry is a certain way of stopping their travelling propensities, as it adheres so closely to them that they cannot make any headway where this is distributed all over the ground. As a preventive against their travelling, I have, however, not found anything equal to coal ashes from the household grates. These, run through a fine mesh sieve, so as to clear them from dust, and applied sufficiently thick to cover the surface, whether wet or dry, is almost certain to stop their movements. They cannot travel over the harsh, uneven surface of these cinders, but unless freed from dust, the first shower enables them to find their way between the coarser pieces. In our own practice we derive considerable advantages by adopting the feeding principle, which means if we have a crop of young Carrots in frames or a row of Dahlias in the open, of both of which slugs are very fond, we manage to provide them with some kind of food which they like better than the Carrots or Dahlias. To accomplish this we generally resort to the use of young and tender Lettuce plants. If slugs can get plenty of these, they invariably leave everything else for them. The bulk of our Dahlias are grown every year close to a Box hedge 3 feet thick and 5 feet high. This affords great attraction to slugs, and, as might be expected, they do not miss the opportunity, for at night both these and snails come out in large numbers, and would quickly devour every plant of our Dahlias, were it not that when we plant our Dahlias we also put out some large plants of Paris Cos Lettuce, and, in order to keep them tender and fresh, the Lettuces are watered and cared for in the same way as the Dahlias. By this means the latter hardly ever get a leaf injured. The same plan may be carried out in many places. I have many times raised a large box of Lettuce plants in one of the houses, and when large enough transplanted them round the sides of young seed beds and in other places where slugs trouble us, and this plan has invariably been attended with the best results. J. C. C.

Trees and Shrubs.

NOTES ON FLOWERING SHRUBS.

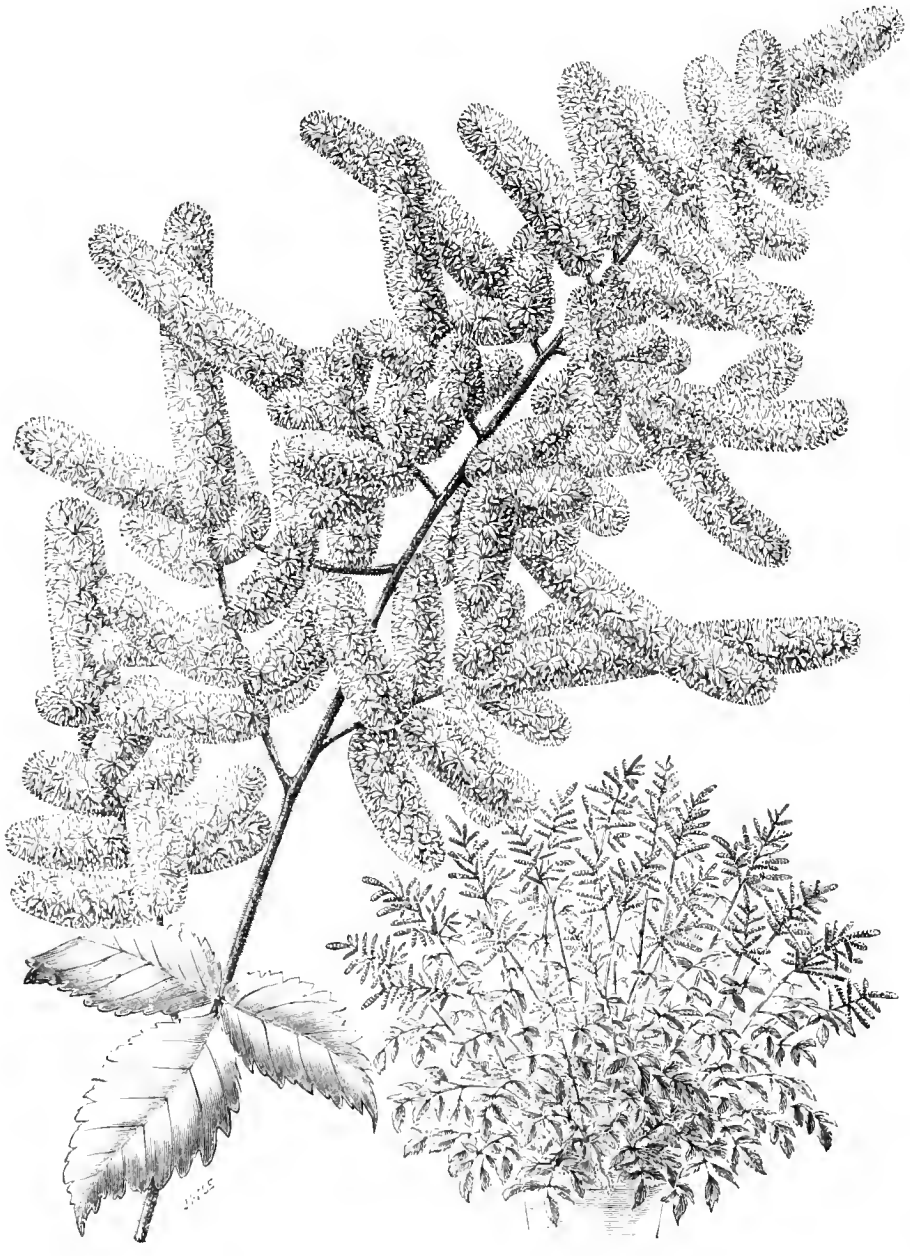
Laurels.—These are not generally regarded in the light of flowering shrubs, but this season their blooms appear to be so unusually plentiful that the bushes are in many places quite covered with them, and under such conditions the Laurel even forms a really handsome flowering shrub. The Colchic variety seems to be the most prolific as regards bloom, and the style of growth in this kind is also calculated to show the flowers off to better advantage than the others, the wide-spreading branches being often arranged in a tier-like manner. The common Laurel, as a rule, does not flower profusely till it has attained a good size, but then large quantities of blossoms are sometimes produced by it. The old and well-known double-flowered Kerria japonica is just now bearing great numbers of its beautiful golden blooms, which under favourable conditions will continue to be produced for months. Were this a shrub of recent introduction, it would be sought after by everyone, but being common its beauty is often overlooked. The single-flowered kind seems to be scarce, at least that with green foliage, but there is one in which the leaves are edged with white that produces single flowers. This latter forms a more dense twiggy bush than the ordinary kind. Spiræa prunifolia fl.-pl., next to the little S. Thunbergi, is the earliest to bloom in the large class to which it belongs. The blossoms resemble little white rosettes, and being thickly borne for a considerable distance on long, slender arching shoots, veritable living wreaths are the result. From a foliage point of view the golden-leaved variety of S. opulifolia is just now very bright and cheerful. Prunus sinensis alba plena and rosea plena are a couple of pretty little shrubs, just now at their best. They form much-branched upright-habited bushes, with showy double blossoms. As the blooms are often injured by frost, a spot to some extent sheltered should be chosen for them, but this season we have some quite in the open a mass of flowers. Besides their value as choice out-door shrubs, these Prunuses are also well suited for forcing, as their dwarf twiggy growth eminently fits them for pot culture. An allied kind—Prunus triloba—is rather larger in growth, but is, nevertheless, deservedly a very popular shrub. Pyrus Malus floribunda is just now in full beauty, the wide-spreading branches being thickly studded with clusters of blossoms deep red in the bud stage, but pink-coloured when expanded. It is, I think, seen at its best just as the flower-buds are on the point of opening, as the brightly-coloured exterior is then alone visible. Though introduced from Japan many years ago, it is only recently that it has become so deservedly popular. Cydonia japonica and its numerous varieties continue to flower for a long time when grown as bushes in the open ground, and the same may be said of Maule's Pyrus, just now a mass of orange-scarlet. The open weather which we have had during spring was very favourable to the development of all early-flowering shrubs.

Berberises of different sorts have been in flower for months, and will continue for a long time to come. The popular B. Darwini has flowered more or less throughout the winter; but now, when the bulk of its blossoms are either expanded or on the point of expanding, a large bush of this variety is strikingly handsome. The equally well-known B. stenophylla (a hybrid from the last named) forms a bush of more graceful outline than B. Darwini, and though the blossoms are paler, the long, arching shoots are completely covered with them, and, if possible, I think this kind even surpasses Darwin's Berberis. A very pretty deciduous species is B. Thunbergi, which assumes the shape of a dense, much-branched shrub, thickly clothed with small, roundish leaves. The young foliage is developed very early in the season, and the flowers expand in the latter part of March or April according to the weather. These blossoms, which are produced in great numbers from the undersides of the slender arching shoots, are of a greenish sulphur colour inside and deeply suffused with red outside. The Mahonia section also contributes largely to the display of spring flowering shrubs, for in favourable seasons the large pinnate-leaved Mahonia japonica opens its first blossom soon after Christmas, and the common M. aquifolia is not long behind it. Of this latter when raised from seeds there is a wide range in its season of flowering as well as in the shape of the leaves and other characteristics.

The Double-flowered Furze is conspicuous, especially when grown in a mass and seen under sunshine. A point strongly in favour of Furze is the fact that it thrives well on dry elevated spots where little else will grow. Cytisus præcox one meets with under the names of sulphurea, odoratus, and albus aureus, thus showing the nomenclature is somewhat confused. It a dense twiggy shrub, with pale yellow blossoms, borne in great profusion, and therefore very conspicuous. It is said to have originated with Mr. Wheeler, of Warminster, many years ago, no doubt from seed of the common white Broom (Cytisus albus), as out of a number of seedlings raised from C. præcox were plants of both these two kinds as well as the pale, flesh-coloured form of the Broom known as incarnatus. Flowering Currants are extensively planted, but the very pronounced types deserve to be sought after, as amongst them may be found a wider range of colour than appears to be generally known. The golden coloured Ribes aureum is just now very attractive. Neviusia alabamensis in a sheltered spot is beginning to unfold its singular blossoms, but with us I am afraid it will never justify its name of the Alabama Snow Wreath, as the flowers are so much tinged with green. Their most attractive feature is the cluster of prominent stamens. Of Skimmias, that most commonly grown is S. japonica, the bright red berries of which are borne in such profusion as to place it in the first rank amongst shrubs of small growth, and S. oblata is even superior to it as regards size. This has at the present time each shoot terminated by a large, dense, broadly pyramidal shaped cluster of small white blossoms. Individually they are by no means showy, but collectively they form a pleasing feature. With me this kind bears berries but sparsely, while under the same conditions S. japonica is covered with them. When grown in the shade the foliage is much deeper in colour than when exposed to the sun. T.

Shrubs for pots or boxes in windows.—The generally known forms of Osmanthus are much branched evergreen shrubs with green or variegated leaves that bear a striking resemblance to those of the Holly, but in O. myrtifolius the spines are wanting, except at the point, and the whole leaf is much smaller than in the others, being, as the specific name implies, Myrtle-like. All the Osmanthuses make capital subjects for pots or window boxes during winter or for spaces of limited extent, their value in this respect being

still further enhanced by the fact that they do fairly well near towns—as well, indeed, as Aucubas and Euonymuses. Though the prickly-leaved forms are so much like a Holly, they are nevertheless more nearly allied to the Privet; indeed, this latter may, if needed, be used as a stock on which to graft them, but the better way is to strike them from cuttings, which root readily in a cold frame and soon form large masses of fibres, so that they can be shifted at almost any time without injury—a great point in favour of shrubs used for window boxes and similar purposes. Besides the Osmanthus a few good plants suitable for the same purpose, that do at least fairly well in towns, are the different sorts of evergreen Euonymus, especially the green-leaved form of E. japonicus and the small-growing Box-like E. microphyllus, the growth of which is short and dense. The variegated kinds are very pretty, but near towns as a rule the lighter coloured portion of the leaf becomes discoloured by smoke and dirt in such a manner as to detract greatly from their appearance. The Aucuba is also well known as a good town shrub, but besides the common variegated form some of the green-leaved kinds would afford variety. One of the most accommodating plants is the Ivy, which will hold its own almost anywhere either as a climber or for furnishing boxes, draping balconies, or similar purposes. When trained to an open trellis, Ivies make good living screens, or what is known as Tree Ivies will grow into compact bushes. The common Berberis Aquifolium is another plant that will thrive under disadvantageous conditions, and to the number may also be added the Laurustinus, a couple of Privets, Ligustrum coriaceum and japonicum. Of these the first-named is a very slow grower, with dark green massive foliage; the other is of quicker growth. The small-leaved spreading-habited Cotoneaster microphylla makes a good permanent pot plant, and one very distinct from most others so employed. This list might be much extended, but I will conclude by mentioning Ilex crenata, a dense little shrub with small pointed leaves, and the common Periwinkle (Vinca major), whose blue flowers are always pleasing.—Alpha.



Flower branch of Spiræa astilboides, and plant showing habit of growth

The Japanese forms of the Wych Hazel are just now very attractive, and in that respect differ from the common American kind, which is at its best in early winter. H. arborea and japonica are both in flower at Kew, and as they are side by side, the difference between them—which, by the way, is not great—can be readily seen. H. arborea is the first to expand, the greater part of the leafless branches being completely clothed with flowers, the general characters of which resemble those of the common Wych Hazel, but they are brighter and more conspicuous. The petals are of a rich golden yellow and the sepals deep red. H. japonica differs from the above in flowering a week or so later; the blooms, too, are rather smaller, and both petals and sepals are slightly paler. From their flowering at the present time, and being perfectly hardy, these shrubs are, though still scarce, very desirable. The mild weather we have experienced this season has been in their favour, as cutting winds and frost soon mar the beauty of their blossoms.—H. P.

A NEW SPIRÆA.

(S. ASTILBOIDES.)

So seldom does a Spiræa occur among the multitudinous new plants that appear every year, that this one is of special interest, especially as it belongs to the Aruncus or Goat's-beard section, and is said to be hardy. It grows from 2 feet to 3 feet high, and forms a dense symmetrical bush. At flowering time the branches are furnished with myriads of white blossoms in plumy clusters, as shown in the annexed illustration. It may be forced into flower as early as March; hence it is an invaluable plant for pot culture for conservatories. It has been introduced by Mr. Bull, of Chelsea, from whose new plant catalogue the accompanying woodcut is taken. It has been certificated both by the Royal Horticultural and Royal Botanic Societies, and wherever it has been exhibited it has been much admired. It will, doubtless, prove to be a plant of the easiest culture, both in pots and in the open ground.

ORCHIDS.

THE SPREAD OF ORCHID CULTURE.

To those who, like myself, can remember when there were but one or two small collections of Orchids in Scotland—at Bothwell Castle and the Glasgow Botanic Garden—and in England at Messrs. Loddiges, Cattley's, at Barnet, and, perhaps, one or two other places, it is surprising to note how universally they are grown and admired now; and no wonder, when we consider the interest that attaches to them, the exquisite beauty of many of them, and the duration of their blooms, whether cut or allowed to remain on the plants. Growers of Orchids would multiply, too, if cultivators could be found who knew how to manage them economically and well. It therefore becomes the interest of young gardeners to pay more attention than they hitherto have done to acquiring a knowledge of their habits, the temperature which they require, and all else bearing on their treatment. Where they have not an opportunity of being employed amongst them, they can yet learn much from horticultural periodicals, in which every point relating to culture is discussed, and also from special treatises on the subject. They can, in most cases, visit gardens in which they are

grown and see how they are potted and watered; in fact, in this as in many other matters, "where there is a will there is a way," and I can assure them that they will some day discover that of all other knowledge of cultivation with which they can store their minds, this will not be the least profitable. One may often hear the remark made, "I would grow Orchids, but there is such a difficulty in getting a gardener who knows anything about them." This difficulty will, I believe, annually diminish, for east, west, north, and south I find not only employers, but gardeners hunting up information and endeavouring to gain knowledge bearing on Orchids and their culture. I was forcibly struck with this when on a recent visit to Dr. Paterson, at the Bridge of Allan. Dr. Paterson, as all who have the pleasure of his acquaintance know, advises all who have the means to begin growing Orchids as a source of intellectual pleasure, such as he himself has found it to be, and many have acted on his advice. All gardeners, young and old, with whom he meets, no matter where, he invites to see his collection, and either he himself or his gardener, Mr. Kidd, shows them every attention. Mr. Kidd was for some years under Mr. Sorely at Mayfield, when the late Provost Russel's collection was at its zenith; it is, therefore, unnecessary to add that the knowledge gathered there has been thoroughly matured at Fernfield, where he has, no doubt, like many others, benefited by Dr. Paterson's far-seeing suggestions; at least, such is the evidence borne by the health and vigour of the fine collection now under his care. If people in similar positions to Dr. Paterson were to act as he does, not only would a taste for Orchids rapidly increase, but also the skill and knowledge required for their proper culture. I have been induced to pen these lines in hopes that many may be induced to copy Dr. Paterson as an example in this matter, and lead to the extension of a taste which, to those who devote their spare time to it, yields unalloyed pleasure.

Clovenfords. W. Thomson.

PRUNING ORCHIDS.

Those acquainted with the cultivation of Orchids will be surprised to see "J. S. W." falling back on Calanthes to support his pruning practice, as in the whole range of the Orchid family he could not have instanced a genus that does so much to demolish the pruning theory, from the fact of the roots of Calanthes all dying annually, and consequently powerless to support young growth in the same way as Dendrobiums, Coelogynes, and others of like character when the bulbs are cut away. "J. S. W." says he has been assured by those conversant with my practice that I invariably cut away the bulbs of Calanthes when I potted them. That is not true; on the contrary, I always found that where the old bulbs of the year preceding were left attached to those of last year, the coming season's bulb was much larger and proportionately more floriferous, and I always acted accordingly except where the object was to increase the stock of any particular kind quickly. I repeat, why does not "J. S. W." exhibit his pruned Orchids where those able to judge will have an opportunity of seeing them? That is the only means by which he can gain credence for the results he tells us have followed his pruning operations. If he will forward two or three examples pruned according to his plan to the Royal Horticultural Society's next fortnightly meeting, where they can be seen in their present condition, and again after the growth is finished, it will give those who are incredulous as to what he claims to have accomplished in the case of Orchid pruning an opportunity of judging for themselves. T. Baines.

Orchids from Bridge of Allan.—Dr. Paterson sends us, from Fernfield, flowers of several Orchids, among which are blooms of Angræcum sesquipedale, the spriog flowering variety which he says he does not remember to have seen before. It is a very fine flower, having a tail-like spur over a foot in length. Aerides rubrum, a very pretty species of the small-flowered section. It has dense spikes of small flowers of bright carmine-magenta. Flowers of Sir Trevor Lawrence's form of Dendrobium nobile cœrulescens are also sent, remarkable for the richness of colour which is suffused throughout the whole of the flowers.

Pescatorea Lehmanni.—A flower of this rare Orchid has been sent to us from Col. Gascoigne's garden at Portarlington. The flowers are some 2 inches across, of wax-like texture, white with the tips of the sepals stained with plum-purple, while the lip is adorned with a curious white fringe, which extends also over the surface of it. All the Pescatoreas, Bollæas, and Orchids of a similar stamp are very handsome, but difficult to manage. Any hints respecting their successful culture would, we are sure, be appreciated by our Orchid-loving readers.

Cymbidium Lowi.—I send you a flower of this Cymbidium. Is it a good variety? We have a plant with three spikes bearing nineteen and twenty flowers on a spike. It is an Orchid well worth growing. We have a spike of Odontoglossum Pescatorei with forty-three flowers upon it. Is not that remarkable?—J. F.

*** The Cymbidium flower represents a fairly good form of Lowi, which, as you say, is a desirable Orchid to grow. Forty-three flowers on a spike is certainly good for O. Pescatorei.—Ed.

Odontoglossum nevadense.—Among a gatheriog of Orchids sent us by Mr. Chesshire, gardener to M. Eckhardt-Fould, of Ste. Addresse, Rue de Havre, Seine-Inférieure, are a few uncommon kinds, such as Odontoglossum nevadense, so rare in collections in this country. It is a handsome species belonging to the O. hystrix section, but very distinct from any of the common varieties. The flowers are some 3 inches across the outspread sepals, which are of a deep reddish brown blotched with pale yellow. The lip is the handsomest part of the flower, as it is pure white, with a few heavy blotches of cinnamon-brown upon the upper part of it. Masdevallia ignea Eckhardti is also a rare Orchid. It is remarkable for the intensity of the scarlet colour, several shades brighter than ordinary. Of Dendrobiums, there are crassinode Barberianum with deeply tipped sepals, good forms of D. Wardianum and nobile; Phalænopsis grandiflora, with larger flowers than usual; and Odontoglossum vexillarium, with the lip almost pure white.

Dendrobium thyrsiflorum.—No fewer than 600 spikes of this fine and showy Dendrobe may be seen at Messrs. Sander's nursery, St. Albans, at the present moment, and, as may be imagined, produce a gorgeous display, the like of which has perhaps never before been witnessed. The plants have been tastefully arranged on the stage of the big Cattleya house, where lately the splendid lot of Cattleya Trianæ afforded such a grand sight, and the eye of the visitor views a space of 200 feet of yellow and white colour, clusters of bloom hanging in graceful profusion It is curious to notice, and certainly very interesting, that not two spikes of this Dendrobium are alike; here a rare opportunity offers to see and make comparison between the varieties. The yellow of the lip varies from a light nankeen-yellow to a deep ochre-yellow; the sepals and petals are often snow-white, in some varieties, however, rose or rose-striped, varying much in size and roundness. The shape of the lip also varies much, being round, sharp-pointed, or square. Some spikes are short and thick-set, as in Dendrobium densiflorum; others are long and thick; others, again, long and loose, as is the case in the variety Walkerianum; the spikes vary in length from 6 inches to 15 inches. In fact, there are never two plants alike in the variety, and, as we said before, a rare treat is offered in seeing such a unique display.

Sale of flowering Orchids.—An uncommonly large gathering of Orchids was brought to Stevens Rooms, Covent Garden, for sale on the 9th inst., there being some 300 lots, which included many grand examples of skilfully grown specimens, and not a few rare varieties. Twenty-six guineas were given for a magnificent variety of Odontoglossum vexillarium, not a large plant, but the deepest coloured form we have seen. A fine variety of Dendrobium Jamesianum fetched 15 guineas, and there was the largest plant of D. aggregatum majus we have ever seen. It was 2 feet through and a perfect mass of bloom. The sale included what is said to be the finest plant of Odontoglossum Pescatorei in the country. It is indeed a fine plant, bearing no fewer than five spikes, carrying on the aggregate 180 flowers. The plant was a *bona-fide* mass and in vigorous health. It fetched 21 guineas. There were various other fine Odontoglossums sold. A very fine clear rose-coloured form of a large well-grown plant fetched 24 guineas, and another 14 guineas. O. Andersonianum with six spikes realised 10 guineas, and many other forms of O. crispum, some uncommonly fine, ranged from 10 to 5 guineas. A small plant of Lycaste Skinneri alba fetched 14½ guineas, an indication that this variety is by no means common as yet. Among the Cattleyas, a magnificent C. Mendelli was sold for 8½ guineas, and C. Trianæ eborascensis, one of Messrs. Backhouse's varieties, went for 5 guineas. Altogether it was an important sale, and a large company of buyers attended it.

SOCIETIES.

CALEDONIAN HORTICULTURAL SOCIETY.

The spring show of the Royal Caledonian Society was held on Wednesday and Thursday April 3 and 4, in the Waverley Market, Edinburgh. Over 500 entries were made for the different competitions, and this large result was due to the fact that no less a sum than £350 was offered in prize money. That such a handsome award fund bespeaks both strength in the society and liberality of management goes without the saying.

The exhibition was, in every respect, wonderfully successful. On all hands it was admitted that there had never been seen in the Scottish metropolis such a glorious show of blossom under one roof, and the reputation of the display spread so quickly that over 10,000 persons visited the exhibition the first day and 11,000 the second. The committee of arrangement deserve a mead of praise for the taste with which they staged the exhibits. Indeed, the area of 3 acres, which the Waverley Market covers, presented the appearance of a beautifully-kept tropical garden. Here were banks of glowing Azaleas, there beds of Hyacinths and other spring bulbs; in another section were a succession of groups of spring flowers, beloved by old and young because indigenous to our climate and intimately associated with our national life. Anon there were masses of Rhododendrons, reminding travelled ones of the slopes of the Himalayas; while at no great distance was quite a grove of Palms. A promenade amongst such a collection of the fairest horticultural treasures proved thoroughly attractive. In a professional sense the exhibition was a very interesting one. Its main feature was the profuse display of Orchids alike in the classes wholly devoted to these plants and in the competitions for the best furnished tables "for effect." Speaking in a general way, the tables were too effective—paradoxical though that may seem. That is to say, the tendency was to crowd too many flowers on to the stages, and forgetful that in an artistic sense flowers require a foil or background of greenery, which was for the most part wanting. Then there was too often a lack of harmony in the grouping of the flowers. The decoration of a table should be based on a scheme of colour just as much as a picture. True horticultural art demands an education in tone-colour, and the absence of this is too noticeable in the majority of our floral exhibitions. The Azaleas were large, of nearly perfect pyramidal shape, and covered from base to apex with fully expanded flowers. This showed patient cultural skill in no ordinary degree; but after all is such painstaking mathematical plant training not in itself a violation of the best canons of horticultural art? Is it not a survival of the peacock-clipped Yews of bygone

days? The highest art even in the training and development of a flower or plant is that which conceals art. Hyacinths, Tulips, and Narcissi were good, and if formal not over-dressed, as we have seen on former occasions. For the season of the year we have never seen better Roses, both on the plants and cut, and in the collections of forced plants, such as Guelder Roses, Lilacs, Kalmias, &c., there was a desirable absence of role of thumb and a regard for the nature of the plants. Perhaps the most attractive department to the great bulk of the visitors was what may be termed the produce of the wild garden, where the people could linger over flowers which brought back memories of the long ago, undisturbed by thoughts of glass houses and all that pertains thereto. Ferns were numerous and well grown. There was little fruit worthy of special notice if we except a fine collection of Apples in capital preservation, and embracing over sixty sorts. The nurserymen of Edinburgh assisted much in making the show a success by their contributions of collections for exhibition as well as for competition, and on the whole the Royal Caledonian Horticultural Society is to be congratulated upon the good work which it is accomplishing in the way of encouraging a taste for floriculture in the community, and of rewarding the best efforts towards cultural perfection.

ROYAL HORTICULTURAL SOCIETY.

The following is a report of the scientific committee's meeting, held on the 8th inst., and for which we had no room last week :—

Canker in Apple trees.—A communication was read from Mr. Plowright on a form of this disease as caused by Nectria ditissima. He observed that Sphæriacei usually attack dead organisms, but there are some exceptions, as Valsa parmularia on living Oak, and many of the Dothidiaceæ. The specimens sent were from several localities, but in almost every case the cankered part bore the fungus, and which was not found anywhere else. He likewise forwarded drawings illustrative of the growth of the fungus. When the parasite gains an entry into the bark of a medium-sized branch it at first causes the death of the bark and subjacent wood to only a limited extent. The bark cracks concentrically. In the cracks and upon their edges the perithecia are most commonly found. They are most abundant in those cases in which the devitalised area has become surrounded by an swollen margin of healthy bark.

The Bean fungus (Æcidium Fabæ).—Mr. Plowright sent a communication on this subject. The Uredo and Uromyces are exceedingly common upon Bean plants during summer and autumn, but the Æcidiospores of this fungus have been much less frequently seen. To Professor de Bary is owing the elucidation of the fact that the life cycle of the Bean Uromyces includes an Æcidium. It is none the less interesting to repeat his experiment of sowing germinating teleutospores of the Uromyces upon a healthy Bean plant, and watching the development, first of the spermogonia and then of the Æcidiospores. The four Bean plants sent herewith were infected with the germinating teleutospores of the Uromyces on February 6; on the 29th the spermogonia began to appear; it was not until the end of the month that the perfect Æcidium was developed.

Apples diseased by fungi.—Mr. Murray and Mr. Smith reported that the Apples brought to the last meeting by Mr. MacLachlan were attacked by Septorium Ralfsi.

Potato culture to prevent disease.—A plan of the cultivation carried on under the direction of the sub-committee appointed at the last meeting was shown, while Mr. Murray informed the committee that every Potato had been carefully examined, and about twelve rejected that were found to be diseased.

Gymnosporangium Juniperi.—Mr. A. Smee exhibited branches of Juniper badly diseased. It was suggested that experiments should be carried out to impregnate the Hawthorn and *vice versa*. He also brought some malformed Calceolarias, which were referred to Rev. G. Henslow for examination and report.

Primulas.—Colonel Clarke exhibited the results of crossing the true florists' Polyanthus crossed by the garden Primrose. This cross, recrossed by the former, gave innumerable varieties of colour in the seedlings. He observed that he had often tried to cross the Cowslip with the Primrose, but had always failed.

Assam tools, &c.—The chairman (Dr. Masters) exhibited some tools used by the natives of the Naga Hills, consisting of a dao, or knife, and its scabbard, an iron hoe, sundry comb-rakes made of Bamboo or light wood, &c. Rice is the staple food plant, grown on the slopes of the mountains, by aid of an elaborate system of irrigation. The tools had been sent by Mr. Horace Livesay, and attracted much attention. Seeds of various kinds of Rice, Millet, and Pulse were also exhibited. The natives were spoken of as a fine race, showing considerable civilisation, but over-endowed with pugnacity.

Lecture.—The Rev. G. Henslow first called attention to a group of Australian plants exhibited among which were species of Correa known as native Fuchsias, as they somewhat resemble that plant, but belong to a very different family; the leaves of some species are used as tea. Species of Boronia and of Leptospermum, the latter of the Myrtle family, and therefore allied to the Gum Trees. L. lanigerum grows to 30 feet, and furnishes wood for the spears of the natives, while L. scoparium supplies the hard and heavy wood called Manauka wood in New Zealand. Genetyllis, called Hedaroma by Lindley, and also Darwinia, is remarkable for the mimicry in its flowers; for while the latter are minute and inconspicuous, they are surrounded by coloured bracts in the shape of a Tulip. A species of Epacris furnished a comparison with Erica or Heath to illustrate their "representative" character. Though apparently resembling one another, yet their floral structure is different; and while Erica is found at the Cape, Epacris characterises New Holland. The lecturer remarked on two characteristic features of the foliage of Australia—its harshness in some, and the habit of hanging vertically in other plants, so that the latter affords little or no shade. The dryness of the atmosphere is accountable for the harshness, and the object gained by those plants with vertical foliage is probably the same as that acquired by the so-called "sleep"—namely, to avoid the ill effects of radiation at night. This is seen in species of Acacia, which generally in Australia have no blades, but only a flattened leafstalk or phyllode, the edges of which point sky and earthwards. He next called attention to a remarkable "bigener" of Mr. Veitch—viz., a cross between two genera, Phajus grandifolius and Calanthe vestita. The latter Orchid, discovered by Dr. Wallich in India, flowered at Messrs. Veitch's establishment first in 1848. Phajus grandifolius is from China, with yellow orange sepals and petals, the labellum alone being purple. In the bigener the flower is white, as in Calanthe, but the labellum of a rose colour. Angræcum dependens, exhibited also, is remarkable like other species of this genus for the long spur; that of A. sesquipedale is usually over 1 foot long. Tropical Africa and Madagascar supply them, and it is remarkable that it cannot be fertilised except by some insect with a proboscis as long as the spur. One species, A. fragrans, furnishes a material for a tea in its leaves, which are used in Bourbon, Mauritius, and in Paris for pulmonary complaints. A species of Acacia with spinescent stipules called for remarks on the peculiar modifications which those organs undergo, and the lecturer described the remarkable Bullock's-horn Thorn, as A. sphærocephala is called, of Nicaragua, and the peculiar habit of ants which live in them, and are supplied with food by the shrub in the form of honey in honey pits on the petiole, and oily "fruit bodies" at the apices of the leaflets. These ants keep others off which would strip the tree of its foliage. Plumbago and Statice furnished remarks on the peculiar method of securing fertilisation secured by the former genus, both being of the same family. The ovule is suspended by a curved funiculus, and the tissue of the style is prolonged downwards till it reaches the micropyle, thus conveying the pollen tubes directly into the latter. Many species are excessively acrid in this juice, such as P. scandens, called Herb du Diable of San Domingo. Beggars use the juice for raising blisters, as they do in England with the juice of Ranunculus scelaratus. He next called attention to a hybrid (C. microchilum) raised by Mr. Veitch between Cypripedium niveum and C. Druryi, in which the yellow colour of the latter had disappeared, but the narrow lip retained, the flower of the hybrid being white.

Sale Botanic Society.—On Tuesday last the members of this society assembled in considerable numbers to hear an address upon the "Genus Saxifraga" by Mr. T. Entwistle. There are, he said, about 150 species of Saxifraga, about a dozen of which are British. S. granulata, one of the commonest type, grows in meadow lands in this country; its roots and leaves are used medicinally. So umbrosa, commonly called London Pride or None-so-Pretty, is also a native species; it is very useful for edging borders in plantations where the shade is too dense for most plants to exist. S. Geum is an allied species of the same. S. stellaris grows plentifully on the margins of mountain streams in the north. S. aizoides grows in similar situations; it produces yellow flowers with orange spots. S. tridactylitis is a small plant with leaves tinged with red and bears a white flower. S. hypnoides, a common garden plant, is found in its native habitat upon rocky mountains such as the Alps, Pyrenees, and Helvetian Mountains, on Ingleborough Hill, Yorkshire, and Snowdon; its branches are so closely united that they form a roundish bunch like a cushion. S. Stracheyi is a native of the Himalayas and grows at an altitude of about 12,000 feet; it was discovered in 1870 by Major Strachey. S. oppositifolia is one of the prettiest of Saxifrages. It bears an exquisitely pretty purple flower, grows with rapidity in any garden, and is a general favourite with all who cultivate it.—W. N.

NOTES OF THE WEEK.

Covent Garden Flower Market.—A few years ago the Duke of Bedford made considerable additions to the wholesale flower market at Covent Garden. Notwithstanding that fact, however, it appears that the market is still too small for the wholesale flower trade, and it is about to be further enlarged to almost double its present area. For this purpose several houses on the north side of Tavistock Street are in course of demolition to clear the site for the intended market. The enlarged market will have a frontage to Tavistock Street of about 100 feet in length

The Bath and West of England Society announce that their meeting for the present year will take place at Maidstone on June 2, when the following prizes will be given for horticultural productions—viz., a £10 and a £5 silver cup for Orchids, and two cups or money for vegetables and fruit—viz, a £5 cup or money for the best collection of vegetables, and a similar prize for the best collection of fruits. This portion of the exhibition is, as usual, under the superintendence of the Hon. and Rev. J. T. Boscawen, Lamorran Rectory, Probus.

National Dahlia Society.—It has been arranged to hold an exhibition of this flower, on the same scale as that of last year, on September 5 and 6 next, at the Crystal Palace. Last year's show was a complete success so far as regards display. The full measure of pecuniary support was not, however, forthcoming, and for the second time a deficit had to be allotted between the two principal prize-takers. This fact is not creditable to the growers of the flower for whose pleasure and advantage the show has been established, and it is to be hoped that it will be amended in the future by the help of a wider constituency, and a little

extra effort on the part of all concerned. The amount of subscriptions for last year's show was £66 19s. 6d. This was supplemented by the contribution of £50 from the Crystal Palace Company, making together £116 19s. 6d., which was less by £5 18s. 11d. than the amount—£108 5s.—distributed amongst thirty prize-takers, and £14 13s. 5d. expended on the various necessary disbursements.

Royal Horticultural Society of Ireland.—At a council meeting of this society, held on Saturday last, Lord James W. Butler in the chair, arrangements were made for the society's spring show, which was held in Mr. Edward C. Guinness's beautiful grounds, Earlsfort Terrace, on Thursday last. The attention of the council was likewise directed to some lovely blooms of Camellias, raised by Mr. Hovey, Boston, U.S., and forwarded for inspection by Mr. Lombard, in whose choice collection of Camellias at South Hill these American beauties have flowered. The varieties shown were C. M. Hovey, C. H. Hovey, and Anna Maria Hovey, each beautiful, and all highly commended.

Physianthus albens.—Admirers of this handsome greenhouse climber will be pleased to learn that an additional interest has been discovered to belong to its flowers by Mr. C. E. Fry, who states in the *Entomologist* that it is insectivorous. The glutinous secretion at the base of the corolla appears to serve the purpose of first attracting and then holding there butterflies, moths, &c., whilst the petals close over them and form their shroud. It is not stated whether there is a process of digestion and absorption in this case similar to what is said to take place in the Droseras, Dionæas, &c., but at all events it may be assumed that fertilisation is aided by the struggles of the entrapped insects inside the corolla.

Asparagus decumbens.—This elegant little trailer has been all through the winter one of the most attractive objects in my little stove. Depending from a pot close to the roof, it hung in the most elegant deep green, feathery tassels down some 5 feet or 6 feet. About November numerous flowers appeared; they are waxy white, about a quarter of an inch in diameter, with petals recurved, and orange-red stamens, reminding one forcibly of a very minute white Martagon Lily. They have, moreover, a delicate lemon scent. These were succeeded by numerous seed-pods—not berries, as in our ordinary Asparagus—each containing several seeds. I shall be happy to send a pod or two to anyone caring for such things, and to receive any other interesting seed or bits in exchange. "Veronica" (The Garden, Dec. 29, 1883, p. 564) bears witness to the beauty and value of this plant, which thrives in a warm greenhouse or intermediate house.—Greenwood Pim, *Monkstown, Co. Dublin.*

Gardeners' Royal Benevolent Institution.—The following circular, signed by the treasurer (Mr. Tidswell) and Mr. John Lee, chairman of the committee of this Institution, has been sent to us, along with a revised list of the subscribers: "Referring to our letter of December 15 last, we beg to remind you that the committee have had under their consideration for some years past the question of augmenting the pensions by the sum of £4 each, but before this desirable object can be carried out, they consider it necessary that the reserve fund should be raised to £20,000. For the last three years they have caused collecting cards to be issued among gardeners, nurserymen, and others interested in horticultural pursuits, and the result has been that the sum of £2400, including the Arthur Veitch Memorial Fund, has been subscribed. A further sum of £2250 is required before the committee can recommend the proposed increase of the pensions. The sum of £1312 was distributed in pensions last year. A gentleman (who for the present wishes his name withheld) has promised that if the sum of £1750 be raised before the end of the year, he will give the munificent sum of £500 to complete the amount required. We have had a legacy of £500, and we have at the bankers the sum of £150; with these amounts in hand, only £1100 remains to be secured. Under these special circumstances, we take this opportunity of bringing the matter prominently before the subscribers, feeling assured that those who take an interest in the Institution will second, to the best of their ability, the exertions of the committee in their endeavours to alleviate the distress and minister to the comforts of old and deserving horticulturists. To the affluent and generous lovers of horticulture we appeal with confidence, and to gardeners we also appeal, in the hope that they will assist their poorer brethren. The secretary will gratefully acknowledge any contribution, no matter what may be its amount."

MARKET PLANT NURSERY.

A visit to the ever-busy flower market at Covent Garden is well calculated to create a desire to see some one of the establishments from which so many plants come. I have had the privilege of running through one of these places lately, and a few notes therefrom may not be without interest. Mr. H. B. May's plant nursery at Edmonton, the establishment just alluded to, contains about thirty houses in all, each about 100 feet long, and not an inch of space in any of them is wasted. The first structure entered was that devoted to herbaceous Calceolarias. It contained about 3000 healthy, well-grown plants, of dwarf, compact habit, and very uniform, in 5-inch pots. The colours of the flowers ranged from pale yellow to dark crimson. At the time of my visit the majority of the plants were not in bloom, but of those that were in that state, a foretaste was given of what a wealth of floral beauty the whole will furnish. Another house was devoted to Tea Roses in pots, the sorts grown being Niphetos, Isabella Sprunt, and Souvenir d'un Ami. Large quantities have been cut daily from these since October last. A third structure, 130 feet by 30 feet, I found planted with that brilliant crimson variety, General Jacqueminot, an old, but still good sort. Of Mignonette there were about 4000 plants not long since sown. With the old and valuable double white Primula, three houses, each 100 feet long, had been filled, but they were over at the time of my visit, and were being cut up for propagating purposes. Stephanotis floribunda I found well managed. On one shoot thirteen trusses of its delicate flowers were counted. Of that useful plant for cutting purposes, Eucharis amazonica, there was grown a large and healthy stock. What one might not inappropriately term "everybody's plant"—Harrison's Musk—was here in quantity and in excellent condition. One plant seemed to be doing extremely well—and a valuable market plant it is—viz., the Tree Carnation Andalusian, a variety introduced through the instrumentality of the late Rev. Harpur Crewe. When this Carnation was exhibited from Tring Park a few years ago at South Kensington, the floral committee awarded it a first-class certificate—a distinction well merited. Pelargoniums, Lobelias, Verbenas, and Clove Carnations are, as a matter of course, largely grown here. Of Ferns enormous quantities are cultivated, especially of that popular favourite, Adiantum cuneatum. Here it may be seen in all stages—from the pots in which the spores were sown to bright, clean, and shapely specimens in 5-inch pots. Other sorts grown were Pteris hastata, an old variety, but one not often seen so well grown as here; Pteris serrulata major, of which countless quantities are sent to market in thumb-pots, is here in every stage, and they are found to be very useful for dotting about on tables. P. argyrea, P. tremula, Doryopteris nobilis, Cyrtomium falcatum, Gymnogramma peruviana, and G. Austeni also all meet with a ready sale. Referring to G. Austeni, I may mention that a number of plants were suspended from the roof in order to economise space, and seen thus elevated they have a far better effect than the green sorts immediately underneath. The graceful Cyperus alternifolius, when grown, as here, in quantity, formed quite a feature. Of Dracænas, the favourite sorts amongst coloured-leaved kinds were D. Cooperi and D. terminalis, and amongst green-leaved sorts, D. rubra. Of Ficus elastica about 2000 have been propagated this year, and, considering that the cuttings were only put in in January last, they have done extremely well, good-sized, strong plants being now sent into market. J. Barry.

GRAFTING AND ITS EFFECTS.

Physiologists say that the object of grafting is to promote vigour and fertility; hence weak-growing Apples are grafted on the hardier and more vigorous wild Crab, Peaches on the Plum, and so on. Another reason for grafting Apples and Pears is that neither are readily propagated by cuttings; otherwise probably trees propagated in that way would succeed as well as grafted ones, if not better. Nurserymen and raisers of fruit trees graft as a matter of course, and because it is the readiest way, without concerning themselves about the advantages or disadvantages of the system, and the Crab stock is invariably used for Apples of large size, and the wild Pear and other hardy kinds as a stock for the Pear. There can be no doubt about the hardy nature of these stocks, if that be of much advantage to a fruit so hardy in itself as the Apple or Pear; but in other respects neither of these stocks can improve the quality of the fruit of the graft, as they only produce inferior fruit themselves. Lately, the subject of raising Apple or Pear trees from cuttings or layers has received more attention, but there is a want of experience on that point. It is worth while to mention these matters, in order to disabuse people's minds of the idea that the Crab stock possesses some mysterious virtue and is indispensable, which is not the case. The use of the Quince stock for the Pear, and the Paradise for the Apple, is far more intelligible; and the influence of these stocks on the scion and its fruit is clearly discernible. In fact, the object of using these Stocks is quite the opposite of that for which the natural Crab or Pear stock is employed; and the use of the one really implies the condemnation of the other, for we graft the same varieties on the two stocks side by side, in the one case to make the tree grow strongly, and in the other in order to restrain its vigour—and the object in both cases is to induce fertility. This fact is not sufficiently realised amongst us, but its significance is evident. The French are more consistent than we are in this matter, for they prefer the Quince and Paradise for trees of moderate size where grown in gardens.

Influence of the stock on the graft.—Hitherto it has been taken for granted, and without any reason, that the stock, whether used because of its hardiness or vigour, permanently influenced the subject grafted upon it, even when not allowed to produce any growth of its own; hence, in grafting Apples, Plums, Vines, Roses, and other plants, the rule has been to employ the root of the stock only, with sometimes a portion of the stem, as in the case of standard trees and Roses, &c. For some time, however, the fact has been gradually forcing itself on the minds of cultivators that by this method the value of the stock is greatly impaired, if not lost in numerous instances. It is found that by grafting a weak variety on another and stronger variety, a more vigorous growth is the result at first, but that in the end, and sometimes very soon after, the graft becomes just as weak as if it had been on its own roots. The reason of this is plain on reflection. A strong root produces a strong top growth, and while the strong top remains and extends, the root extends reciprocally in the same ratio. When, however, we cut the top off and substitute, by grafting, another and weaker top in its place, the root never afterwards does more than respond to the weaker growth grafted on it. This is very easily demonstrated in the case of the Vine, numerous examples of which the writer has seen. I more than suspect, too, that the reason why the Quince and Paradise roots require so much pruning in this country is that, while they do restrain the luxuriance of the strong-growing subjects grafted on them, they

are at the same time acted on reciprocally, and made to grow stronger than they would do if they bore their own natural and less vigorous branches. A correspondent, in writing on dwarf stocks for Apples years ago, said they should "furnish a dwarf and fertile growth without any root-pruning whatever;" and this is what was expected of them in culture, and what theorists said would happen, but it is found that such trees require regular root-pruning under some circumstances. On the other hand, it may be well believed that the Crab and Pear stocks are enfeebled by having weak varieties worked upon them in the reverse way.

Such facts as these have been present to my mind for many years, and in grafting Vines, &c., I have always left a limb of the stock as well, or grafted, not at the root, but half-way up on the stem; and now I am all but convinced that an improvement might be effected on this plan by reversing the usual order of things to a certain extent, and grafting another strong variety on the top of a weak Vine, as well as grafting the latter on a strong root, and thus placing the weak plant between the two strong ones. The strong-growing variety grafted on the top of the weak one retains in a great degree its inherent vigour of constitution, and, through the circulation and elaboration of the sap, beneficially influences the weak stock on which it is grafted. This idea is based on the theory that one leaf or branch of a tree influences the others more or less, and that hence a healthy and strong shoot grafted on a weak one strengthens the latter. Probably some plants that do not grow strongly on their own roots would succeed by simply being, not grafted on another root, but made the partial stock of another and stronger kind. Four years ago I grafted four shoots of the Princess Bacciochi and imbricata Camellias on a very robust bush of another kind, which scarcely ever flowered, thinking to communicate its vigour to these two freer-flowering kinds. This it did, but from that date to this neither have flowered any better than the one it was grafted on. Of course, plenty of its own growth was left on the stock, but last spring I cut the greater portion of it away, and gave the scions a monopoly of foliage; so we shall see in time if they flower better. My idea is that the grafts were rendered barren by the superabundant growth permitted on the stock. Again, years ago I planted a Mrs. Pince Grape on its own roots, and grafted a Vine of the same on the Black Alicante, of which two limbs were left as well. Though the Mrs. Pince is a strong grower on its own roots, the one on the Alicante beat it quite, producing by far the heaviest bunches and finest fruit, and is still bearing as well as ever. Had I cut all the Alicante limbs away, however, and left the Mrs. Pince on the stock alone, I have no doubt that long before this date it would have been no stronger than the one on its own roots, as the Alicante root would have been just in proportion to the growth of the scion.

The general conclusions which I draw from these observations are, that the root of a stock alone, when a more vigorous growth in the scion is desired, is of very little use; that the way to get the benefit of the union is to allow a portion at least of the foliage of the stock to grow as well as the scion; and that it would be advantageous, and certainly not injurious, to graft weak varieties with stronger ones at both ends, which may be considered a species of double grafting, but not in the sense in which that term is used generally, which means grafting one variety on the top of another, and only allowing the last to grow. Lastly, I believe that none of the dwarfing stocks, like the Quince or Paradise, for example, will maintain trees in a permanent state of fertility at least till the trees acquire age and have overgrown the stock, but must be root pruned only in a less degree than the Crab stock, especially the Quince, which produces stronger Pear trees than the Paradise does Apples. This is my experience here in our cool soil and climate. All our Quince stocks have been pruned over and over again, and their roots are always found to be just in proportion to the vigour of the alien top they bore. J. S. W.

MURRAY'S VINE COMPOSITION.

This is the latest addition to insect killers. It is said to "totally destroy mealy bug, scale, thrips, &c., at one dressing." Its behaviour is in some respects odd; out of one of our quart bottles it ran like water; from another we had to pick it cut with a stick. In the directions for use we are told to put it on Vines with a painter's brush, but nothing is said about how to apply it to Camellias, which it is said to clean, or other plants. If it really did clear Vines from mealy bug at one dressing, as it is said to do, it would be cheap, satisfactory, and a boon to many; but that it will not do so I have had of late ample proof. For some years past one of our vineries has been constantly full of plants. By these at some time or other mealy bugs have been introduced to the Vines, and although they have always been pretty well cleared out at cleaning time in winter, they have constantly reappeared in the autumn. Lately the plants have been transferred to a new structure, and as the vinery is now free, we thought to commence and go on this year without our enemy, and, from its recommendation, we looked to "Murray's Composition" as an exterminator at one dressing; but in this we have been deceived. Early in February the Vines were cleared of their loose bark, the house thoroughly scrubbed down, and the composition thickly and carefully put on. To make sure of this I did some myself. Nevertheless, the man who put it on the majority of the rods came to me five days afterwards, and, with a visage full of consternation, said he had found "five bugs walking over the top of Murray's stuff!" On examining the Vines immediately afterwards, and from time to time since, many insects have been found on the rods, and I have come to the conclusion that there cannot be much deadly compound in a mixture that will permit the insects which it is supposed to destroy to walk over its surface with impunity and to baskin the most thickly coated recesses!

Margam, South Wales. J. Muir

SURGIT AMARI ALIQUID, QUOD IN IPSIS FLORIBUS ANGAT.

A letter full of love I wrote
To sweet Clarissa yesterday,
But pen and ink and creamlaid note
Conveyed not half I meant to say.

So through the garden door I went,
A host of messengers stood there;
I culled the Jessamine, whose scent
Made fragrant all the summer air.

The Pensée next, which English maids
Call Heart's-ease—innocent translation—
As if each thought that springs and fades
Were but a source of jubilation.

And then a sprig of Rue—sad token
Of all the suffering and woe,
Since the first words of love were spoken
In the first garden long ago.

A random posy; yet discerning
Eyes will not miss its hidden sense,
And her's will be sufficient learning
To read the mute intelligence.

Not more than her's the Jasmine's sweetness,
Whose snowy petals bear no stains;
The Pansy tells of the completeness
With which in all my thoughts she reigns.

The Rue shall speak to her of pain,
Born of sad lovers' separation;
But lovers when they meet again
Know how to make full reparation.

My letter went; came back reply,
"I got your dear note and the flowers,
"But, ah!" she said, "unhappily
"The Rue the Jasmine's scent o'erpowers.

"But still the Pansy keeps its hue,
"Of tender thoughts a slender token;
"Come weal, come woe, I'll hold you true,
"You'll think of me, I'll dream of you,
"Nor ever let this bond be broken."

Salmoniceps.

A Lancashire nursery.—It had for a long time been said that Roses, Pelargoniums, and many other plants could not be grown within many miles of Manchester, and hundreds of pounds have been spent upon London-grown plants under the impression that they could be bought cheaper than they could be grown, at any rate, on the north-western side of Manchester. Three or four years ago some gardeners in private places, and Mr. C. J. Noges, of the Pendleton Nurseries, tried what could be done, even under the smoky and gassy atmosphere of the district, and their efforts have been successful. On calling at the Pendleton Nurseries a few days ago, I was pleased to see there several thousands of clean, healthy Pelargoniums of the best kinds; the early ones were just coming into bloom, and they were equal to any grown in more favourable localities. Gloire de Dijon and other Roses were also just coming into bloom. Dahlias, which here seem to be a speciality, were likewise doing well. Shrubs were not so clean, owing to the smoke and dust; but this difficulty has been overcome by securing land elsewhere, where Rhododendrons and other shrubs grow remarkably well. It is a pleasure to see that plants and flowers can be grown in such surroundings.—D. J. N.

OBITUARY.

By the death of the Duke of Bucclench gardening has sustained a loss which will be felt in many quarters. He was President of the Gardener's Royal Benevolent Institution, and President of the Royal Caledonian Horticultural Society. For many years he was also connected with the Royal Horticultural Society, in which he took much interest, attending its meetings at South Kensington, and otherwise aiding it at a time when such support was much wanted. To his charming gardens at Drumlanrig, Dalkeith, Bowhill, and elsewhere it is unnecessary now to allude; they are well known to all who take an interest in such matters; nor is it needful to say more regarding their late noble owner, his life-history having been so fully given in the daily papers.

J. L. Wanklyn.—A "monstrous" Daisy, more curious than graceful.

Seedling Azaleas (*F. P.*).—The flowers you send arrived too much damaged and withered to enable us to judge of their merits. Azalea flowers need very careful packing.

Mowing machines (*A. B. C.*).—We cannot recommend dealers; we may, however, state that of the two machines you name the first is a good one and extensively used.

Lycaste Skinneri.—I herewith send you a twin-flowered spike of Lycaste Skinneri cut from a plant having five bulbs and bearing nine spikes of flowers, two of them having two flowers on each. Is it not unusual for a plant so small to bear so many flowers from one growth? and is it uncommon for Lycaste to have two flowers on one spike?—J. Osborne, *Wilton House, Southampton.*

*** Twin flowered spikes of Lycaste Skinneri are by no means common.—Ed.

Names of plants.—*B. D. K.*—Dendrobium macrophyllum; Epidendrum odoratum; Mormodes sp.—*L. H.*—Dendrobium pulchellum; Anemone coronaria fl.-pl.—*E. Thornhill.*—Sprekelia formosissima.—*K. A. S.*—Fritillaria pyrenaica; Narcissus incomparabilis Sulphur Crown; Fuchsia microphylla; Anemone nemorosa fl.-pl. rosea.—*A. Elder.*—1, Epimedium Musschianum; 2, Epimedium alpinum rubrum; 3, Claytonia sibirica; 4, Narcissus odorus.—*A. C.*—Asplenium viviparum.—*T. M. Smith.* Narcissus incomparabilis Orange Phœnix.—*E. Molyneux.*—1, Choisya ternata; 2, Leucojum pulchellum; 3, Narcissus incomparabilis variety; 4, Narcissus incomparabilis Orange Phœnix; 5, Veronica speciosa.—*Brassica.*—1, one of the Junipers (specimen too small to name); 2, Andromeda floribunda; 3, Orobanche minor; 4 Pteris straminea.—*D. D.*—1, Euphorbia Helioscopia; 2 Caltha palustris; 3, Ranunculus bulbosus; 4, Lychnis diurna.—*M. H.*—1, Prunus triloba; 2, Saxifraga Cymbalaria; 3, Doronicum caucasicum; 4, Primrose Jack-in-the-green.—*W. H.*—Boronia pinnata; Chysis bractescens (Orchid).—*C. W. H.*—We do not name varieties of Azalea indica.—*Subscriber.*—Leucojum pulchellum (Snowflake).—*C L.*—1, variety of Azalea indica; 2, Isolepis gracilis; 3, Deutzia gracilis; 4, Cytisus racemosus.—*J. Denny.*—The broad-petalled Anemone is A. fulgens; the narrow-petalled variety is A. fulgens multipetala.—*J. T. H.*—Maxillaria Harrisoniæ.

No. 619. SATURDAY, April 26, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GRAPES AND FLOWERS TOGETHER.

WHILST gardening may be made one of the most expensive things going, much more may be done economically than most people think. Says poor Richard, "Larger ships may venture more, but little boats should keep near shore," and my object will be to show what may be effected at a small outlay. I live in the northerly border of Cheshire about two miles from a smoky town (fortunately direct south of it) My garden is on the north slope of a sandy hill about twenty miles from the sea, and at the west end of it I have about 40 yards square, walled in on the north, east, and west sides with three greenhouses or vineries, a small propagating house or cool stove, and a cool house with a Peach and Gloire de Dijon Rose on its back wall, into which last house I can introduce a little heat if required. In my three greenhouses I have fifteen Vines, all with outside roots. From one house, a half-span, standing by itself in the centre and upper part of the walled garden, the Vine roots ramble where they will under the lawn out of the broken up border. The other houses are lean-to ones, and have prepared confined borders, which I carefully manure. Most of my Vines are Black Hamburghs, but I have one Muscat of Alexandria, one Dr. Hogg, two Buckland Sweetwaters, two Venn's Black Muscat, and two Mrs. Pince. My best Vine is a Black Hamburgh, forty years old, being one of those which ramble in the deep yellow sand under the lawn, on which I leave about forty bunches annually. Most of my Vines have two fruiting rods and one growing rod. One of the fruiting rods is cut out every year. Last year I had about 140 bunches, mostly from one to two pounds weight, for I thin out the heaviest bunches, believing that they weaken the Vines most. I never scrape my Vines. I have no means of obtaining more than greenhouse heat—in hard winters we can just keep the frost out—and when I say that I cannot grow Lavender, Rosemary, or Laurustinus in my climate, and that my Portugal Laurels are periodically killed, it will be understood that I lie pretty bleak. Yet with these appliances I have Grapes from August to Christmas Day. I have never missed a crop, and I never have any disease in my Vines. It is true that Dr. Hogg does not finish quite as well as I should wish, though I get its Frontignan flavour in perfection, and it would have come out ere now but for its splendid setting and bearing qualities. However, I am going (from what I have read in THE GARDEN) to try more water on the border this year. The Muscat of Alexandria does well, and has, I think, a much finer Muscat flavour than when grown in great heat. Mrs. Pince bears well in long bunches, and sets and colours admirably; I have seen complaints of this, but it starts late, and I have to keep the house cooler than it likes at the last. All the others will match any average Grapes in the country for size, colour, bloom, and sweetness.

Now comes the great thing. Every one of my houses is always full of Ferns and flowers, which I prize more than the Grapes. The back or north wall of the half-span house is coated with clinker cinders set in Roman cement, the interstices being filled up with peat, and green all the year round with Ferns, Lycopods, Begonias, and the creeping green Tradescantia, so prolific and useful from its lasting properties for mixing with cut flowers. There is a middle bed on the floor full of Ferns and Begonias in which I put my Cytisuses, Acacias, Azaleas, Deutzias, Primroses, and similar plants in their season, summering them out-of-doors, and on shelves, wherever a shelf can be fixed, I have my flowers, relying mostly on Dutch bulbs, Primulas, Cinerarias, Calceolarias, Cyclamens, Pelargoniums, Begonias, Liliums, Tuberoses, Coleuses, French Daisies, pot Roses (chiefly Gloire de Dijon), Calla æthiopica (which I bed out in the summer and have in bloom all winter), Fuchsias, Petunias, Abutilons, Schizanthus, Browallia, Stocks, Lasiandra floribunda (which, to my surprise, I see advertised as a stove plant, but which by summering outside I have in glorious bushes, containing from sixty to eighty blooms, in an almost cold house, from September to February), and many others, especially Gloxinias, which last I grow in abundance, and which continue from April until Chrysanthemum time. We keep them under the greenhouse stages in the winter not far from the pipes, and I will undertake to show them against anybody; it is a mistake to grow Gloxinias in great heat, in my opinion. My two lean-to houses have stages and a wide plant and flower shelf at their lower ends close to the glass. One of them has the back (north) wall covered with a Plumbago capensis, rooting under the stage and blooming like a garland all summer; and the other has a Black Hamburgh Vine trained across the glass along the back or west side, which is one of my best Vines. I grow also the old Euphorbia splendens in a warm corner, and by feeding it well it blooms eight months out of the year profusely.

Now, if there is a secret, what is it? The secret, then, is, first, to have no brick walls where glass can be substituted, so as to let in every ray of the sun morning and afternoon. My best and largest lean-to house has no wall, except about 4 feet high at the back or west, and about 2 feet on the other sides to support the glass. Again, I leave the sunniest end of each house without any Vine or creeper. Daylight and sunshine must come in. The next and best part of the secret is air—air and plenty of it—in the daytime, whenever possible, sousing the floors abundantly with water every night, and putting on increased heat with the approach of evening to make up for the absence of the sun. By this means the Vines and plants get by evaporation a substitute for natural dew; their foliage is fed by it, and when the wind and sun come the next day they are ready for them. In extremely hot weather (about ten days in a year) we often souse the floors, and occasionally, but rarely, syringe, and when the Vines are in bloom we take great care to avoid draughts, and keep up all the heat we can. I have only one gardener and the part assistance of a labourer for my acre and a half of garden and orchard, and I am always able to supply flowers and plants for church decoration and for the table, and to find Grapes for the sick and for dessert five months out of the twelve. I do not need to shade my houses artificially; the Vines do that for me naturally, and very conveniently shed their leaves for me during the six months when I want all the daylight I can get. There are many things which I cannot manage, of course, but I hope I have said enough to induce no amateur to despair of growing Grapes and flowers together; and it is to amateurs, and not to skilful gardeners, that I—knowing how little my own skill is—address these remarks, which are the result of many years' trials and experience. SUBSCRIBER.

SOME PRIMROSES.

IT is to be hoped that the success and interest of the recent Daffodil conference will result in similar meetings to discuss and exhibit other families of ornamental plants. None would better repay attention of this sort than the family of Primroses. Mainly spring-flowering plants (though many varieties carry bloom during most months in the year), a magnificent and most interesting display might be made at the present time of year. I paid a visit last week to Major Stewart's garden at Cairnsmore, in Galloway, and I never remember to have seen Primroses more profuse in bloom or more vigorous in growth. Primula pulcherrima has sown itself over the borders like a weed; the young plants show many shades of colour. On one plant I counted twenty-four beautiful spherical heads of soft purple bloom, carried well aloft on strong stems. Primula rosea, in one instance, was bearing thirty heads on a single plant—a brilliant mass of clear rose, conspicuous from the far end of the garden. A very large, long-stemmed variety of double white Primrose, which Major Stewart got originally in Ireland, had increased wonderfully, and formed many large clumps loaded with blossom. A double variety, called platypetala, is very fine—finely-shaped flowers of a deep, soft violet colour. Double crimson, double lilac, double yellow, singles of every hue, and the blue Polyanthus (petals really blue, but of a peculiar slaty tint) make the garden at Cairnsmore at this season remarkably gay. There are noticeable besides masses of Trillium bursting into bloom, a clump of Mandragora officinalis as big as a small bush, Jeffersonia diphylla, Menziesia empetriformis, Erica codonodes, and many other interesting plants. At the east end of the enclosure stands an Araucaria imbricata, which for many years disputed with the specimen at Dropmore the claim of being the largest in Great Britain. Ten years ago or so the lower branches died off, injuring the beauty of the tree so much that it became a question whether it should be retained. But from the root have pushed up four strong suckers, which are now about 8 feet high, and which are clothing the bare stem, which is upwards of 40 feet in height, and in a short time it will again be a tree of great beauty. These are some of the features which render the garden at Cairnsmore what a Scotch garden should be—full of beauty and interest at every season of the year. SALMONICEPS.

Rhododendron Aucklandi.—The flowering of this beautiful Rhododendron is now of annual occurrence at Kew, and each succeeding year the beauty and size of the flowers seem to eclipse those of the previous one. No Rhododendron, not even the much-lauded R. Nuttalli, nor the rough-looking, though popular, R. Falconeri, can vie with this fine species, whose flowers are as alabaster and whose fragrance is as Violets. Large even to a fault, yet in their shape so open, full, and artistic, these blossoms are worthy of the highest place amongst those of plants under glass. Wherever there is sufficient room for R. Aucklandi to develop itself, that room should be devoted to it. At Kew it is planted out in a peat bed on the

shady side of the temperate house, where in the company of its Himalayan brethren it appears to find a happy home. If grown in pots the flowers are small and lack substance. Several other species of Rhododendron are now bearing their pink, scarlet, or white flowers in the same house. But to lovers of beautiful flowers we would commend Lord Auckland's Rhodedendron as being in itself worthy of a special visit to the temperate house for a peep at its floral beauty.

PLANTS IN FLOWER.

Tea Rosee—I have sent a few buds of Tea Roses, the same as we have been cutting from for a long time. They are all on their own roots, having been struck three years ago, planted out, and trained on the roof and ends of houses.—*Bessborough, Cork*

*** Very fine indeed, particularly Maréchal Niel and Niphetos, both of which were equal to June blooms.—ED.

White Primrose.—I send you leaves and flowers from a seedling Primrose or Polyanthus. The plant is very hardy, and has flowered early for three years, and was self sown. I have seen Mr. Gilbert's Harbinger this week, and there seems to me to be a remarkable similarity between the two.—J. WOOD, *Woodville, Kirkstall.*

*** A charming variety, very similar to Mr. Gilbert's Harbinger, though in the absence of the latter it is difficult to tell if the two are identical.—ED.

Cattleya Trianæ.—I send you what I consider a very fine variety of Cattleya Trianæ; it is from a plant imported last year by Messrs. Sander. It is as near *C. Osmani* as anything I ever saw. The flower will be much finer when the plant gets stronger.—R. P. PERCIVAL, *Clevelands, Birkdale, Southport.*

*** Truly a magnificent variety, the flowers of which are large with broad sepals of a deep lilac-mauve. The lip is extremely beautiful, being of the most intense carmine-mageuta, frilled with white, and with a yellow throat. If it is habitually a late flowerer it will be invaluable.—ED.

Town flowers.—The following plants, of which I send blooms, do very well for town gardening: Mertensia virginica has been charming in conjunction with the tall-growing Erythroniums—grandiflorum and giganteum; while the Doronicum, a kind with a larger and richer bloom than austriacum, is a most useful acquisition. The brilliant double red Anemone and Narcissus Bulbocodium look very pretty growing together. The latter bulb flowers freely with me on a well-drained piece of rockwork—H. STUART-WORTLEY (Colonel).

Rose Setine.—I send some blooms of a Rose sent to me a few years ago as a new American variety. I have not seen it anywhere at shows, neither is it in the catalogue of any of the large Rose growers. It is a great favourite with me. It forces well; the plants from which the blooms sent were cut have been in flower, more or less, since the early part of November. When fully expanded it does not lose its colour and the petals do not drop; in the bud state it is simply lovely, and makes a capital companion to Isabella Sprunt, Safrano, Catherine Mermet, Madame Bravy, Jaune d'Or, Letty Coles, Madame Falcot, and others with which it is growing in our large Rose house.—A. EVANS, *Lythe Hill.*

*** An extremely pretty Rose, particularly in the bud state, as Mr. Evans observes. The colour, a soft rose-pink, is tinged in the centre with salmon, a colour which harmonises beautifully with the broad luxuriant green foliage. It surely ought to be known to our Rose growers, particularly as it is useful for early forcing.—ED.

Ceanothus rigidus.—Some densely-flowered shoots of this beautiful South American shrub have been sent to us by Mr. Robert Veitch, in whose nursery at Exeter it thrives to perfection. For the past six weeks Mr. Veitch says two plants of it which cover the wall of one of his offices have been completely laden with bloom, rendering the wall quite a mass of blue. A photograph, showing the plants *in situ*, fully confirms Mr. Veitch's statement. Though he considers this species to be one of the best and hardiest of the Ceanothuses, it does not succeed in the colder parts of the country; it was even killed at Chiswick one hard winter some years ago.

The Trumpet Honeysuckle (Lonicera sempervirens).—This Honeysuckle is a grand plant for a greenhouse roof. It grows with the Clematis indivisa, which I sent you some time ago, and the two together look charming. One may cut armfuls of it throughout the spring, as it is perpetually flowering. I also send a few sprays of Unique Pelargonium, which has been in flower all the winter. It is planted out, led up to the roof, and allowed to ramble at will.—*Bessborough, Cork.*

Hybrid Rhododendron.—Messrs. Dicksons & Co. send from their Filrig Park Nursery, Edinburgh, flowering sprays of a hybrid Rhododendron, the result of crossing R. glaucum with R. ciliatum. The features of both parents are present in the offspring in a marked degree. The flowers are larger than those of typical R. glaucum, while the foliage also is larger, and, moreover, the flowers are sweet scented. It is interesting to learn that more attention is being paid to species of Rhododendrons than formerly, the result of which must eventually be a gain to our gardens.

Odontoglossum Cervantesi decorum.—A five-flowered spike of this superb Orchid has been sent to us by Mr. D. Kemp, Dunlop Gardens, Stewarton, where Orchids are evidently grown in an excellent way. The flowers of this variety are fully twice the size of the typical O. Cervantesi; they are pure white, and the broad, overlapping sepals are marked at the bases with concentric zones of crimson, rendering the flower highly attractive. Mr. Kemp also sends Cypripedium villosum aureum, remarkable for the golden tinge with which the flowers are flushed; hence it is quite distinct from the ordinary form.

Chorozema flavum.—This is supposed to be a yellow-flowered variety of the old well-known C. cordatum, but we should be inclined to look upon it as sufficiently distinct to deserve a specific name, and a better could not be found than the above. The flowers are larger than those of the old cordatum, and are of two shades of yellow, the upper portion or standard being bright yellow, while the lower portion is creamy almost to whiteness. Some handsome little specimens of it are flowering in one of the octagons at Kew, and as these are not more than 2 feet in height, of good habit and thickly laden with flowers, it will be seen that for use in the conservatory along with C. cordatum and C. ilicifolium this yellow-flowered kind is well adapted. The following hint may be useful to beginners in the cultivation of these plants. Chorozemas do not like the knife. When they get leggy tie them down, and they will break again freely and will flower every year without fail. In some horticultural works of respectable standing cutting in heavily is recommended for Chorozemas, but it is altogether wrong in practice; if you want your plants to thrive we say again do not use the knife, but tie down and pinch the points out to make shapely specimens.

Doryanthes excelsa.—Last year we recorded the flowering of the stately D. Palmeri at Kew, which was the first occasion of this species having flowered in Europe. Of the second and only other species known the flowering has been of frequent occurrence since its introduction into this country many years ago. It is now flowering in one of the octagons at Kew, and although not nearly so striking a plant as D. Palmeri, it is by no means devoid of beauty. In foliar characters there is no difference between the two, both of them having long, strap-shaped, green leaves with a singular corky, terminal point. From the dense cluster of radical leaves springs a stout flower-stem about 12 feet in height and about 4 inches in diameter at the base. On the top of this pole-like flower-stalk is a head or cluster about a foot in diameter of red flowers, each of which is about 5 inches across, but being composed of narrow linear segments they are not so striking as one would expect. The whole plant, both in its nature and appearance, reminds one of the giant Lily (Lilium cordifolium), although of course the two plants possess nothing in common, being members of different orders. Mr. Hill, of Brisbane, records having seen a white-flowered variety of D. excelsa, which would be a beautiful plant for such houses as the temperate house at Kew. These Doryanthes are worth growing as fine-foliaged plants for standing along drives, or near the entrances to large houses during the warmer months of the year.

Coronilla glauca.—This is just now one of the most striking amongst wall shrubs, being a complete mass of yellow, and in the open air the plants keep cleaner by far than when grown under glass. When affected by scale they are by no means so ornamental as when growing freely out of doors; they will grow satisfactorily without any special preparation as regards soil, and, indeed, in all the milder parts of the kingdom this Coronilla should be used as a wall plant. Even in the coldest localities it may be wintered safely under the protection of a glass roof, as it will withstand a good many degrees of frost without being injured.—J. G., *Hants.*

Acacias.—Most of these are handsome when seen in the form of such large specimens as may now be found in the temperate house at Kew, where a large number of the rarer species, along with those better known, are in flower. Acacias are nearly all tree-like when fully grown; even A. armata and A. Drummondi, which may be flowered in a 5-inch pot, are naturally tall shrubs, trees almost, and these two species, along with three or four others, may be said to be exceptional in their floriferousness when young. Gardening is too often limited to pot-work. We try a plant in a small pot round whose side the dry air plays, and because it is not a success, it is condemned as useless. When indoor gardening is conducted on something like the same principles as that out-of-doors, we shall have broken away from what many are coming to look upon as wrong practice. Of the rest of the Acacias, we know that most of them are beautiful, but they are no more likely to prove attractive under pot culture than a Hawthorn or an Almond tree would be. The following species are now flowering at Kew, viz: A. armata, two large specimens 15 feet high and handsome pyramids, which will shortly be covered with thousands of yellow blossoms; A. rotundifolia, A. Drummondi, A. verticillata, A. lineata, A. urophylla, A. Riceana, A. obliqua, and A. leprosa.

Boronia heterophylla.—To those acquainted with the beauty and usefulness of B. elatior, introduced eight or nine years ago, the news that a somewhat similar species named as above has found its way into the Kew collection and promises to prove at least as good a garden plant as any of the Boronias, will be welcome. Most of the Boronias fail to give satisfaction under cultivation in this country, however beautiful and free they may be in their Australian homes, but in B. elatior we possess a species of exceptionally good qualities—one which grows freely under ordinary greenhouse treatment, and bears yearly a profusion of rosy carmine flowers of great attractiveness. We are persuaded that the excellence of this Boronia is not yet properly recognised by cultivators. We saw in the nurseries of Messrs. Low, of Clapton, about half-a-dozen years ago, plants of this Boronia which in habit and floral beauty were unsurpassed by the finest Heath in that home of the Erica family. B elatior is thus prominently alluded to because in the new species above mentioned there is a close resemblance both in habit and flowers to that species, and, judging from our knowledge of the one, we have no hesitation in commending to the notice of our readers this recent acquisition as likely to prove a first-rate greenhouse plant. In B. heterophylla the flowers, instead of being rosy carmine, are rich vermilion, with a zone of almost pure white round the base where the corolla is attached to the calyx. These flowers are borne along the branches in the axils of the pinnate foliage and remain on the plant for some days. This plant is sure to win favour when once its worth for greenhouse decoration becomes known.

Flower Garden.

THE SPRING SNOWFLAKE.

(LEUCOJUM VERNUM.)

This is undoubtedly one of our prettiest spring blossoms, not long-lived certainly, but especially fresh and beautiful when seen at its best nestling in some cosy nook during those soft showery March days which are so highly appreciated because they come to us so rarely. Blooming after the Snowdrop has left us, this delicate little stranger is just in time to welcome the scarlet Pau Anemones, the finest and sweetest of Violets

The Spring Snowflake (Leucojum vernum).

and Primroses, and to afford us an effective contrast with Iris reticulata or with its beautiful german cousin, Iris stylosa, both beautiful gems in the crown of windy March. Our illustration shows its habit of growth and size of blossom, and it also illustrates the habit of this plant, as mentioned by Curtis, of occasionally bearing two-flowered scapes.

The culture of this plant is by no means difficult, but it requires a little care and patience to obtain the best results. Some imported bulbs planted two years ago gave us but very poor results this season. In a mild and wet winter climate a rather high and dry position seems most suitable for its development, such as a sheltered rockwork, or in a position where tree roots induce a certain amount of dryness, top-dressings being employed to replenish any loss of fertility they may occasion to the soil. It is curious to observe how this plant varies in stature in different soils, and even climate exerts a marked influence on this, as on most other hardy bulbs. A good sharp early winter is, as I believe, of the greatest possible benefit to Narcissi, Snowdrops, and Scillas, as also to the Snowflakes. After a mild winter growth is slow and uncertain; leaves and blossoms keep appearing in an erratic and uncertain way. A hard winter checks growth; bulbs' growth does not appear so soon, but is far more sensitive to returning warmth and sunshine, and so the result is a harvest of flowers instead of a dribbling, even if long continued, display. F. W. B.

SPRING GARDENING AT BELVOIR.

Never before have the proud towers of the lordly castle of Belvoir reared their heads aloft above a more exquisite arrangement of spring gardening than that now to be seen on the warm slopes which form the base of the edifice on the south and west sides. Some go to Belvoir expecting to see a flat terrace garden with numerous beds of bulbous plants and similar subjects, but, greatly to their wonder and delight, they find a garden so far removed from any geometrical arrangement as to be indeed to them a new revelation of the gardener's art. Let us try to show, though with many imperfections, something of the style of spring gardening which Mr. William Ingram has now carried out for so many years and with such signal success. Entering the grounds near the gardener's residence, we ascend a winding path environed by shrubs, tall trees, and grassy slopes, until the terrace garden is reached. To the right, on the castle walls, Magnolia conspicua and Forsythia suspensa may be seen radiant with beauty, the latter wonderfully full of bloom. On entering the wicket gate giving access to the castle garden, the visitor finds a considerable space of ground, surrounded on all sides by trees and with the castle in the background, filled with beds of various shapes, but all overflowing with spring flowers. Before this is reached, however, one gets a taste of the beauty lying beyond, for there are beds of Violets by the wayside breathing forth their perfume from flowers that have been present all the winter, and there are patches of common Primroses also that have spread themselves over the grassy slopes reaching to the paths below. In the castle garden one sees at a glance there are a few subjects that compose the main floral features. Conspicuous is a very early tree-flowering form of Saxifraga ligulata, redder than one is accustomed to see it; then there is the charming blue Myosotis dissitiflora in perfect form, a very early and dwarf-growing form of Arabis albida, much superior to that commonly seen, and purple Aubrietias. In addition there are fine and very early Cowslips, obtained by selection from a very precocious form, received by Mr. Ingram as Primula macrocalyx; also some striking fancy Polyanthuses, Anemone coronaria, crimson double Daisies, Primula auriculæflora, used here in lines, the maroon and gold flowers being exquisitely beautiful; there are also Doronicum austriacum, Narcissi in great variety, Erica carnea, a dwarf purple Fumitory, and, as forming useful groundwork, plenty of mossy Saxifrages. Hyacinths and Tulips are sparingly used, but with excellent effect. As a margin to one delightful bed there can be seen little dense tufts of Saxifraga muscoides atro-coccinea reposing in a cushion of Antennaria tomentosa, and already sparkling with many tiny crimson flowers. Mixed beds are the rule, and the subjects are mingled with admirable skill and taste. A few are arranged in patches and lines, but in all cases they are of soft rather than of striking hues of colour. One large pear-shaped bed had a centre of Polyanthus and red Hyacinths; then a band of Euonymus radicans variegatus; then one of blue Violets; then Primula auriculæflora, with a margin of crimson double Daisies. The method in which this is filled serves to indicate the kind of material employed. But the earlier flowers had already done their work, such as Hepaticas, Dog's-tooth Violets, winter Aconites, early Scillas, &c. All is unlike ordinary spring gardening, where the somewhat select subjects employed come into flower together. Here from early in the winter until the beds are cleared (a few of them are permanently planted) there is something in bloom; the garden is never devoid of floral attractiveness. There are raised beds overflowing with Aubrietias; there are basket beds, over the sides of which fall dense patches of white Arabis, Aubrietias, &c., with the foliage of Rosa spinosa and Ivies peeping out amid the flowers. On a sloping bank of mossy Saxifrages there peep through the carpet many purple spikes of Fumaria solida purpurea. A great many of the plants are so naturally placed, that they look as if they had come from seeds dropped into the soil which had produced plants that had remained undisturbed and flowered. And round about the confines of this garden there are rare bushes of Ribes sanguineum, Corchorus japonicus, Laurustinus, &c., in full bloom, forming a harmonious outer circle.

Below, at the bottom of the slope on the summit of which we are standing, there can be seen, snugly situated in the valley, the statue garden, and here is a series of beds, singularly effective by means of the use of large plants, such as large-leaved Saxifrages, Narcissi, &c; and beyond is a rising bank—a pleasant bit of wild gardening, with clumps of Narcissi, Primroses, &c., peeping from among the leaves which cover it. Then a pathway, winding to the right, leads to what is now known as the Garden in the Duke's Walk. Since we last saw it (some seven or eight years ago) the spring gardening here has been considerably extended. One pauses as some of the leading features are seen amid breaks in the trees, with such light as the grey western sky affords falling upon them, and feels how inadequate is mere description to give any good idea of the beauty spread out to view, and from no point can it all be taken in at once. There is a large series of beautiful and expressive floral touches that form parts of a stupendous whole, and without a trace of uniformity or formality. The characteristic features change as they are surveyed, but all is harmonious. Here in this favoured spot, sheltered from the north, east, and west, and open to all the balmy influences that, like messengers of mercy, come from the south in early spring, flowers flourish and blossom with marvellous vigour and effect. Where else can one see Omphalodes verna as at Belvoir—dense masses under the shade of Cedars and other friendly trees, throwing up flowers unparalleled for their lovely hue of pale azure-blue? and the white form is here seen in abundance; also large patches, lines, and isolated plants of the turquoise-blue Myosotis dissitiflora are here in glorious profusion—loveliest of all in the shade, but nowhere in overpowering quantities. There is a sweet bed of Doronicum caucasicum rising out of a cushion of blue Myosotis; there are lines of the double crimson-purple Primrose, vigorous in growth and very free of bloom. In the rock garden set down on sloping banks one sees large masses of Epimediums perfectly at home. Here is a large sloping grassy bank on the high ground in which Mr. Ingram has attempted some aspects of his favourite Alps. There can be seen dotted about it patches of Primulas, Narcissi, Snowdrops, Crocuses, Scillas, Anemones, Chionodoxas, &c., with later things to make effects in summer. How freely the Chionodoxa flowers on these warm slopes! Many permanent subjects adorn the higher slopes, and in summer, as in spring, they are charmingly gay and effective. There are hardy Ericas used in patches and as mountain fringes, Helianthemums in plenty, and with Lilies, Gladioli, and similar subjects the succession of flowers is rendered unbroken, it may be said, with truth, all the year round. Cardamine rotundifolia, a very early flowering white form, is used with great effect; so is Pulmonaria azurea, the earliest of the group to blossom. The little golden Anemone ranunculoides peeps out in many places; so do the varieties of A. nemorosa; also A. Robinsoniana, A. blanda, and A. apennina. With what wonderful freedom all these flower! Close by on a sloping shady bank there is a Violet garden, pregnant with fragrant flowers all the winter; the

beds of Marie Louise are truly superb; the common Russian and Victoria Regina are also in excellent form. Here is Cardamine trifoliata, with its numerous pure white flowers, a very useful early spring flowering plant; and here, too, patches of the striped Squill (Puschkinia scilloides), but pure white and perfectly at home—a charming plant for the purpose. Honesty will be in flower presently; indeed, the materials employed are so numerous, that a list of them would occupy a considerable space.

Standing some way up one of the slopes, surveying with unspeakable delight the floral arrangement below, the visitor catches a rich perfume of Manilla rising up from near the valley like a grateful incense at an evening sacrifice. It comes from a large bush of Azara microphylla which has been growing here for years, and which is now perfectly at home, with foliage not unlike that of a small-leaved Berberis, the undersides laden with little yellow flowers. What a fitting evergreen shrub for a wall! and if there exists any doubt as to its hardy character, the experience of it at Belvoir should be favourably regarded. Mr. Ingram has with much skill grouped many shrubs on these slopes, Camellias, Rhododendrons, Azaleas, &c. Here and there are splendid bushes of Bambusa Metake and others, and patches of Ferns commencing to break up through the Grass. And he has also endeavoured to give a kind of geographical character to some of these slopes, grouping appropriate subjects here and there, and thus augmenting the interest which clusters so largely about this garden. And as the visitor retraces his steps, casting one last lingering look at what I have so feebly attempted to describe, he feels how appropriate are the lines written by Fanny Kemble in 1842, and which are inscribed on a stone set up in the garden she admired so much. They are too long to quote here, but the true spirit of a graceful poetic inspiration runs through them. This distinguished lady visited Belvoir for the second time in March, 1883, and added another stanza, which is duly recorded.

No visitor to Belvoir should leave the grounds without inspecting Mr. Ingram's reserve garden. It is here that he educates his flowers for higher service on the terrace and slopes. Here he tests every new aspirant to floral honour, selecting such as are likely to be useful, and, by patient selection, encouraging them to greater precocity. In the mixed borders within the walls of the kitchen garden there are almost numberless subjects—a collection of hardy plants as valuable as it is extensive. In the reserve garden is a rose-coloured Aubrietia that will make its way presently when exhibited to view. There is also a very early flowering form of Saxifraga cordifolia, with flowers of large size and handsome form. Besides these there are numerous subjects undergoing a season of probationary trial; many gems, that in some gardens might be regarded as useless, here bud and blossom as plants of real importance. Some that come forth to the public amid a flourish of trumpets lamentably fail to answer the expectations formed of them.

We turn our back on Belvoir with considerable reluctance, but with grateful memories of a sweet garden of almost inimitable vernal beauty. The noble owner of Belvoir shares with his accomplished gardener the desire that the residents of the populous towns round it should have full opportunity of seeing its gardens in all their beauty, and they go there by the thousand.

R. Dean.

Hardy plants in town gardens.—I find Saxifraga speciosa a very fine plant. It has bloomed with me continuously for many weeks, its tall massive heads defying the east wind and rain that S. ligulata dislikes. It is a most valuable acquisition. Erythronium giganteum, grandiflorum, and americanum are very fine just now, and one of the very sweetest things I have is Anemone Robinsoniana. It is freer blooming than all my other early Anemones, apennina coming next. Of the Muscari, M. armeniacum is one of the best that I have, producing large spikes of bloom, and now bearing a good second lot of spikes; Heldreichi also fully deserves Max Leichtlin's commendation. Mertensia virginica is likewise very pretty just now.—H. Stuart-Wortley (Colonel).

PRIMROSE OR POLYANTHUS?

Mr. W. J. Murphy asks us (p. 290) this question in reference to a seedling which produces flowers on single stems like a Primrose, and also in heads like a Polyanthus. The question cannot, however, be answered offhand, seeing that his plant bears the distinctive characteristics of both kinds. To belong strictly to the Polyanthus section of the Primula family, all the flowers should be borne in a cluster on one common stem. It is considered by some to be a variety of the Oxlip (Primula elatior), which itself is placed by Hooker as a further variety of the common Primrose (P. vulgaris) and the Cowslip (P. veris). "Alpine Flowers" confirms this, and goes on to say: "The common Oxlip differs from the true or Barfield Oxlip by having much larger and brighter coloured flowers on longer foot-stalks, and by showing in the throat of the flower the five bosses characteristic of the Primrose and Cowslip. Some varieties approach the Cowslip and others the Primrose in character. In a wild state common Oxlips are rather rare, occurring wherever the Primrose and Cowslip grow together, but never found in districts inhabited by only one of the parents." So much for the Polyanthus. The Primrose, on the other hand, as we all know, bears a single flower on each stalk, and where the flowers are in umbels they are supposed to be hybrids. Mr. Murphy's seedling bears both these distinctive characteristics, and could only be definitely named Primrose or Polyanthus by counting the points of resemblance to each; it is evidently a hybrid which is resorting to each of its remote progenitors. Quite recently an invalid lady sent me a Primrose plant bearing both kinds of flowers. Upon dissecting them, I noticed the remarkable fact that all the Primrose-like flowers had the stamens inserted near the top of the tube and above the stigma, whilst the Polyanthus flowers, borne in a cluster on a long stalk, had the stamens half way down the tube below the stigma out of sight until the flower was cut open; this is what is termed a pin-eyed Polyanthus. These points, however, are mixed in Primroses and Polyanthuses apparently haphazard. If Mr. Murphy will cross-fertilise his flowers, he will, I fancy, be pretty sure to obtain seed which will yield a true Polyanthus-marked Primrose—each flower on a single stalk or a true Primrose flower borne in clusters like a Polyanthus, or probably both, yet they will be on distinct plants, and may thus be fixed and propagated by division.

Horsforth, near Leeds. R. A. H. G.

Chionodoxa *v.* **Scilla sibirica.**—Few, I think, will agree with "J. S. W." (p. 267) in regard to his estimate of the lovely Chionodoxa. I am assured that even he has not yet seen the Chionodoxa in all its glory, flowering *en masse* and carrying from twelve to twenty of its lovely star-shaped blossoms on a spike. When he sees it in this condition he will no longer be puzzled at people going into ecstacies over it. With regard to price, imported bulbs of it were offered last autumn in retail lists at 12s. per 100, and there is no reason why it shall not be still lower next autumn; there is a wide difference between the present price and that which I paid for a single bulb of it a few years back, viz., 7s. 6d., thus showing that it is rapidly becoming cheaper. I am an admirer of both the Scilla and Chionodoxa, and when the latter has been cultivated in English gardens for nearly a century, as the Scilla has been, it will doubtless be equally cheap and as much admired; at present it has barely become established in gardens, and year by year will find it gaining strength. There is no spring bulbous plant of recent introduction so admirably adapted for naturalising as the Chionodoxa, flowering as it does while the Grass is yet short, and seeding freely as well as increasing rapidly at the root. Few at present realise its full value. On visiting Belvoir a short time since, I was pleased to find that Mr. Ingram has established it on semi-wild banks amidst Daffodils. There it is allowed to seed at will, and both on the banks and in the rich reserve ground seedlings are springing up all around, not by ones or twos, but by hundreds. These properties are not possessed by the Scilla, nor is it adapted for naturalising. Those disposed to establish the Snow Glory plentifully in the wild garden will soon find their labours crowned with success.—E. Jenkins.

—— Has "J. S. W." got the best variety of Chionodoxa Luciliæ? I fear not. In this, as in the case of many other hardy plants, there is C. Luciliæ and C. Luciliæ At his invitation (p. 267) I put the two together, and having invited two competent persons to judge them, Scilla sibirica was voted to be the worst of the two. The Chionodoxa when carefully cultivated has borne as many as eleven flowers highly coloured on one stem. Scilla sibirica is not to be compared with this Glory of the Snow, neither for pot culture nor for isolating in woods; it is neither so floriferous nor so capable of being readily increased. C. nana is deficient in colour, and may not this have been distributed as C. Luciliæ?—D. K.

5183. — **Carnations and Picotees.** — Layering is by far the best way of propagating these, and it should be done in July and August. Any small side growths that cannot be bent down for layering may be taken off and inserted as pipings in fine sandy soil in pots. They will nearly all form roots under close bell or hand-glasses. The best time to sow seeds is early in April. I sow them in pots or pans and place them in a hot-bed where they vegetate very rapidly. When large enough to handle they are pricked off into boxes and ultimately planted out in the open ground where each plant will produce a large head of bloom the following season.—J. Douglas.

Propagating tuberous Begonias.—Where there is but little or no glass these Begonias are more accommodating than ordinary bedding Pelargoniums, for when lifted in autumn they may be stored in any shed or outhouse in which Potatoes are safe. Those who have strong roots of them should now encourage them to grow, when some of the shoots may be taken off with a heel and inserted in sandy soil, where they will make excellent plants for planting out this summer. To ensure success they should be placed on a slight hotbed, such as that in a Cucumber or Melon frame. If taken in time, this will be found to improve rather than otherwise the old roots, as they often break away too thickly, and the shoots left will have a better opportunity of developing themselves. Those who have not the means of raising these Begonias from seed will find propagating them in this way a convenient method of increasing their stock.—C. W. C.

Show Tulips.—We had a collection of over 200 varieties of Tulips, but these have been reduced by selection to something like 100, and they are the cream of all the better named varieties at present in cultivation. Mr. Turner, of Slough, kept up his collection of named Tulips until within the last few years, when he sent me his best strains, and threw the others into mixtures. I may therefore be almost safe in asserting that there is not now anything like a collection of named show Tulips in the south of England except our own. There are few flowers possessed of such rich and varied colours as Tulips, and to see a bed of them with their large, symmetrically-formed cups nodding in a gentle breeze at twilight is a sight not soon to be forgotten. Selfs or "breeders" make good border flowers, and it is interesting to note their breaking into the beautiful flame or feather of the show varieties. The very finest of the bizarres, byblœmens, and roses do well with us exposed to all sorts of weather. I have not used any protection for them for the last five years, and we do not fail in any season to get a good bloom. They promise to bloom better this year than ordinary and earlier than usual. A week

or two of warm weather will be sufficient to cause a number of the earlier varieties to open their flowers. Let us hope that the cultivation of the Tulip will not always be confined to growers in the neighbourhood of Manchester.—J. Douglas, *Great Gearies, Ilford.*

Planting Gladioli.—I have on more than one occasion advocated in The Garden the early planting and late lifting of Gladioli belonging to the gandavensis section, and the more experience I get on the subject the more am I convinced that the practice is sound. Having at the beginning of the winter some old roots and some young ones raised from spawn standing in the ground which I did not value very much, I left them to go through the winter where they were growing, with the result that in the middle of April many of the corms made from 2 inches to 3 inches of growth above ground, while those lifted and stored in the usual way and planted again early in March have not as yet shown any signs of coming through the soil. This is sufficient evidence, I think, to show that these corms suffer from being too long out of the ground. It is not often that we get sufficient frost to injure them before the middle of December, and when such is the case I would advise that they be left in the ground until that time, and be planted again as early in March as the weather will permit. Those who have opportunity should watch the behaviour of both old and young corms. I have found that the younger the stock the more vigorous the growth for this reason: it is desirable to be constantly raising a fresh stock either from seed or from the young bulblets so freely produced round the base of the old bulbs.—J. C. C.

HARDY BIENNIALS AND PERENNIALS.

The following are among the most useful of our summer border plants, and as this is a good time for sowing them a few remarks concerning them may not be out of place.

Anemone coronaria.—Whatever position this beautiful early flowering plant may have filled in our gardens in the past, I feel sure that in the future it will be universally grown—flowering as it does in such profusion during the trying months of March and April. The flowers, too, are excellent for room decoration, lasting a long time in water. The seeds should be sown in the open ground either in patches where the plants are to stand, or in drills to be transplanted. Break the ground and make a smooth surface a trifle below the general level, and on that sprinkle the seeds, covering them with some finely sifted soil; their whereabouts should be marked by a stick in the centre of the patch or at the end of the drills. We have had far better results from seeds treated in this way than from any dried roots we have planted. Our Crown Anemones are never lifted now, but are allowed to remain where they are expected to flower from one year to another.

Aquilegias, or Columbines, as they are commonly called, rank amongst our most charming summer flowering plants, and wherever seen either in herbaceous beds or borders cannot but attract a good deal of attention, especially single varieties with long spurs. These are also most useful for cutting, particularly when cut with moderately long stalks and elevated above other flowers. There is sometimes considerable difficulty in raising the seeds of these beautiful plants. Some sow them thinly in pots and place them in a frame, which is perhaps the safest plan where there are but a few seeds of choice kinds, but in the majority of cases they will succeed if sown in the open air in a good situation and in suitable soil. There they may be allowed to stand till the following March, when they should be transplanted to their permanent quarters or be allowed to flower where they stand, in order to weed out the spurious varieties—an operation which I never practice, as I like them all. When sown in pots, as soon as the seedlings are large enough to handle they should be potted off singly into small pots, and either shifted into larger ones as they require more room, or planted out in nursery beds preparatory to being planted out finally the following March. Columbines also make useful subjects when grown in pots for conservatory decoration, but in that state they cannot be compared with vigorously grown border plants.

Campanulas, especially Canterbury Bells, are charming border plants, and will be found to succeed well in most places. They should be more generally grown than they are, for few plants are more showy or give better results for the little labour expended on them. The variety pyramidalis forms a suitable centre to large, trumpet-shaped vases in rooms. Most of the kinds will come well from seed if sown on a sunny border and kept well attended to as regards water. When large enough to handle they should be pricked out 6 inches apart in nursery beds until the following spring, when they should be placed in their flowering quarters.

Delphiniums, or Larkspurs, are another race of beautiful hardy border plants, which it would be difficult to supersede, their rich shades of colour when seen in bold masses producing an imposing effect. They are also most useful for decorative purposes indoors, and last a long time in a cut state in water. If sown now on a good piece of ground they would make useful flowering plants for planting out the following spring.

The Digitalis, or Foxglove, although common in woods in the southern parts of the country, should, nevertheless, find a place in the flower border, especially the white variety—than which nothing could be more suitable for furnishing a tall trumpet-shaped vase surrounded by Evergreens. They are also most useful for interspersing among other plants in herbaceous beds and borders. Seeds should be sown in an open situation, and when the seedlings are up and large enough to handle, they should be pricked out in nursery beds 12 inches apart, and in the following February or March finally planted out, when they will soon begin to throw up flower-spikes.

Geum coccineum also comes very well from seed, and if a little pinch of it is sown at once, some useful flowering plants may be expected for next year. In a good situation out of doors it would come up very well, and the seedlings should be thinned or replanted in nursery beds and placed in their flowering positions the following spring.

Lathyrus latifolius, or Everlasting Pea, is not so sweet-scented as the annual Sweet Pea, but for effect and floriferousness it will compare very favourably with it. Both the pink and the white variety should find a place in every garden, and if planted or sown near some trellis or post, up which it could twine or be trained, it would amply repay any labour bestowed on it by the abundance of its large trusses of blossoms.

Œnothera, or Evening Primrose.—There is a considerable number of Œnotheras now named in catalogues, most of which come well from seed sown in the open air during this month. Several of the varieties are dwarf, but Œ. Lamarckiana grows to a good height, and forms a useful plant for the backgrounds of borders. These Œnotheras have a pretty effect early and late, as they open their blossoms and look fresher in the evening and morning than during the heat of the day.

Physalis Alkekengi, or Winter Cherry.—Where this charming hardy berried plant is not grown, no time should be lost in procuring a stock of it, and where once established there need be no fear of losing it again. Here it spreads considerably beyond the bounds allotted to it every year, and has to be forked out. We find it most useful for arranging with cut flowers in the autumn, the globular orange covering to the berry having a very pretty effect. Where plants can be conveniently procured they are to be preferred, but as this plant seeds freely if sown in a little warmth and gradually hardened off and planted out, it would soon establish itself.

Sweet Williams are among the commonest of our border flowers, but they are none the less enjoyable. They are also among the easiest to raise. If sown at once in an open border they will make suitable plants for flowering another year, but care should be taken not to allow them to be crowded in their seed bed.

Polyanthuses, if sown now and pricked out when large enough to handle, will make beautiful plants for the many purposes for which they are adapted by another year. They are very suitable for filling beds in the flower garden in spring.

Wallflowers, like the Violet, are everybody's favourites, and are grown in great quantities in most large establishments in which plants are required for furnishing spring beds. But where not wanted in such large quantities, still they are always welcome. To have them in the best condition they must be raised from seed every year, and the beginning to the middle of April is the most suitable time for sowing. If dwarf stocky plants are wanted, they must be sown in the open, and planted out in a good sunny situation at not less than 18 inches apart. They will then make bushy plants suitable for flowering either in pots, beds, or borders.

C. W. C.

GARDENING PAST AND PRESENT.*

As regards this matter, I will confine my observations to horticulture during the past fifty years, and chiefly to what has come under my own observation during that period. The subject naturally divides itself into three branches—flowers, fruits, and vegetables. To begin with the last, the improvement during the period just named has been greatly more in the introduction of new varieties than in cultural skill. This will be apparent when I state that fifty years ago the leading varieties of Peas were Early Warwick, Double Blossom Frame, Blue Prussian, and Bishop's Dwarf. Contrast this with the number and variety of high-flavoured wrinkled Peas which we now have, and it will at once be seen what great strides have been made with this one esculent. Or take Cauliflowers, and compare Early London and Asiatic of the past with Eclipse and Veitch's Autumn Giant of the present, and here again we find marvellous progress has been made. Indeed, I might go over the whole list of vegetables, and be able to show that they had all been greatly improved by selection and hybridisation during that period. The improvement made in matters of cultivation has also been considerable. I can remember the time when large hotbeds were made over the stools of Rhubarb and Seakale to force them; now we have but to lift them and place them in any warm, dark cellar at our command, and the result is a good crop that we can gather any day and in all weathers, and this at a tithe of the expense and labour formerly bestowed on them. Then we had no material to stimulate the kinds of vegetables that require rapid growth, except stable manure; now we can command at least thirty varieties of highly concentrated manures, each one more or less adapted to some particular vegetable. Need we wonder that with all the additional skill now at work, and all these additional appliances, vegetables are now produced of finer quality and in greater quantity than before? Another thing that has greatly improved the culture of vegetables is the stimulus given by the establishment of horticultural societies in almost every village in the country.

Of fruits we have got a host of new and improved varieties during the last half century. Take Grapes for example, and what do we find? Instead of some half dozen varieties grown then, we have now at least two dozen varieties to choose from, many of them combining the qualities of high flavour, late keeping, and free bearing. Among hardy fruit take Strawberries; fifty years ago we had only Roseberry, Keen's Seedling, and one or two coarse kinds, not now known. Now we have our high flavoured British Queen, our free-bearing, late-keeping Myatt's Seedling, President, Sir Joseph Paxton, and a host of others. The same thing may also be said of other kinds of fruit in cultivation; the old varieties, except a very few, are superseded by new varieties, superior in every

* Read at the North of Scotland Horticultural Association's meeting by Mr. Thos. Darling, Seedsman, Aberdeen.

respect to their predecessors. In the cultivation of hothoose fruit, much greater progress has been made during this period than in the cultivation of vegetables. Fifty years ago we had only lean-to houses for all purposes, and these were heated by old flues; now we have light airy span-roofed houses of all kinds, heated by hot-water apparatuses of the most improved construction. Then Grapes could only be had for about four months in the year; now, with late-keeping varieties and the assistance of bottom-heat for early ones, they can be cut all the year round. Then it was the practice to give one Vine a large space in which to grow in imitation of the great Hampton Court Vine; now a Vine is planted for every rafter, and in some cases two. In the cultivation of hardy fruits much progress has also been made, chiefly by means of root-pruning and transplanting. In illustration of this I may state that about forty years ago I planted three young Jargonelle Pear trees. Four years after they were planted, and before they had borne fruit, I lifted one of them, put in some fresh loam, and replanted it, spreading the roots carefully out within 6 inches of the surface. Two years after that it bore a fine crop, and has continued to bear ever since. The other two trees which were left to grow without touching their roots made great rank growths of shoots and bore very little fruit. Canker seized them both, and became so bad that about a dozen years ago they had to be rooted out. Had all three been similarly treated, I have no doubt they would have turned out equally well, as situation and soil were much the same in both cases.

Flowers.—Fifty years ago all the Roses in cultivation consisted of a few Chinas, Moss, Provence, and Damask, and if we compare these with the gorgeous display of Hybrid Perpetuals, Teas, Noisettes, &c., which we have now, it will be seen what marvellous progress has been made as regards the improvement of the queen of flowers. Again, look at Pelargoniums. We had then, so far as I can remember, only one scarlet—viz., Bath Scarlet; now we have tricolors, bicolors, and zonals, double and single, of all colours, and under good management kinds which flower all the year round. Not only have old varieties been greatly improved, but hybridising has created new varieties which hitherto had no existence. Take, for example, the crossing of Heaths and Orchids; this was at one time believed to be impossible, but it is now practised and with much certainty as to results. Another thing which has very materially promoted the advancement of horticulture during the last fifty years is the amazing enterprise of some of our leading nurserymen. At that time there was only one plant collector abroad, and he was a Government servant sent from Kew; now all the leading plant growers have one or more collectors in every part of the globe, and they are regularly sending home, not merely a few new and rare plants in Wardian cases, but large casks and cases filled with one variety of rare Orchids and bulbs, &c., each thus multiplying one hundredfold the spread of all that is beautiful or useful. Yet another thing largely contributed to the advancement of horticulture, and that was the enlightened policy of the late Sir Robert Peel in removing the duty from glass. This has enabled us to multiply our glass structures till acres are now covered with them, while half a century ago they could have been held in as many square yards. I have thus briefly glanced at gardening past and present, and although it does not properly come within the scope of my subject, I am tempted to ask, what of the future? Without assuming to be in any way prophetic, I think the past warrants me in saying that progress will still be maintained, and in view of this, young gardeners will do well to make the best of their time and opportunities if they wish to keep abreast with the age of progress in which we live.

Clematis montana.—The flowers of this beautiful Clematis, which so much resemble those of our white wood Anemone, will soon be open, and very gay they look either on walls or trellises. They are produced by the previous year's growths. When the plants have done flowering untie the shoots and thin out some of the old wood, so that young shoots may be laid in from 6 inches to 9 inches apart, thus giving them room to get well ripened during the autumn, and otherwise prepared for next season's blossoming. The flowers when cut will be found useful for filling small vases or flower baskets edged with some sprays of green and filled with damp Moss. The cut blooms should be placed among the Moss along with a few sprays of Maiden-hair Fern to give the basket a finished appearance. The flowers of this Clematis may also be used with good effect in making wreaths and crosses.—Wm. Christison.

GARDENS AT PALERMO.

Suddenly transported from England and borne across a summer sea to this fair island, one can hardly believe that but a few short days have passed since we left the bare fields, the leafless trees, and the cold March winds behind. True, the spring has come exceptionally early this year, even in our northern home, and the railway banks and shaded nooks were gemmed with "the rathe Primrose" as we passed them on our way to Dover. Here, in Sicily, we might be in May or June; all is beauty and verdure. A vast plain stretches out between Palermo and the hills which stand round about it. This plain, called the Conca d'Oro (the golden shell), is a garden. It is covered with groves of Oranges and Lemons, whose glossy foliage contrasts well with the pale green of the Olives and the Japanese Medlar, a graceful shrub with yellow fruit hanging in clusters. The Peaches are in blossom, and so are many ornamental trees. The Acacia is covered with sprays of gold, and the Judas Tree (Cercis Siliquastrum) is now a mass of bright pink flowers, which hang like a fringe from its yet leafless branches. The heights above are crowned with the prickly Pear, the Aloe, and many low-growing shrubs, while here and there the funereal Cypress, towering above the rest, and shading the white cottages which nestle on the hillside, or formed into rows, mark the village cemetery, bringing sad thoughts of death and mortality into a scene where all is life and beauty. If you ascend a height, say the ruined Loggia in the grounds of Santa Maria di Gesu (once a Minorite convent, now turned into barracks), you look down on the valley. To the left the tranquil bay of sapphire blue, the busy harbour, and Monte Pellegrino. Beneath your feet lies the gay city with its cupolas and minarets, its countless churches, the bells of which are hardly ever still, reminding one of the "Ville sonnante" described by Rabelais; that white road stretches away over the mountain to the honoured shrine of Santa Rosalia; that other path in a straight line leads to La Favorita, once a royal villa, the road running through fields of Asphodel and bright wild flowers and bordered with Rose trees and Laurustinus. The Cypress grove to the left stands on the spot where the terrible massacre of the French (called the Sicilian Vespers) took place in 1282. Yonder mosque-like building is the church of San Giovanni degli Eremiti, the ringing of whose bell was the signal for the outbreak. Far away, almost lost in the dim maze which rests on the distant hills, stands the grand cathedral of Monreale looking down on the plain.

The gardens of Palermo are justly celebrated. There are many private ones to which strangers readily gain admittance, while public grounds are numerous. One of the most beautiful of the latter is the Flora, once the Villa Guilea. This is the favourite resort in the afternoon of spring and summer, and a band plays there frequently. It covers a large tract of ground and is well laid out. There are stately avenues of Planes just putting forth their tender green leaves and rows of Magnolias not yet in bloom. Several of these avenues converge in a circle planted with Bamboos, surrounding a picturesque fountain. Part of this space is devoted to beds full of gay flowers. The Ranunculus is just now in its highest beauty. I had always thought it somewhat stiff and uninteresting, but a bed thickly planted with every variety of shade and colour glowing in the sunlight is a thing to remember. Yellows from Primroses (single and double) to burning orange tipped with red; crimson of every shade, down to light pink; scarlets of various hues. These growing together in masses form a blaze of colour hardly to be surpassed. Many of the beds are full of bright annuals, a stretch of sky-blue Nemophila bordering large patches of Eschscholtzia or Heliotropes, and purple Stocks or Cinerarias with a tall Fan Palm in the middle, delight the eye with contrasts. These beds are separated by narrow walks edged with thick Box. To English eyes the want of turf is a drawback, accustomed as we are to smooth-shaven lawns; these, however, are unattainable in a climate like that of Sicily where the dryness would speedily wither the Grass. Its place is, however, in some degree supplied by a low-growing, thick, velvety plant, perhaps a species of Moss, which fills up bare places in the gardens and is kept short. Irises of various colours are just coming in; great bushes of pink and red Geraniums, single and double, are beginning to flower. These are more like shrubs, and would have been all the better for pruning earlier in the season. Oleanders, great trees, overarch the walks. One wonders how they can ever get enough moisture, notwithstanding the regular watering which goes on. Everything in the flora seems well cared for. The scent of Oranges and Lemons, and the delicate perfume of the white Daphne (Plagayana), a tall tree, filled the air. Not far from the Flora is the Orto Botanico, where fragrant shrubs and rare plants abound. The poet, however, who sighed for a "careless ordered garden" might have his wish gratified here. Notwithstanding the lofty Palms, many of which bear golden chains of dates, the scented Roses, the various Irises, the Chestnuts just bursting into bloom, the whole garden has a forlorn and uncared-for look. Nothing is arranged with any attempt at neatness. What particularly struck one was a number (perhaps upwards of a thousand) of flower-pots lining the walks on each side, carefully numbered, with, perhaps, here and there a Primrose or a Polyanthus, a withered Narcissus or a Cyclamen, but never anything worth looking at. They reminded me of Bob Sawyer's surgery, which, we are told, presented a striking appearance from the quantity of drawers lettered in gold, these giving the idea of a flourishing practice; but, "bless your life!" explained Bob when questioned on the subject, "half of 'em don't open, and the other half have nothing in 'em!" Perhaps

One of the fairest private gardens is that of Mr. Ingham—the Villa Sofia. This is at a little distance from the town. To reach it you drive on a road bordered by pleasure grounds and orchards. Here Orange and Lemon trees alternate with Figs, Almonds, and flowering shrubs, the Judas tree, the lovely scented Datura, with its white trumpet-shaped blossoms, and many others. Villa Sofia stands in a grove of Palms and Draceenas. Many of these were strangers to me; the Phormium tenax (New Zealand Flax), with its tufts of broad, leathery leaves, growing to a height of 9 feet or 10 feet, was very handsome. Here within a stone basin filled with water grows the graceful Papyrus, while Agaves of many varieties, some bearing trusses of scarlet flowers, gave the garden a tropical air. The Bay trees with their feathery blooms, the Heliotropes, and double Neapolitan Violets scented the atmosphere. I noticed a Bougainvillea covering the outer wall of a cottage in the grounds; it was a mass of crimson. There was a fine specimen of this lovely creeper in the old garden which once formed part of the Benedictine monastery at Monreale which we visited the other day. It overgrows a dead wall. The gardener had some provincial name for it which I do not remember. The soil of the vega or plain of Palermo is very fertile; it is a rich red loam and highly cultivated. The ground is carefully trenched for convenience of irrigation, and the city and suburbs are well supplied with water—a priceless boon in so dry a climate. The "giarre" or reservoirs of water seen at many corners of the older streets and in other situations date from Saracenic times.

This is the country of the Orange; here, if anywhere, can this splendid fruit be eaten in perfection. I never had any like those of Palermo excepting some sent to England from Malta. Both the red and the egg varieties are equally excellent. We have just begun with the small wild Strawberry, which is very abundant. There is a garden belonging to the hotel we inhabit; though very small, it is a "thing of beauty." It contains an Orange tree weighted down by golden fruit, two or three Lemon trees, a Tangerine Orange, the fruit of which has been gathered, and it is just bursting into blossom again. There is a Japanese Medlar with its soft, downy leaves and clusters of yellow fruit; a bed of bright Cinerarias of all shades of purple and lilac; a big bush of white Marguerites, with Mignonette and other flowers. Perhaps the most picturesque spot in all Palermo is the bright piazza which stretches out in front of the cathedral—that strange, but imposing structure, a curious mixture of Norman and Saracenic architecture, revelling in the rich ornamentation of its exterior and the yellows of its sun-browned stone—the glories of Moori-h Spain. Here within a side chapel the princes and princesses of the brief Norman line, so renowned in this far-off land of their adoption, sleep in dim and lonely grandeur in their porphyry tombs. The sacristy contains some of their relics, for their sepulchres have been ransacked for treasure more than once. The custodian knows something of their history; they rest, and their works remain. The Duomo of Monreale, the Capella Palatina, and the gorgeous church of Cefalu attest the splendour of the art which they engrafted on that of the Saracens, whom they subdued. The piazza is cut up into beds of flowers shaded by Oleanders and other lofty shrubs. Here the gay Ranunculus is in perfection; so are Marigolds, forming thick borders; patches of Virginian Stock, Nemophila, and other annuals. Roses are coming into bloom; here are the Fan Palm, Heliotropes, and Stocks. It is pleasant to sit down on one of the many steps which lead up to the great statue of Santa Rosalia, in front of the cathedral which bears her name, and watch the passers-by. Here are two or three peasant women, whose sunburnt faces are shaded with their red handkerchiefs—their only head covering. They are hurrying off to hear the sermon which will be preached, with much gesticulation, at twelve o'clock in the nave of the church. See those sandalled monks in their robes of deep brown, so patched that it is hard to discover the original material. Here a band of seminarists, duly officered by two or three stately priests, and dressed in violet coats left open to show their scarlet cassocks beneath: and the inevitable beggars—the maimed, the halt, and the blind—who invoke all the saints to bless you if you will give them a soldo. These and other quaint figures pass and repass before you in the bright sunlight as you sit on the steps, and remind you that you are far from home. W. N.

Ants.—"G. S. S." says (p. 291): "Ants are particularly interesting to horticulturists, not from the injuries they cause to plants by feeding on them, as so many insects do, for they are perfectly harmless in this respect." Our experience of ants this last winter and spring does not coincide with this, as we have proved them to be very destructive among Carnations; they attack the flowers as soon as they begin to open, gnawing the whole of the petals entirely away from the calyx, and this they do in a surprisingly short time. We find no better remedy for lessening their numbers than to set a trap of some sweet material, and when a good number has congregated to pour boiling water over them. We have tried other remedies often recommended—viz., arsenic and treacle or arsenic and honey, but to no purpose whatever. On one occasion we placed a mixture of arsenic and honey on the floor, and when a good number were feeding we covered them with a bell-glass, which remained over them for 12 hours. On uncovering them we found that they had extracted every particle of honey from the poison, and appeared all the livelier from what they had eaten. It would be a great boon to us if any of your readers could name anything that would kill them through their feeding on it, as the hot-water cure takes time, which is an object here, as in most other places.—Thomas Crosswell, *Hollanden Park, Tonbridge.*

Orchids.

Calanthe discolor.

Although the genus Calanthe contains over forty species, the majority of which are good garden plants, and of which about a score have been cultivated at one time or another in English gardens, yet not more than half-a-dozen have won much favour, the remainder being to the majority of growers either unknown or uncared for. This half-dozen is made up of C. vestita, C. veratrifolia, C. sylvatica, C. (Limatodes) rosea, C. Regnieri, and C. Sieboldi; besides these we have the beautiful hybrid C. Veitchi. To our taste there appears no reason why this list might not be increased at least threefold, as many of the neglected species are possessed of quite as much beauty, and are no more difficult to cultivate than those usually grown. We are pleased to hear that bulbs of C. discolor have been imported by Messrs. Hooper &

Flower-spike and foliage of Calanthe discolor.

Co, of Covent Garden, from the interior of Japan, where this species is tolerably abundant, and where it is as popular with the Japanese as a garden plant as we should like to see it become here. C. discolor was introduced into Belgium about fifty years ago, where it was called C. tricolor, a name which was altered by Lindley to its present designation. Mr. Bateman flowered it in perfection in 1840, his plant producing a spike 18 inches in length, and bearing fourteen flowers about the size of those of C. vestita, and in colour dark purple, almost claret-coloured, with a white labellum, sometimes suffused with rose. Being found growing along with Bletia hyacinthina, Cypripedium macranthum, and Goodyera japonica, the requirements of this plant under cultivation may be said to be similar to those of these, its native companions, and as they are almost hardy with us, this Calanthe should thrive in a cool frame, or even out-of-doors in a very sheltered position. In the size of its flowers and manner of growth C. discolor resembles C. brevicornu; its flowers are produced about April or May. W.

Pruning Orchids.—I have only to say in response to Mr. Baines's invitation to show pruned Orchids before the South Kensington committee, that I do not intend to do anything of the kind; first, because my doing so would not alter the facts with which I and others are perfectly satisfied one way or the other, and, besides, the committee can themselves investigate the matter if they choose to do so; secondly, it was Mr. Baines who originally disputed my statements on the subject, advanced in no controversial form whatever, and courtesy demands, as he still disputes them, that he should come to me, and not that I should go to him. If he will pay me a visit I will undertake to show him a Dendrobium (the subject of my chief experiment), now about a foot high or more, growing strongly and freely for the third year without any back bulbs whatever, all having been cut off at the beginning of each year. I may state further that Mr. Baines has over and over again passed our place almost within earshot since this discussion first began, and also visited places close to us without once availing himself of the opportunity extended to him of coming and seeing for himself. I append only one condition to Mr. Baines's visit, namely, that he will examine critically the plant in question, and report candidly in The Garden its present state, and mention whether or no the old bulbs, as indicated by their stumps, which are still preserved on the plant, have been thicker and stronger during the pruned years than they were previously.—J. S. W.

Ferns.

The Ferns of Carnarvonshire.

Having for several years taken a great interest in our native Ferns and their cultivation, you will perhaps allow me space for a few remarks regarding those which I have found in this county. Though the number of species and varieties is not very large (about thirty-six), still the rarity of several specimens will help to make the collection all the more important and interesting.

Of Asplenums, some half-a-dozen species are commonly found, the rarest of which we may consider A. septentrionale, or, as it is more usually called, the Forked Spleenwort. This plant must not by any means be considered as common, for although I have met with it on one or two occasions, still it is local in its distribution, and the number of individual specimens few and far between. Formerly the primitive old bridge of Llanrwst was literally covered with this Fern, but, alas! its exposure doomed it to sudden destruction, for there is not now a vestige of it left. We were fortunate enough last season to find several unusually fine specimens of this Fern growing on the back of a dry stone wall, and that within a few yards of the public road, along which, during summer, numbers of weary botanists wend their way when visiting our Welsh hills. This Fern is rather a difficult subject to deal with as a pot plant, being especially sensitive to damp at the crown, but this may, to a great extent, be avoided by imitating the position in which it grows in its native habitat. We had not only noticed this Fern's choice of a perpendicular position in its mountain home, but on the dry stone wall, in both of which places it was securely guarded from excessive moisture at either crown or root. The soil in which it seems to delight is decayed vegetable matter, from time to time accumulated in the chinks and fissures of the rocks.

Asplenium Adiantum-nigrum. — This is everywhere common, and a conspicuous ornament of the situations in which it grows vigorously. It seems to prefer a shady position, and, although usually found in a limy compost, is not particular in that respect; indeed, the most luxuriant specimens I know of are growing on the side of a raised ditch in pure sandy loam, and where they are well shaded by an overhanging hedge. It is by no means difficult to manage, and succeeds well here on the open rockwork, but all the better if shaded from direct sunshine by a taller growing Fern.

The variety acutum I have found on several occasions, but never very plentiful. It differs from the normal form in the more decidedly three-cornered fronds, which form nearly an equilateral triangle, and in the segments of the much-divided fronds being narrow, linear, and ending in a hair-like point.

The Rue-leaved Spleenwort (A. Ruta-muraria) is everywhere plentiful, although in the adjoining county of Anglesey it is rarely seen. It is a diminutive plant, rarely exceeding an inch or two in height, and wherever found it is generally pretty abundant. It is difficult to transplant as well as difficult to cultivate, and must have lime in some form or other. By mixing a potful of old lime rubbish, leaf mould, and loam we have succeeded in getting this plant established and to flourish for a number of years, but only as a botanical specimen is it worthy of such treatment. A form with reniforme leaves has been found in some plenty in an old shed here, specimens of which were forwarded to Mr. P. Neill Fraser, of Edinburgh, for identification, who, however, I believe, considers it but the result of growing the plant in a semi-dark position and where it is seldom, if ever, disturbed by a breath of wind. I have transferred the plant to my garden, but in most cases it has gradually reverted to the normal form.

The Sea Spleenwort (A. marinum) occurs pretty plentifully on the coast of Anglesey as well as on Puffin Island. It was formerly found on the sea coast near to Bangor, but the too pressing attentions of botanists has caused it to become quite extinct in that locality. It is easily cultivated in a frame, greenhouse, or a Wardian case, but does not succeed, at least here, in the open ground. Several unsuccessful attempts to establish this Fern on the rockwork have convinced us that this mode of treatment is not suitable, and that to grow the Sea Spleenwort to perfection, the close, damp atmosphere of a greenhouse is necessary. Slugs are particularly fond of this Fern, and in a few nights will have destroyed the finest specimen, which, even were it practicable, is a serious drawback to its cultivation on the open fernery. The soil I have found best suited to this Fern is light, turfy peat with a free admixture of small nodules of sandstone or broken bricks.

The Maiden-hair Spleenwort (A. Trichomanes) is a commonly distributed species, growing on old walls and ruins, and wherever found it is usually pretty abundant. When found growing in hedgerow banks, though this occurs but rarely, it is always most luxuriant, evidently preferring good sandy loam and leaf-mould to the lime rubbish in which it is usually found. When transferred to the rockwork, and after becoming thoroughly established, it grows readily enough, and soon increases in size; but the roots being wiry and deeply inserted into the crevices of the walls or rock on which it grows, it is sometimes found difficult to transplant with safety.

The green Spleenwort (A. viride) is a neat evergreen species, very nearly approaching in size and form A. Trichomanes, from which, however, it is readily distinguished by the green midrib. It is not unfrequent in Wales, and occurs on many of the rocks near Ogwen Lake, and all along the Pass of Nant-Francon. On the bare exposed rocks it is seldom found of luxuriant growth, preferring to nestle in the damp deep crevices and fissures, where it is well shaded and partially sheltered from the keen mountain blast. As a pot plant it is by no means difficult to manage, but when planted out has the peculiar habit of dying out in a few years. We have had uncommonly fine specimens thoroughly established out of doors, but although they did well and increased in size for a few years, yet ultimately became unhealthy and gradually died out altogether. As a pot plant it requires thorough drainage, and should be planted in a mixture of loam, leaf mould, and broken sandstone in about equal proportions.

The Scaly Fern (Ceterach officinarum) is now becoming very scarce in this neighbourhood, and that in places where quite recently it was pretty abundant. Some few years ago the southern side of an old barn on this estate was literally carpeted with the Ceterach, but fancy my surprise some days since to find that hardly a plant had been left—all ruthlessly carried off, as I have since found out, by the desecrating hands of a well-known plant collector. Amongst our smaller growing Ferns this is one of the most desirable species, not only from its neat, evergreen appearance, but ease of culture and extreme tenacity of life. Certainly in this latter respect it is unsurpassed by any native species, and will bear an amount of rough usage and knocking about that would in half the time prove fatal to any other. In most Fern catalogues it is recommended to plant the Ceterach in a mixture composed principally of lime rubbish, and in full sunshine. To produce the finest specimens, this is, however, quite averse to my experience, as I find it to thrive best and attain the greatest perfection in pure loam or leaf mould. Want of sufficient moisture and full exposure to sunshine take sudden effect on this Fern, although, as we have said before, it will sooner recover from their effects than any other species. The distinct and beautiful variety crenatum has the margins of the lobes crenated, and being usually of larger size than the species, has led some to suppose that the difference is simply the result of luxuriant growth. I am, however, inclined to think otherwise, having unusually fine specimens of both kinds growing side by side in my fernery. Here I have only one locality for this variety, and all the plants taken therefrom retain their distinct character under the best cultivation.

The hard Fern (Blechnum spicant).—This is everywhere a common plant, and seems quite at home on the wild mountain side or sheltered woodland. In the latter position it, however, attains to greatest perfection, being not unfrequently found with fronds nearly a couple of feet in length. It prefers a damp locality, such as alongside running streams, and in soil composed principally of sandy loam. Some years ago whilst engaged thinning near Aber-waterfall, I was fortunate enough to meet with a distinct and remarkably neat variety of Blechnum. The fronds are more stiff and erect than in the normal form, about half the length, and of a beautiful glaucous green colour All who have seen this Fern, as well as those to whom fronds have been forwarded, consider it a distinct form and not before in cultivation. Three other varieties of Blechnum, viz., multifidum, cristatum, and strictum, I have also found within the last few weeks.

The Parsley Fern (Allosorus crispus), a common occupant of our mountain-sides, well merits attention, as being one of our most elegant little Ferns. The popular name of Parsley Fern is certainly well bestowed, as the plant, especially in a state of nature, might readily be mistaken for a tuft of Parsley, than which, however, it is of a lighter green. Given free scope and a suitable soil, this Fern soon spreads to a great extent, as may be seen on some of the mountain-sides here, where whole acres are almost carpeted with its delicate, but pleasing green fronds. Though from its natural habits well adapted for rockwork, yet this plant puzzles not a few to cultivate it successfully. We may imitate soil, situation, and aspect, but cannot procure the clear mountain air in which this Fern, above all others, seems to delight. The Allosorus seems very partial to slate rock, and thrives luxuriantly amongst the rubbish or *débris* from quarries in such districts. All along the Pass of Nant-Francon it is abundant, and visitors to the Penrhyn slate quarry are astonished by its luxuriant growth and immense quantities, for here, amongst the finer slate rubbish, it is abundant, and although carried off in large quantities by visitors each year, yet it seems ever on the increase and to spread at a rate that is quite amazing. On one of the mountain farms here is a rather primitive earthen fence faced with stones, one side of which is so completely covered with this Fern, that for about fifty yards in length hardly a stone is visible. Many a time during summer have I gone out of my way to visit this wall, which is certainly the grandest Fern sight I have ever beheld.

The Hart's-tongue Fern (Scolopendrium vulgare) is a beautiful evergreen species, and occurs plentifully in this district on shady walls and ruins, hedge banks, and thickets, as well as alongside ditches and in old wells. In some situations, such as alongside woodland drains, it acquires extraordinary vigour, and is not unfrequently to be found with fronds nearly 2 feet in length. For the hardy fernery it is one of our most valuable species, being of the easiest culture and thriving in a great variety of soils and situations, though, as before stated, acquiring greatest perfection in shady, humid places, and beyond the influence of smoke. Two distinct varieties of the Hart's-tongue are to be found in this immediate neighbourhood—one, multifidum, in which the apices of the fronds are more or less multifidly divided, and the other, crenatum, having the margin of each frond strongly crenated. This beautiful and distinct form I have found but once, and I am glad to say that even under the best cultivation its distinct characters are not only retained, but improved. The variety multifidum is also constant under cultivation, and has attained large size since being transferred from the old bridge on which I found it to the better soil and more genial locality of my fernery.

The common Brake or Bracken (Pteris aquilina) is the most abundant of our British species, for there is scarcely any wood, heath, or forest in the United Kingdom where this plant does not make its appearance. The geographical range of this species is very extensive; it is included in every European list, and is found also in Asia, Africa, and America. In woods and waste places of Carnarvonshire it is plentiful, and is said by many to be indicative of poor soil, but it is more probable that its absence from cultivated ground is to be attributed to the effects of the different agricultural implements rather than to the quality of the soil. Common though it be, none other of our indigenous species is capable of forming such a scene of picturesque beauty as this Fern when grown under circumstances which favour the most luxuriant development. The Bracken is generally considered difficult to transplant, and such is no doubt the case if removed when in growth, but by transplanting during winter, when the blackish succulent rhizome is at rest, but little difficulty will be experienced, far less than in getting it eradicated when once thoroughly established. The variety multifida occurs pretty plentifully in one of the woods here, and is readily distinguished by the apices of the fronds, as well as primary and secondary pinnæ, being more or less dichotomously forked, and frequently producing large tufts of branchlets. This variety I found two years ago, and as far as I am aware this is the first time it has been recorded from Wales. It is said not to be constant under cultivation, but of this I am not as yet fully convinced, but will be able to speak with more certainty during the coming season.

The several species of Cystopteris, though small and fragile, are both beautiful and interesting, and well repay by their fresh, green, delicate appearance any little attention that is required to be expended on their cultivation. C. fragilis, or, as it is commonly called, the Brittle Bladder Fern, is an annual species occurring most abundantly in hilly and mountainous situations. On the higher rocks along the Pass of Nant-Francon it is pretty often met with, and usually occurs in large patches composed of numerous crowns, each of which throws up a tuft of dull green fronds averaging 4 inches to 6 inches in length. Although one of our most tender and brittle Ferns, this plant is frequently found at a great elevation, braving the wild mountain storm with impunity and looking as fresh and green as when planted out in a sheltered fernery. It is a capital pot plant and succeeds well on rockwork, especially if planted in a damp shady position. The only variety I have found hereabouts is dentata, which differs from the species by the smaller fronds, these seldom exceeding 4 inches or 5 inches in length, and by the blunter and more obtuse form of all its parts.

The British Hymenophyllums (H. Wilsoni and H. tunbridgense), though the smallest of our native Ferns, are always regarded with a great amount of interest, not only for their rarity, or rather local distribution, but for their neat evergreen habit. In general appearance these species are much alike, though to the experienced eye readily enough distinguished by one or two well-marked

technicalities which I will describe in dealing with each separately.

Wilson's Filmy Fern (H. Wilsoni) is of frequent occurrence in this neighbourhood, but generally in mountainous or rocky situations. I have always found it in greatest quantity and most luxuriant on the damp, not dripping, face of almost perpendicular rocks, or covering with a rich velvety carpet the sides of some roaring mountain torrent. In such places it is quite at home and soon spreads to a great extent, patches covering over a square yard being not unfrequeutly found. In some of the deep gulleys or tarns of the mountains, where large loose boulders have filled up the course of the streams, I have found this Fern very plentiful, and flourishing without a particle of soil on the damp shady sides of these huge detached masses of rock. This species is much more plentiful than H. tunbridgense, though the two are not unfrequently found in company, and perhaps for this reason so often confused in classification. They may, however, be readily distinguished by the form of the valves of the involucre, which in H. Wilsoni are ovate-oblong and quite entire at the edges; whereas in H. tunbridgense the upper margins of the valves are distinctly serrated, and the pinnæ or primary divisions alternate, which latter is the principal difference observable when destitute of seed vessels. The fronds of H. tunbridgense are also more crisped, usually shorter, and of a more dull or withered appearance than those of H. Wilsoni. To successfully cultivate these Ferns necessitates the expenditure of a little more trouble than is usually bestowed on the generality of our native species, but this is amply repaid by the success obtained as well as the pleasing appearance of these Ferns when seen in perfect health. In a state of nature they are always found in a moist shady position, and usually in a peaty compost with a free admixture of grit or small particles of disintegrated rock. By carefully imitating these requirements the cultivation of Filmy Ferns is simple enough, but to preserve a close, damp atmosphere the aid of a bell-glass is indispensable, at least in most cases. On a rockwork not 60 feet above sea level I have seen H. Wilsoni thoroughly established and flourishing without the aid of glass, but this is exceptional, and certainly but rarely seen. Some years ago I came across a crested plant of H. Wilsoni, which, although growing in a sort of cave formed by a mountain rivulet, the sides of which were literally carpeted with the ordinary form of this Fern, was the only plant having multifid fronds. Unfortunately, at least for the plant's sake, a note appeared in a contemporary regarding this Fern, which led to my receiving applications for fronds, and, indeed, not a few for the plant itself, the result being that every good frond was given away and the plant was almost annihilated. It is, however, gradually recovering.

Three distinct species of Polypodium are commonly found in this neighbourhood—viz., P. vulgare or the common Polypody, P. Phegopteris, or the Beech Fern, and P. Dryopteris, the Oak Fern. The two latter plants are usually found in mountainous situations, and the former on nearly every old wall and ruin in the country. Amongst all the varieties of P. vulgare none can approach in beauty of form or elegance of appearance the Welsh Polypody (P. cambricum). It was originally found in Wales, but is now, I believe, quite extinct in a wild state. It is quite constant under cultivation and always barren. The variety semilacernm, which has also been found near here, resembles the latter in general appearance, but is distinguished by the lower segments being barren and deeply pinnatifid, while the upper ones are slightly crenate and fertile. I have not found either of these varieties. The monntain Polypody, or Beech Fern, is an annual species, the new fronds being produced in May and dying off again in autumn. This is a moisture-loving plant, delighting to grow on moist mountain situations, such as on wet, dripping rocks, and less rarely in damp, shady woods. It is plentiful on the mountains here, and readily enough found on the northern side of some half-reclining boulder. This plant and the Oak Fern are much alike both in size and general appearance. The colour of the Beech Fern is, however, always of a pale or dusty green, and has the lower pair of pinnæ much deflexed.

P. Dryopteris, or the Oak Fern, is another mountainous, moisture-loving plant, and usually found in similar situations to the Beech Fern. The three-branched fronds of this species are of a bright, pleasant green and quite smooth. Both the above plants are capital for rockwork, and may without fear be introduced to the open fernery. When planted on artificial rockwork the most shady and damp positions should be chosen, and the soil should be composed of turfy peat and sandstone.

The Polystichums form a small and very distinct group of evergreen Ferns, several of which rank among the most beautiful and interesting of our native species. The common Prickly Shield Fern (P. aculeatum) is often to be met with in this county, growing in shady woods, hedge banks, and similar situations. It is of the easiest cultivation and grows well in any light loamy soil, but all the better if a quantity of leaf-mould is added, which latter has the property of retaining a considerable quantity of moisture. A variety of this species, named lobatum, is both distinct and beautiful, and differs from the normal form in the narrow lanceolate outline of its fronds, and in having the pinnules all decurrent or more or less confluent. It occurs in but one place hereabout, at least that I am aware of—at the base of an old plantation wall near Ogwen Bank, and there very sparingly indeed. Polystichum angulare, or the soft Prickly Shield Fern, is a strong-growing, tufted species, and, as the name indicates, of a softer texture than the nearly allied P. aculeatum. All the Polystichums are capital for rockwork embellishment, their easy culture and evergreen habit being additional recommendations.

The Lady Fern (Athyrium Filix-fœmina), from its graceful habit and elegance of form, claims the first rank amongst our native species. It is abundant all over the country, its favourite localities being sheltered moist woods and hedgerow banks. The soil best suited to this Fern is a light free sandy or turfy loam, and it is well to remember that in a well-sheltered, moist situation it is far more elegant and delicate in texture than when planted in dry exposed situations. A variety which we are inclined to name depauperatum has been found in some quantity near here, and may best be described as a form with a total want or loss of symmetry in the fronds, both these and the pinnæ being unequally reduced in size and divided at the apex into numerous narrow, branching depauperated segments. It is quite constant under cultivation, and when well grown, although by no means ornamental, is a distinct and interesting Fern.

Of the Lastreas, five or six species and varieties are commonly found in this county, the type of which we may justly consider the Male Fern (L. Filix-mas). This is a common occupant of our woodlands, and although a striking object, its ornamental qualities are often unheeded on account of its commonness.

L. montana, or Oreopteris, is a very elegant species, and, moreover, one of our few native Ferns having an agreeable odour. The fronds are annual, erect, lance-shaped, and with the lower pinnæ so short that the taper downwards is as much, or indeed more so, than towards the point. It is abundant on the mountain heaths, or alongside ditches in high-lying woods and plantations.

Lastrea rigida, although usually found in the limestone districts of a few English counties, is not, as is generally supposed, confined to these places, for I have on two occasions found specimens of this elegant Fern within a short distance of Bangor, and in soil entirely destitute of lime. This is a very desirable and distinct species, and well suited for planting in the hardy fernery. The fronds are of a dull green colour, and have a slight balsamic fragrance.

Lastrea dilatata is a very variable species, and divided into numerous forms, which in general appearance approach each other very nearly. All are of free growth and easy culture, and equally suitable for the rockwork or shady border.

Botrychium Lunaria, popularly known as the common Moonwort, is a small and very distinct plant usually found in elevated pastures and waste undisturbed ground. It is of rare occurrence in this district, although in one or two places in which I was fortunate enough to find it it was there pretty abundant. It is not, as generally supposed, difficult to cultivate, but must be removed with a good sod of earth attached, cutting or in any way damaging the roots generally proving fatal to even the strongest specimens.

The Adder's-tongue (Ophioglossum vulgatum is another small-growing plant, with precisely the same habit of growth as the Moonwort. It also occurs in similar situations, but differs principally in its parts being simple, while those of Botrychium are compound. The fronds rarely exceed 3 inches or 4 inches in length, one being smooth, entire, and broadly ovate, and the other a simple spike or fertile branch, rising an inch or so above the barren frond. It is very abundant here; indeed, in some parts of Penrhyn Park it almost monopolises the ground surface for several yards in extent. It is readily cultivated, and thrives well under similar treatment to that recommended for the latter species.

In addition to the above which I have actually found of late the following species were at one time pretty abundant, but have now either died out or otherwise become so nearly extinct that the discovery of a solitary specimen is hailed with delight: Woodsia ilvensis, W. alpina, Asplenium alternifolium (this has been found quite recently), Polystichum Lonchitis, Polypodium cambricum, &c. Besides these I had fronds sent me last summer of Lastrea æmula, Blechnum spicant cristatum, and B. spicant bifidum, all collected on the Snowdon range.

Llandegai, Bangor. A. D. Webster.

Polyanthuses as cut flowers are most useful at this time of year if grown strongly, so as to get spikes of bloom with good long stalks; for this purpose seedlings raised from a good strain of the laced kinds answer well. The plan which I find to answer best is to sow as soon as the seed is ripe on a partially shaded border, keeping it moist until the seedlings have become well established. Let them remain in the seed-bed until the following spring, when they should be transplanted and placed on well-enriched ground in a partially shaded position, such as between rows of bush fruits. There they will grow into fine plants, and the following spring will send up a quantity of strong flower-spikes that will not only be very effective in cut-flower decorations, but that will last for a long time, and the great variety produced by a good packet of seed is not the least of the advantages belonging to the raising seedling Polyanthuses.—J. Groom, *Gosport.*

Hardy Ferns for cutting.—This is the best time of year for forming a hardy fernery, and scarcely anything in a garden will be found more useful for supplying foliage fit for garnishing vases and for other indoor decorations. One great advantage, too, of growing these beautiful plants is that they make any shaded nook too dark for flowering plants look verdant and interesting at all times of the year. If the soil is too poor or full of roots of trees for anything to grow in it, collect together some fresh light soil and large stones, clinkers or roots, and make a raised bed, and in it plant any of the hardy Ferns procurable just as they are pushing up their young fronds. Large growing kinds should be placed at tolerably wide distances apart either towards the back of the bed, if built against a wall or trees, or if seen all round as central objects, filling in between with dwarf spreading kinds. Some low-growing and trailing plants such as Aubrietias, Alyssums, Vincas, and the like associate well with Ferns, and clumps of Narcissi and other bulbs that last for years when once planted make any waste place

or barren corner to look well at all times. The great charm of a garden lies in every inch being made the most of and in fresh features presenting themselves at every turn.—*J. G., Hants.*

GARDEN FLORA.

PLATE 437.

THE MARIPOSA LILIES.

(CALOCHORTUS)

SINCE the culture of the beautiful Californian Calochorti has become better understood than it used to be they have become an important class of garden plants possessing a beauty peculiarly their own, rivalled by few other bulbous plants as far as elegance of form is concerned, and excelled by few in splendour of colouring. Out of the whole of the species and varieties known there is scarcely one not well worth attention; if some of them are dull in colour, their exquisite grace of habit amply compensates for want of brilliancy. During the past few years a great accession has been made to the number of introduced Calochorti, until now we have in gardens fully three-fourths of the whole number of species known to botanists, comprising in round numbers about a score. As to the extreme beauty of the true Calochorti, our plate speaks for itself. We have endeavoured to depict as many of the most beautiful species as we were able, and these included one or two new ones. The large yellow flower in the centre represents a fine new form of C. luteus var. citrinus of Watson (C. venustus var. citrinus of Baker); the smaller flower below it is C. luteus. The large white flower, spotted with brownish red, is C. venustus; the pure white above it is C. splendens albus, a newly introduced variety, while the deep lilac flower is the typical C. splendens. These were all drawn in the New Plant and Bulb Company's Nursery, Lion Walk, Colchester, during the past summer, where there exists the finest collection of these bulbous plants that we know of. As so much has been written in THE GARDEN from time to time upon Calochorti from a cultivator's point of view, we have thought it advisable to reproduce from the "Botany of California" the following monograph of the genus by Mr. Sereno Watson, a botanist who has studied the plants in a living state, and who is now the accepted authority on all that concerns the botany of California.

THE GENUS CALOCHORTUS.

This genus is confined to Western America, ranging from British Columbia to Mexico and from the Pacific to the Rocky Mountains. The half-dozen Mexican species are somewhat peculiar, and form a distinct section. The whole genus is unique, in some of its characters allied to the Tulip of the Old World, in others to the Melanthaceous group of genera. The colours of the flowers are in some of the species very variable.

* Flowers or fruit nodding; petals incurved or strongly arched; gland transversely crested or hairy; capsule with broad, thin, acute, or winged cells.

Flowers sub-globose, nodding.

Petals white, bearded and ciliate. — 1. C. ALBUS.

Petals yellow, very deeply pitted; anthers obtuse. — 2. C. PULCHELLUS.

Flowers campanulate, the petals less arched.

Pedicels slender, nodding in fruit; flowers small.

Flowers yellow; pit shallow; anthers acute — 3. C. BENTHAMI.

Flowers white or lilac, mostly umbellate.

Petals covered with hairs and ciliate.

Low: petals white or purplish; claw with a transverse scale: anthers acuminate: bracts over an inch long. Coast Ranges. — 4. C. MAWEANUS.

Low: petals lilac; scale fringed: anthers obtuse: bracts shorter: capsule suborbicular, obtuse. Sierra Nevada — 5. C. CERULEUS

Low; petals white; gland with a transverse fringe of ascending hairs: anthers long-acuminate. Northern. — 6. C. ELEGANS.

Taller: petals lilac; fringe of the gland reflexed: anthers acuminate: capsule elliptic, acutish. Northern. — 7. C. TOLMIEI.

Petals not hairy, or only at base: low: anthers obtuse.

Petals naked: gland with an appressed scale: anthers 2 or 3 lines long: capsule oblong, acute. Sierra Nevada. — 8. C. NUDUS.

Gland with a scale and ciliate: anthers a line long: capsule elliptical, obtuse. Coast Ranges. — 9. C. LILACINUS.

Flowers usually solitary: gland densely hairy. Coast Ranges. — 10. C. UNIFLORUS

Pedicels stout, usually erect in fruit: flowers large, lilac, hairy at base: anthers acute. — 11. C. GREENI.

* * Pedicels erect: flowers open-campanulate: gland densely hairy: capsule narrowly oblong, with thick obtusely angled lobes, acute, septicidal: seeds somewhat turgid, with loose white spongy testa.

Flowers yellow or orange, marked with purple or brown. Coast Ranges.

Hairs upon the petals clavate. — 12. C. CLAVATUS.

Hairs upon the petals very slender.

Petals deep yellow or purple, hairy and ciliate. — 13. C. WEEDI.

Petals reddish orange, deep purple at base, nearly naked. — 14. C. KENNEDYI

Petals usually yellow, purple at base, and lined or spotted with brownish purple in the centre, slightly hairy below. — 15. C. LUTEUS.

Flowers white or lilac; petals slightly hairy below.

Of the Coast Ranges and S. California.

Petals with a reddish spot near the top, a brownish spot in the centre, and a brownish base. — 16. C. VENUSTUS.

Petals clear lilac, paler below: anthers purple, 3 to 6 lines long. — 17. C. SPLENDENS.

Flowers small, white, yellowish at base; anthers yellow, 3 lines long; stem very slender. — 18. C. PALMERI.

Of N. California and the Sierra Nevada.

Stout, erect, leafy, 1—2-flowered: petals lilac: anthers acutish. — 19. C. MACROCARPUS.

Slender, often low, umbellately 1—5-flowered: petals whitish above, with a purple spot above the yellow base: anthers obtuse, sagittate. — 20. C. NUTTALLI.

* * * Pedicels erect: capsule narrowly oblong, with thick obtusely angled lobes, obtuse, loculicidal: seeds flat, horizontal, with thin close testa. — 21. C. CATALINÆ.

§ 1. *Petals strongly incurved or arched, with a broad transversely crested or more or less hairy pit above the base: sepals naked, rarely spotted: capsule elliptical or broadly oblong, deeply triquetrous and septicidal, the thin compressed lobes acute or winged: flowers or fruit more or less nodding: seeds ascending, the testa mostly brownish, close and pitted.*—EUCALYCHORTUS.

* *Flowers subglobose, with concave petals, nodding: stem usually tall and branching.*

1. **C. albus**, Dougl. Glaucous and branching, a foot or two high, with elongated radical leaves ½ to 2 inches wide, and large foliaceous bracts; petals pure white (the claw purplish), ovate-orbicular, acutish, 12 to 15 lines long, bearded above the gland and ciliate with long white hairs; gland lunate, shallow, with four transverse imbricate scales fringed with close short yellow or white grandular hairs: anthers linear-oblong, obtuse, mucronate: ovary attenuate above: capsule an inch or two long, 6 to 12 lines broad, abruptly short-beaked: seeds brown pitted.—*Cyclobothra alba*, Benth. in Trans. Hort. Soc. i. 413, t. 14, fig. 3; Lindl. Bot. Reg. t. 1661.

Var. **paniculata**, Baker, l. c. Stem more slender and less branched, with narrower leaves and bracts: flowers smaller, on short solitary pedicels.—*Cyclobothra paniculata*, Lindl. l c.

Frequent on the foothills of the Coast Ranges from Los Angeles County to Sonoma; also in the foothills of the Sierra Nevada (Placer County, *Bolander*).

2. **C. pulchellus**, Dougl. Stem somewhat flexuous, with spreading branches, a foot high or more, or sometimes only 2 or 3 inches high and 2–3 flowered: radical leaf equalling or exceeding the stem, 4 to 12 lines broad; bracts linear-lanceolate, exceeding or equalling the flowers: sepals yellow or greenish, 8 to 12 lines long, a little shorter than the yellow or orange oblong, or broadly ovate acutish petals, which are grandular-ciliate and sparingly sprinkled with short erect yellow hairs; gland a deep pit projecting upward and covered by the stiff appressed yellow hairs growing on the upper margin; anthers broad, obtuse or acutish; capsule elliptical, 12 to 15 lines long and 6 to 8 broad, obtuse.—Wood, Proc. Philad. Acad. 1868, 168. *Cyclobothra pulchella*, Benth. l. c., t. 14, fig. 1; Lindl. Bot. Reg. t. 1662

In the Coast Ranges from Monterey to Mendocino County.

* * *Flowers campanulate with less incurved and less arched petals, erect when open: pedicels slender, recurved in fruit: stem low.*

+ *Flowers yellow.*

3. **C. Benthami**, Baker. Resembling the last: low and slender (3 to 6 inches high), 2–6-flowered: leaves much elongated, 2 to 5 lines broad: flowers smaller and nearly erect; petals 6 or 7 lines long and mostly obtuse, rather densely covered with yellow hairs, and with a shallow lunate gland above the brownish or often deep brown claw: anthers acute: capsule nodding, 6 to 9 lines long.—Journ. Linn. Soc. xiv. 304. *Cyclobothra elegans*, var. *lutea*, Benth. Pl. Hartw. 338. *C. nitidus*, Torr. Pacif. R. Rep. iv. 146, not Dougl.; Wood, l. c. 169.

In the Sierra Nevada, from Mariposa to Butte Counties.

+ + *Flowers white or light lilac.*

++ *Petals covered with hairs and mostly ciliate.*

4. **C. Maweanus**, Leichtlin. Stem low and flexuous (3 to 10 inches high), usually branched and 3–6-flowered: leaves glaucous, exceeding the stem, 4 to 6 lines wide; bracts lanceolate, an inch long or more: petals white or purplish blue, at least at base, 6 to 8 lines long, exceeding the purplish sepals, broadly obovate, acute, somewhat pitted and arched, the broad naked claw covered above by a transverse semicircular scale, and the rest of the surface more or less densely covered with long erect white or purplish hairs: anthers lanceolate, acuminate, 2 or 2½ lines long: capsule oblong-elliptic, acutish.—Baker, l. c. 305, under *C. elegans*. *Cyclobothra elegans*, Torr. Pacif. R. Rep. iv. 146. *Calochortus elegans*, Hook. f. Bot. Mag. t. 5976.

Near the coast from San Francisco (at Punta de los Reyes, *Bigelow*) northward to Humboldt County (*Rattan*); Butte County, near Chico (*Mrs. Bidwell*).

5. **C. cœruleus**, Watson. Low and very slender (3 to 6 inches high), the solitary leaf (1 to 3 lines broad, strongly nerved) much exceeding the simple umbellately 2–5-flowered stem: bracts small, 4 to 9 lines long: pedicels very slender, 1½ inches long or less: sepals 6 or 7 lines long, about equalling the rhombic-obovate acute rather deeply pitted and arched petals, which are lilac more or less dotted and lined with darker blue; claw narrower; gland transversely divided by a broad semicircular fringed scale which is closely appressed over the upper half; the rest of the petal covered and fringed with slender hairs; anthers oblong, obtuse, 1½ or 2 lines long; capsule orbicular or nearly so, 6 lines long, not beaked.—Proc. Amer. Acad. xiv. 263. *Cyclobothra elegans*, var., Benth. Pl. Hartw. 338 (n. 1988). *Cyclobothra cærulea*, Kellegg, Proc. Calif. Acad. ii. 4. *C. glaucus*, Regel, Act. Hort. Petrop. iii. 285?

In the Sierra Nevada, from Placer to Plumas Counties.

6. **C. elegans**, Pursh. Resembling the last: leaves rather broader (3 to 8 lines wide): flowers greenish white, purplish at base; petals not ciliate on the margin or sparingly so, and the upper part

of the gland covered by a very narrow deeply fringed ascendiog scale; anthers long-acuminate: otherwise like the last.—Fl. i. 240; Dougl. in Trans. Hort. Soc. vii. 278, t. 9, fig. B.

Var. **nanus**, Wood, l. c Dwarf and slender: leaves very narrow: petals more hairy and ciliate, often acute or even acuminate.—*C. Lyalli*, Baker, l. c. 305.

Oregon and Idaho; the earliest known species of the genus, to which the last two and several of the following have usually been referred. The variety has been collected on the mountains west of Yreka (*Wood*), on Mount Hood, and northward to British Columbia, *Lyall*.

7. **C. Tolmiei**, Hook. & Arn. Another similar species, but stouter and taller (about a foot high) and usually branched: leaves 4 to 6 lines broad, not greatly exceeding the stem; bracts larger: flowers larger, tinged or marked with lilac; petals 9 to 15 lines long, very broadly obovate and scarcely acute, rather deeply pitted, covered and fringed with long purple and white hairs: gland without scale, but the upper circular edge with a dense fringe of reflexed hairs: anthers lanceolate and acuminate, 2 or 3 lines loog: capsule broadly elliptical, acutish at each end, 10 to 15 lines long.—Bot. Beechey, 398. *C. elegans*, var, Baker, l. c. 305.

Oregon; foot of Mount Shasta, *Wood*.

C. APICULATUS, Baker, of Northern Idaho, resembles this species, but is taller and stout, with a single umbel of larger straw-coloured flowers.

++ ++ *Petals hairy only toward the base or wholly naked.*

8. **C. nudus**, Watson, l. c. Low and often slender (2 to 10 inches high), with a single elongated leaf 3 to 10 lines broad; bracts usually small (an inch long or less): flowers 1 to 6, usually in a single umbel: sepals about equalling the broadly fan-shaped petals, which are 4 to 10 lines long, white or pale lilac, denticulate above, and wholly without hairs; gland shallow, divided by a broad transverse denticulate appressed scale: anthers linear-oblong, obtuse, 2 or 3 lines long, about equalling the filaments: capsule oblong, acute at each end, 8 or 10 lines long and 4 or 5 wide: seeds yellowish, papillose, with a white vesicle at base.—*Cyclobothra elegans*, var, Benth. Pl. Hartw. 338 (n. 1986); Torr. l. c. *Calochortus elegans*, var. *subcalvatus*, Baker, l. c. 305.

In the Sierra Nevada, from the Yosemite Valley to Plumas County.

9. **C. lilacinus**, Kell. Stem bulbiferous near the base, low (4 to 8 inches high), rather stout, usually branched, with broad elongated leaves (4 to 6 lines wide), and long conspicuous bracts: flowers 4 to 10, in 1 to 3 umbels or close corymbs, on long flexuous pedicels: petals broad, 6 to 12 lines long, pale lilac, with a more or less purplish claw, somewhat hairy below the middle; gland very shallow, ciliately margined and with a narrow scale: anthers oblong, obtuse, 1 to 1½ lines long, much shorter than the filaments: stigmas slender: capsule elliptical, obtuse at each end, an inch long.—Proc. Calif. Acad. ii. 5; Baker, l. c. 306. *C. umbellatus*, Wood, l. c. 168. *C. uniflorus*, Hook, f. Bot. Mag. t. 5804.

On hillsides about San Francisco Bay (*Bigelow, Bolander, Kellogg*) and northward; at the Geysers, *Bolander*.

10 **C. uniflorus**, Hook. & Arn. Stem low and slender (3 to 6 inches high), 1-2-flowered: leaves 2 to 4 lines broad; bracts near the base elongated: sepals 6 to 8 lines long, purplish, sometimes spotted: petals 10 to 12 lines long, the upper margin denticulate, lilac with a purplish base and small very shallow purple densely hairy gland, the lower half of the petal above the gland covered with scattered hairs: anthers obtuse, 2 lines long.—Bot. Beechey, 398, t. 94; Wood, l. c. 168; Baker, l. c. 306.

From Monterey (*Douglas, Parry, Brewer*) to Sonoma County, *Newberry*. The stem is bulbiferous at the base of the leaf; capsule not known.

§ 2. *Flowers and fruit erect on stout pedicels: flowers open-campanulate: gland usually densely hairy: capsule (except in group *) narrowly oblong, with thick lobes, acute, septicidal sepals often hairy or subglandular or spotted within: seed ascending and somewhat turgid, with white, loose and spongy, minutely tessellated testa.*—MARIPOSA.

* *Capsule as in § 1: flowers large, lilac.*

11 **C. Greenei**, Watson. Stem stout, branching, often a foot high or more, 2–5-flowered: leaf about equalling the stem, an inch broad; bracts narrow, elongated: sepals greenish with more or less of lilac within and with a yellowish hairy spot above the base: petals broadly fan-shaped and obtuse, 1¾ to 1½ inches long, lilac, somewhat barred with yellow below, strongly pitted and arched, the lower part densely covered with very long yellow hairs; upper part of the blade more thinly hairy, not ciliate; pit densely villous above a broad transverse laciniate scale: anthers broad, acute or obtuse, ½ inch long: capsule an inch long, 4 to 6 lines broad, attenuate into a stout beak,—Proc. Amer. Acad. xiv. 264.

Mountains near Yreka, and top of Table Rock on Little Shasta River, *Rev. E. L. Greene*, July, 1876; also in Multnomah County, Oregon, *T. J. Howell*.

C. NITIDUS, Dougl. (*C. eurycarpus*, Watson, Bot. King Exp. 348), has a simple, umbellately 1–3-flowered stem, with a short bract-like leaf in the middle and a single narrow radical leaf; sepals naked; petals cream-coloured, with a lilac spot in the centre, and a narrow shallow pit, not strongly arched, the lower part of the blade usually with thinly scattered purple or yellowish hairs; gland oval oblong, densely covered with entangled yellow hairs, without crest; anthers 2½ to 4 lines long; capsule round to broadly elliptical, with short stout beak. Oregon to N.E. Nevada.

* * *Capsule narrowly oblong, with thick obtusely angled cells.*

+ *Flowers yellow or orange, more or less marked with brown or purple.*

12. **C. clavatus**, Watson. In habit resembling *C. luteus:* distinguished from other species of the group by the strongly clavate hairs which cover the lower half of the petal around the deep and broad circular gland: sepals acute, naked, yellow within with a brownish spot at base and greenish on the outer side: petals 15 to 18 lines long, yellow somewhat tinged or lined with brown, rather strongly arched: anthers purple, obtuse, 4 or 5 lines long: ovary attenuate above, narrow, 10 lines long.—Proc. Amer. Acad. xiv. 265.

Near San Luis Obispo (*J. G. Lemmon*); near Santa Barbara, *Mrs. Elwood Cooper*.

13. **C. Weedi**, Wood. Corm deep-seated, fibrously coated: stem usually branched, leafy, flexuous, a foot high or more, 1–3-flowered: leaves convolute-linear, filiform-acuminate: sepals equalling the petals, orange within, with a brown slightly bearded spot at base: petals 12 to 15 lines long, fan-shaped, obtuse or abruptly acute, deep yellow, dotted and often margined with brownish purple, ciliate and covered with slender purple or yellow hairs; gland small, circular to oblong, densely hairy: anthers broad, acute or acutish, 4 to 6 lines long: capsule narrow, attenuate upward, 1½ inches long.—Proc. Acad. Philad. 1868, 169. *C. luteus*, var. *Weedi*, Baker, l. c. 209. *C. citrinus*, Baker, Bot. Mag. t. 6200.

Var. **purpurascens**, Watson, l. c. Petals wholly covered or blotched with purple; gland somewhat larger.

In the Coast Ranges, San Diego County and northward; the variety at Santa Barbara and Cajon Pass.

14. **C. Kennedyi**, Porter. Usually stout, 4 to 18 inches high, glaucous, 2–4-flowered; pedicels often short and stout: leaves shorter than the stem: sepals broad, scariously margined, orange within with a purple spot at base, about equalling the fan-shaped petals, which are 12 to 15 lines long, of a uniform clear reddish orange, the round-oblong gland densely hairy and surrounded by a broad deep purple slightly hairy spot: anthers 4 lines long, on very short filaments: capsule 1½ inches long or more.—Coult. Bot. Gazette, ii. 79.

South-eastern California, from Fort Tejon to the Providence Mountains, *Wallace, Cooper, Palmer, Kennedy*.

15. **C. luteus**, Dougl. Stem bulbiferous near the base, usually a foot or two high, 1–6-flowered, exceeding the usually very narrow (1 to 3 lines wide) leaves: sepals nearly equalling the petals, narrowly lanceolate and acuminate, greenish yellow and purplish with a brown spot at base: petals very broadly fan-shape, obtuse, an inch or two long, from yellow to deep orange, lined with brownish purple on especially the middle third where it is also usually slightly hairy; claw purplish; gland broad, rounded or somewhat lunate, densely covered with ascending yellowish hairs and with scattered spreading hairs surrounding it: anthers yellow, linear, obtuse, 2½ to 5 lines long: capsule attenuate upward, 1 to 1½ inches long.—Lindl. Bot. Reg. t. 1567; Fl. Serres, ii. t. 104, fig. 2; Baker, l. c. 309.

Var. **oculatus**, Watson, l. c. Petals white, lilac, or yellowish, with a central dark brownish purple spot, which is usually bordered with yellow and sometimes more or less broadened transversely; claw yellow and purplish; gland usually narrowly lunate, covered with brownish or yellow hairs.

Var. **citrinus**, Watson, l. c. The whole petal deep or lemon yellow, similarly marked with brown.—*C. venustus*, var. *citrinus*, Baker, l. c. 310.

Frequent from San Diego to Mendocino County and in the foothills of the Sierra Nevada. Exceedingly variable in its colour and markings, and perhaps running into *C. venustus*.

C. AUREUS, Watson, of S. Utah, is another species of this group, 3 to 6 inches high, the petals naked and clear yellow, or with a narrow crescent of purple above the well-defined roundish gland, which is densely covered with reflexed hairs.

+ + *Flowers white or lilac.*

16. **C. venustus**, Benth. Like the last: petals white or pale lilac above, with a more or less conspicuous reddish spot near the top, a brownish spot bordered with yellow in the centre, and a brownish base: gland large and conspicuous, but much narrower than the claw, oblong, usually densely hairy and surrounded by scattered hairs: capsule 1 to 2½ inches long and 4 or 5 lines broad.—Trans. Hort. Soc. n. ser. i. 412, t. 15, fig. 3; Lindl. Bot. Reg. t. 1669; Fl. Serres, l. c. fig. 3; Regel, Gartenfl t. 865.

Var. **purpurascens**, Watson, l. c. The petals deep lilac or purplish, with similar markings.—Vars. *lilacinus* and *purpureus*, Baker, Gard. Chron. 2 ser. viii. 70.

In the Coast Ranges, from Mount Diablo (*Brewer*) southward; frequent and very variable in its colours and in the definition of its markings. The variety in Kern County, *Wallace, Kennedy*.

17. **C. splendens**, Dougl. Like the preceding: petals clear lilac, paler below (the claw somewhat darker), with scattered white hairs below the middle, and with or without a ronnd densely hairy gland: anthers purple, obtuse or acute, 3 to 6 lines long.—Benth. l. c. 411, t 15, fig. 1; Lindl. l. c., t. 1676; Fl. Serres, l. c. fig. 1.

Frequent from Monterey to San Diego.

C. FLEXUOSUS, Watson of S. Utah, is a similar species, distinguished especially by shorter obtusish sepals, the shorter anthers (1½ to 3 lines long) and the shorter oblong capsule (an inch long) less attenuate at each end; stem lower and very flexuous, not bulbiferous.

18. **C. Palmeri**, Watson, l. c. Stem very slender, lax and flexuous, a foot or two high, 1–7-flowered, bulbiferous at base: leaves shorter than the stem, a line or two broad: sepals equalling the petals, with narrowly acuminate recurved tips, yellowish within and with a purple spot at base: petals a half to an inch long, obtuse or acutish, white, or yellowish toward the base, with a brownish claw; gland roundish and ill-defined, nearly as broad as the claw, densely hairy and surrounded above by scattered yellow hairs: anthers obtuse, 3 lines long: capsule very narrow, attenuate upward, an inch long or more.

Near the Mohave River, *Palmer* (n. 527, 1876).

19. **C. macrocarpus**, Dougl. Often stout erect and rigid, a foot or two high, 1- rarely 2-flowered, leafy: leaves shorter than the stem, the cauline (3 to 5) narrow and convolute: sepals about equalling the petals, acuminate, usually tinged with lilac within, darker at base with sometimes a yellowish hairy spot: petals obovate, acute or acuminate, 1½ to 2 inches long, purple-lilac, paler at base, with a greenish line down the middle, the lower third above the gland covered with scattered glandular hairs; gland oblong, densely hairy: anthers purple or yellow, lanceolate, acutish, 4 to 6 lines long: capsule attenuate upward, 1½ to 2 inches long: seeds flattened, 2½ lines long.—Hort. Trans. vii. 276, t. 8; Lindl. Bot. Reg t. 1152.

At Soda Springs on the Little Shasta River (*Greene*) Camp Bidwell (*Matthews*); and northward to Washington Territory (*Lyall*) and Idaho, *Spalding*.

20. **C. Nuttalli**, Torr. & Gray. Erect, slender, usually a foot high, bulbiferous at base, simple and umbellately 1–5-flowered, with a single or rarely 2 or 3 narrow revolute cauline leaves: sepals ovate-lanceolate with scarious margins, yellowish within, with often a dark, sometimes hairy spot near the base: petals cuneate-obovate, obtuse or often abruptly acute, an inch or two long, white above, tinged with greenish yellow or lilac, and with a purplish spot or band above the yellow base; gland round or oblong, densely hairy, surrounded by long scattered hairs: anthers obtuse, sagittate at base, 3 or 4 lines long: capsule attenuate upward, 1 to 2¼ inches long: seeds as in the last.—Pacif. R. Rep. ii. 124; Baker, l. c. 306, excl. syn. *Fritillaria alba*, Nutt. Gen. i. 222. *C. luteus*, Nutt. in Journ. Acad. Philad. vii. 53. *C. Leitchlini*, Hook. f. Bot. Mag. t. 5862.

In the Sierra Nevada from Ebbett's Pass (at 13,000 feet altitude, *Brewer*) to Shasta River and eastward to the headwaters of the Missouri, the Black Hills of Dakota, S. Utah, and New Mexico; the most widely distributed species of the genus. The colour sometimes varies to deep lilac. The high mountain form is often dwarf and has the anthers more sagittate.

C. Gunnisoni, Watson, common in the Rocky Mountains from Nebraska to New Mexico, is a similar species, readily recognised by its acuminate anthers, the light lilac petals yellowish green below the middle, banded and lined with purple, the lower part hairy and the transverse gland nearly as broad as the claw.

§ 3. *Fruiting pedicels erect: capsule narrowly oblong, obtuse, loculicidally dehiscent at the summit: seed flat and horizontal in one row in each cell, with close white testa.*

21. **C. Catalinæ**, Watson. Stem 2 feet high, branching, from a small oblong-ovate corm: leaves and bracts very narrowly linear: ovary winged: capsule triangular, very obtuse, an inch or two long by 4 or 5 lines wide: seeds thin and very numerous, 2 lines in diameter; testa minutely pitted.—Proc. Amer. Acad. xiv. 268.

On Santa Catalina Island, off Los Angeles. Collected by *Mr. Paul Schumacher*, June, 1878, in fruit only.

Culture.—For the following remarks on this subject we are indebted to Dr. Wallace, of Colchester: "The Californian species of Calochorti succeed best with us planted out in an unheated frame in light rich soil, with plenty of coarse sand. They should be planted in September or October; if kept out of the ground later they invariably suffer; if planted after Christmas, success is very doubtful. They prefer a south aspect where they get plenty of sunlight; coming as they do from the sandy plains of California, it will be at once seen that sunlight is indispensable for them, especially after flowering when they are ripening their bulbs. The latter, though planted, should be kept dry from September to February. In their native habitat the ground above them at that season is covered by a thick mantle of frozen snow, which effectually keeps them dry; then when spring comes the snow melts, and all at once they receive an abundant supply of moisture. In March they push up their scanty leaves, which, as the season advances, curl up and wither almost before the flower-stem appears; this happens in May and June, and they flower in June and July. The floriferous propensities of these plants are truly marvellous. Take, for example, C. venustus. A bulb 1 inch long and one-third of an inch through produced a flower-stem from 2 feet to 3 feet in height, and bore from twelve to twenty-four large flowers. Their cultivation in pots under glass is very easy, as when their requirements are understood the supply of water can be regulated to a nicety. They may even be grown outdoors in well-drained soils if protected from wet in winter. It is not cold which kills them, but damp. In the York Nurseries some years ago were to be seen a quantity of C. venustus growing well outside, where I understood they were left during the winter; yet York is a very damp place. The Mexican species are few in number; they are represented by C. flavus, C. purpurascens, recently introduced as C. fuscus, and a few others. These are easily distinguishable by their thick rough skins. These Mexican Calochorti are not hardy, but are more easy to cultivate than the Californian kinds, as they may be treated like Gladioli, *i.e.*, planted in March and taken up in October, and kept cool and dry in winter; moreover, they are not at all fanciful as regards soil or situation; on the contrary, they seem to do well anywhere. C. Weedi, though a Californian species, would, I believe, succeed treated in the same manner; it possesses the same thick skin, and is dormant long after the rest of its associates have started into growth."

SEASONABLE WORK.

FLORAL DECORATIONS.

Once more we have from hardy shrubs and trees a good supply of flowers that are useful in a cut state. A useful early flowering plant is the double blossomed white Peach, which looks exceedingly well against a background of common Laurel. In a cut state it will look well with the golden Kerria japonica. The foliage of Berberis Aquifolium would do nicely as a background for an arrangement of this kind. Pyrus japonica and its white variety make a desirable change. When using these flowers secure a few fresh green growths to arrange with them. The early flowering hardy Rhododendrons are always valuable. Like the Pyrus, these arrange best by themselves. We find three or four trusses of two distinct colours of these hardy American plants to group well together for a sideboard decoration. Besides all these there are Laurustinus, Ribes sanguineum and its white form, and other shrubs which, for cut purposes, ought to be more valued than they are; and where a supply can be thus got, as at the present time, from the open air, less pressure should be put upon that from the houses. Of hardy bulbous plants, the Bluebells (Scilla campanulata and patula) are valuable aids in floral decorations. A few spikes look pretty arranged with Hoteia japonica, or in a dinner-table arrangement they associate well with the Amazonian Lily. Of plants easily grown under ordinary greenhouse treatment, Choisya ternata is a valuable shrub, as are also the Eriostemons (E. linearifolium in particular). We have these in flower now, the latter plant being in that condition nearly all the winter. Both of these shrubs are most valuable for bouquet work. A few pots of Musk will be an agreeable change in the house where this plant has been forwarded; so also will early Stocks and small plants of Heliotropes and forced Pinks, not forgetting Mignonette from autumn-sown seed.

FLOWER GARDEN.

Wallflowers, Primroses, and Polyanthuses may be sown now, and good varieties of the two last should be increased by division as soon as they have done flowering. New plots of Violets should be made as soon as runners can be had; from these early plantings good flowers are frequently produced in quantity throughout the autumn and winter. The Czar and Victoria Regina are the best winter bloomers, simply because they are the hardiest. In order the better to insure a long succession of flowers in spring different aspects should be chosen. We plant a few at the foot of the fruit tree walls in every aspect; from the south we gathered quantities of blooms in January, and from the north and east aspects they have not yet done flowering. Lily of the Valley is amenable to the same mode of culture, and the season of flowering is also proportionately extended. Beds of this Lily should now be top-dressed, and new beds made by dividing the roots that have been forced. Plant single crowns in lines 9 inches apart and 3 inches asunder in the line; press them firmly into the soil, and then mulch with cow manure, which should remain on the whole of the summer; next season some good flowers may be expected, and the following one they will be as fine as those from imported crowns.

General work.—This, to a large extent, still consists in the preparation of plants for summer arrangements. We are at present busy making up hotbeds, consisting of stable litter and lawn mowings, for Alternantheras; putting in cuttings of Mesembryanthemum cordifolium variegatum in boxes, which are placed over the pipes in vineries to strike; pricking off seedling Tagetes, Pyrethrums, Zinnias, Asters, and Stocks, also potting off Coleuses, Iresines, Heliotropes, and Petunias, and planting out Lobelias and Verbenas in turf pits, and Calceolarias and Violas in the open air. Dahlias and sub-tropical plants require the extra space thus gained, and some of these need larger pots, our rule being never to let them get root-bound, as that cripples the growth of the plants for the whole season. The outside operations now are principally mowing and sweeping; preparing beds and borders for planting; pruning and tying up, or nailing in climbers; sowing hardy annuals, and making successional sowings of Sweet Peas, Mignonette, and Virginian Stocks; weeding, and, in mossy places, salting walks and roads.

INDOOR PLANTS.

Stephanotis and Gardenias.—Plants of these two fragrant white flowers started in a brisk heat some time back will now come rapidly forward. The Gardenia is a sun-requiring plant, as however much heat it receives, the flowers do not make much progress until the sun gets some power. Use every means to keep down scale and mealy bug which will now increase apace. If the growth of the Stephanotis was well ripened last autumn, the plants will generally show flower freely on the young shoots as soon as formed. Do not use too much atmospheric moisture, as where subjected to an over-humid atmosphere, the bloom is usually proportionately deficient.

Perpetual flowering Carnations.—Where there is a well-managed stock of these, the principal lot should now be fast pushing up their flower-stems, for, although from their perpetual blooming habit with a sufficient number of plants their flowers may be had all the year round, still they come much finer and in greater abundance during the spring and summer. The plants will be much benefited by the application of manure water once a week. This will not only assist the earliest flowers, but also the successional bloom. A little soot added to the manure water will be found an advantage, as besides its manurial properties, it tends to banish worms, and there is no insect that appears to like depositing its eggs on plants that have the odour of soot about them.

Tuberous Begonias.—If not already started the old bulbs of these should at once be set to work, repotting them in good, fresh soil, and giving root-room proportionate to the size of the bulbs, for though they may be considerably assisted by liquid stimulants, yet with free-growing subjects like these Begonias, that form large heads in little time, a good amount of space is requisite for the roots; if too much confined, the amount of growth and flowers forthcoming will be limited.

Tender annuals.—Even in gardens where plants of a permanent character are made the principal feature some of the handsomest annuals suitable for pot culture may be grown with advantage. Such things as Balsams, Globe Amarantus, Rhodanthe Manglesi, Celosia pyramidalis, and the old-fashioned Cockscomb, when well managed, are amongst the most effective plants that can be grown for summer decoration, and when in flower they can be placed about in conservatories and similar structures where it would not be expedient to set plants of more value. The feathery plumes of the Celosia are unequalled as regards effect when grouped with plants of more bushy habit. The principal matter to be kept in view in the cultivation of these things is to give them sufficient room and keep them close to the glass from the time the seed germinates until they are in bloom. It is not advisable to place the seeds in too much heat; an intermediate temperature, such as that obtainable from a moderate hotbed composed of leaves and manure in about equal quantities, answers best. Pits or frames now occupied with bedding plants will in most places be at liberty in a short time, and will be available for them in their subsequent stages.

Linum trigynum.—Where yellow flowers are prized, combined with a plant that occupies little room, this old-fashioned Flax is deserving of cultivation. If seeds of it are sown at once they will make nice blooming plants before autumn. It is somewhat liable to the attacks of red spider; consequently a constant use of the syringe will be necessary, dewing the plants over every day. 6-inch or 7-inch pots are large enough, stopping once or twice to induce a bushy condition.

Lisianthus Russellianus.—This deserves a place wherever there is the means of giving it intermediate warmth, as so treated it does much better than where it receives more heat. The seed should be sown on the surface of the soil in a pot, covering it little or none, with the exception of a piece of glass, which should be placed over the top of the pot. The latter should be set in a pan containing a little water that will be absorbed by the soil, thereby obviating the necessity of watering overhead, which displaces the seeds and retards their vegetating. It is biennial in habit, plants raised from seed sown now blooming in May, June, or July the ensuing year.

Todeas and Trichomanes.—Many who have attempted the cultivation of these elegant Ferns have failed through keeping them too warm. No heat is required, except simply to keep out frost. They require to be confined within a glazed case, for though they will live exposed to the atmosphere of an ordinary cool fernery, yet they do not get on so well as if less air was given them. Any that need more root room should be repotted, being careful not to disturb the roots more than is unavoidable, as now, when growth is commencing, any mutilation of them will interfere with the development of the young fronds. Keep the soil well supplied with water, as the least approach to dryness is most injurious at all times, but much more so during the early stages of growth than at any other time. In giving water be careful not to wet the plants overhead, as if this is not avoided they always have a brown, shabby appearance.

FRUIT GARDEN.

Vines.—By this time the Vines in the latest houses will be fit for stopping if the operation has not already been performed. Syringe well twice a day until the branches become prominent, encourage a short-jointed, sturdy growth by ventilating freely through the early part of the day, close with brisk sun heat to save firing, and allow the temperature to range about 60° at night. If the inside borders have not been watered since the Vines broke, now will be a good time to give them a thorough watering—if gross, with pure water; if weak, with liquid or guano added—which will carry them on until after the fruit is set, when they may be again watered and mulched with short manure. Pay regular attention to daily details in succession houses, and on no account let the thinning of the berries get behind, otherwise a tedious operation of this kind, which requires great patience, is sure to be hurried over and imperfectly performed. Fertilise Muscats now in flower, also Black Morocco and other shy-setting kinds, using Hamburgh pollen if it can be obtained or has been preserved in a dry, warm place. A camel's-hair brush should be used in preference to drawing the hand down the bunches, and the atmosphere of the house dry and warm when the operation is performed. Examine the foliage in out-of-the-way corners in the early house, and if a suspicious-looking leaf is found, either sponge at once with weak tobacco or soap water, or apply the usual remedy to the pipes for the destruction of spider. At the same time look well to inside borders, and if found dry—a condition under which spider makes rapid strides—water freely with guano water and mulch with short stable manure which has been well worked as for a Mushroom bed. Damp this frequently to keep the atmosphere charged with moisture, maintain a low night temperature by giving front air, and, most important of all, see that the Vines are not carrying more fruit than they are likely to swell up and finish. Many people overcrop and suffer, but we never hear the grower or the consumer complain when a moderate crop colours and ripens well.

Grape room.—The dry atmosphere which prevailed throughout the past month was favourable to the keeping of late Grapes in rooms not affected by sudden changes of temperature, and such kinds as Gros Colmar and Alnwick Seedling are still fresh and plump. The last named being the first to break in the spring, and the first to ripen when grown with such varieties as Lady Downes, Alicante, and Mrs. Pince, and its quality being so good, the proof that it is a good keeper will at once stamp it as one of our best spring Grapes. It will now be necessary to keep the room as cool as possible, by admitting a constant circulation of air and keeping the shutters closed all day, as light and sun heat will begin to have an injurious effect upon the colour and texture of the berries. Keep the bottles well filled, remove all decaying berries, and keep down dust by occasionally washing the floors with warm water in fine weather.

Peaches and Nectarines.—The most trying and critical period in Peach culture is the stoning process, which lasts about five weeks, and so great is the strain upon the trees, that during that time no outward change is perceptible in the size of the fruit, but good work is going on within, and as soon as the old lime rubble, so often recommended for Peach borders, has been converted into bony foundations for the luscious pulp, the last swelling for ripening will be very rapid, and forcing may be pushed on under a much higher temperature than would be safe through any of the preceding stages, but it must be borne in mind that hard forcing is not recommended, as trees placed under high pressure are short-lived, and the fruit they produce is generally small, flavourless, and deficient in colour. To have the fruit fine and well coloured, low temperatures, ranging from 45° at the commencement to 58° at the finish, with a free circulation of air on all favourable occasions, are points which must have attention, and where they are neglected the mediocre fruit so frequently met with will be the result. Having kept the trees regularly syringed and ventilated to prevent fluctuations through the stoning period, the first sign of a move forward will denote the time for the final thinning, an operation upon which many fruit growers disagree, one man asserting that his trees carry twelve fruit to a foot, while others, myself amongst them, find one good Peach to every square foot of trellis covered with foliage is a heavy crop for trees to carry for a number of years in succession. Pinch the points out of all growths which will be removed after the crop is gathered to throw size into the fruit. Tie down the young shoots where a free and easy style of growth has been adopted during the stoning process, and elevate the fruit well above the foliage, point upwards by the use of short pieces of lath placed across the trellis. Give another watering to inside borders, and mulch well to keep the surface roots moist and active during the time the fruit is ripening. If soft water cannot be obtained for syringing, water free from lime should be used, otherwise the sediment will mark the fruit and detract from its appearance when ripe. Follow up the usual routine in succession houses and keep everything in order by the timely performance of the various operations now crowding upon each other. Disbud, tie down the shoots, and thin the fruit in late houses. Use the syringe freely all round, and give all inside borders copious waterings with water at the mean temperature of the houses in which the trees are growing.

Cherries.—When the fruit in the early house is set daily syringing must be resumed, and continued until the stoning process is complete. In the meantime the stopping of superfluous shoots to form spurs, and the tying-in of others where young wood is needed, must have attention. As days increase in length and the sun gains power, the temperature with a circulation of air may range from 50° to 60°, and a few degrees higher after closing with solar heat; but it will not be well to make much advance on the minimum temperatures given the other day, say 45° at night, unless the weather is very mild, when 50°, or perhaps more, may be maintained without having recourse to fire-heat. Keep all insects in check by timely application of the usual remedies. See that the roots are well supplied with water, and have the surface well mulched to prevent the escape of moisture when the fruit begins to ripen.

Figs.—Favoured by a tolerably good season, the most forward fruit on pot trees will soon begin to ripen, when watering may be gradually reduced, but at no time must the trees feel the want of water, neither must syringing be entirely discontinued, otherwise spider will speedily follow the check and give much after trouble. From this time forward the house may be freely ventilated in favourable weather, and the temperature may range from 60° to 65° at night and 70° to 75° by day, with a rise to 80° after closing on bright afternoons. Maintain a circulation of warm air through the night. Keep the young growths neatly tied down to give the ripening fruit the full benefit of light and solar heat, and as ripe Figs can be kept for a few days laid on a hair-sieve in a dry room, make a point of gathering all that are ready at short intervals, and immediately give a good watering with tepid liquid, and syringe copiously to help forward the advancing crop. In succession houses where the trees are planted out, pinch or remove the side shoots and tie down leaders to prevent overcrowding, but do not stop the latter until they have reached the extremity of the trellis, as the Fig, unlike many other kinds of fruit tree, keeps producing a succession as long as it continues growing. In some parts of the tree stopping is quite necessary to prevent the fruit from being too much shaded by the foliage, but stopping should not be practised after the turn of the summer or when the trees are weakened by forcing and unable to push young growths from the eye nearest the point at which the shoot has been stopped. Trees in late houses may now be well syringed and watered to help the crop along; ventilate freely to insure a firm, short-jointed growth, and close early with sun-heat to save firing through the night. Examine spring-struck cuttings, and shift them on as they require more pot room. If kept in or over bottom-heat with their heads near the glass, they may be got into 12-inch pots by the autumn, and strong enough to bear fruit next year.

Strawberries.—If these plants still occupy shelves in Peach houses and vineries, lose no time in getting them removed to safer quarters, and thoroughly cleanse the houses or the parts in which they are likely to have left the nucleus of a colony of spider before it has time to extend to the permanent and more valuable occupants, where it will do more mischief than the Strawberries are worth. If a hot-water pit, in which the plants can be placed near the glass, is available, this will be found the best place for their reception, as there they can be copiously syringed and shut up early with sun heat to swell the fruit, and the pots being less exposed to bright sun and draughts of air, feeding can be more effectually and economically carried on than when elevated on shelves in lofty houses. By this time the stock will have been reduced to the late kinds occupying 7-inch and 8-inch pots, and as these will now be making an abundance of foliage and throwing up their flower scapes, see that they have plenty of air and water, and syringe well when the pit is closed for the day. If the plants have not been disturbed since they were stored away in the autumn and space is available, a general turn over and partial replunging, giving the best more room by turning out the weakest to form a later batch by themselves, the crop will well repay the time and trouble expended upon them. Let the crocks be examined as the work proceeds, and correct any derangement that may have been caused by worms; also ram the soil well back to the sides of the pots to insure the even passage of water, and top-dress the surface with a mixture of rich loam and rotten manure. To secure extra fine fruit, thin off weak blossoms before they open, fertilis-

those left when ready, and tie up to light sticks when they begin to swell.

Hardy fruit.—Fruit trees on walls are apt to be attacked by red spider, as from their position the air round them is generally warm and dry, and the cracks and holes in the walls are favourite places for the red spider to shelter in. Therefore extra care should be taken to prevent them from being infested; this may best be effected by syringing the trees night and morning with plain water, directing the water particularly to the undersides of the leaves, so as, if possible, to wash off the spiders and their webs. If the trees be already attacked, adding soft soap and sulphur to the water will destroy them. Sulphur is one of the most efficient agents known for killing them: it will not, however, mix properly with water in its ordinary form, but should be treated according to the following recipe: Boil together in 4 gallons of water 1 pound of flowers of sulphur and 2 pounds of fresh lime, and add 1½ pounds of soft soap, and, before using, 3 gallons more of water; or mix 4 ounces of sulphate of lime with half that weight of soft soap, and, when well mixed, add 1 gallon of hot water. Use when cool enough to bear the hand in it. Any insecticide containing sulphur is useful. The walls should be well washed with some insecticide of this kind. Old walls in which the pointing is bad and the bricks full of nail holes, &c., are very difficult to keep free from red spider. They should be painted over with a strong solution of soot water mixed with clay to form a paint. To a gallon of this paint add 1 pound of flowers of sulphur and 2 ounces of soft soap. This mixture should be thoroughly rubbed with a brush into every crack and crevice of the walls, and if applied regularly every year would probably prevent the trees from being badly attacked. As red spiders pass the winter under some shelter, frequently choosing stones, rubbish, &c, near the roots of the trees, keeping the ground near the trees clean and well cultivated will tend greatly to diminish their numbers.

KITCHEN GARDEN.

Of Celery, seed for the last crop should be sown now. Early Broccoli, such as Veitch's Autumn Giant, good old Walcheren, and White Cape should, if not already done, be sown at once—under glass if possible. To sow seeds outside is not a good system; the young seedlings do not grow and flourish in the same manner as if raised under glass, and weakly, crippled plants are not the thing if success is a consideration. Defer sowing the later kinds until the 1st of May. Scarlet Runners we grow in miniature trenches, the same as Peas; the trenches should be taken out at once, well manured, and dug deeply, breaking the soil well as the work proceeds. We then put an inch deep of burnt refuse on the top of the broken soil, and wait until the second week in May: then with a cultivator we mix the ashes and the soil in the trenches, draw a shallow drill down the middle, and in this plant the Beans, in single rows, earthing them up, when large enough, until the ground is level before staking. This method of planting Scarlet Runners makes them to a great extent independent of dry, hot weather. Peas that are sufficiently grown should be staked after slightly earthing them up; and here we must remark that Peas are very much benefited by staking; it keeps that worst of all enemies—the surface wind—at bay. We consider wind far more dangerous than frost for outside Peas. Our earliest Pea, Ringleader, is showing flower, but we have Minimum in pod, grown in boxes under glass, no fire-heat being used. We are just finishing planting Potatoes, for which the land is in fine condition and the weather excellent; therefore, if these two important matters have anything to do with raising good crops, we venture to prophecy that success is certain. We have just begun to cut spring Cabbages; they are not large, but fairly solid, and good in flavour. Hicks' and Black-seeded Brown Cos Lettuces, both good winter varieties, we have been cutting for use all winter, and just now we have a very good supply. Hicks' Hardy is the best so far as colour goes. Tomatoes grow apace just now. Keep the side shoots thin, and supply them with water abundantly, but nothing more at present. When a good crop is well set, treat them to a little manure water, but not too much—1 quart of manure water to 3 galls. of clean soft water. French Beans should now be sown in small pots, and planted out under south walls or in warm corners for an early supply outside.

LONDON FLOWERS.

The Daisies that sprinkled the banks of the "Old Bourne" took their last peep at the blue sky years and years ago. They vanished altogether when the uncalled-for big "H" turned the streamlet into "Holborn." As to the sunset-tinted leaves that gave their name to Saffron Hill, their place is now otherwise occupied. In Ely Place the Strawberries no more display their white yellow-centred flowers; at Cherry Garden blossom is seen no longer; and in Windmill Street the whirling sails no longer fan a flowery mead. Yet some of our old London flowers are still left to us. The Marigold, the Sunflower, and many of their brethren still bid defiance to bricks and mortar and the black smoke. Of

The Marigold many have spoken with contempt, and have wondered why Gower and Chaucer wasted their pretty conceits over such a common flower. But if fidelity be a poetic virtue, the poets sang aright. The Marigold has never deserted the great city. Indeed, the question is not as to where it will grow, but where it will not grow. But a few years ago, in that space between Chancery Lane and Fetter Lane, which is now devoted to a school board building and a bare clearing, there were houses in a narrow court with little gardens in front. In these gardens, which might, for their lack of fresh air, have been drawing-room floors, Marigolds still blazed away behind the semi-rustic wooden fences. When Ben Jonson worked with trowel and hod on the houses near by, that family of Marigolds, it is no stretch of fancy to say, might have seen the sun set, and welcomed him in the morning. Each century brought fresh hardships, but the flowers remained, and when Rose and Honeysuckle had long since fled they lovingly stayed behind to gladden the eyes of the toil-worn workman. The Marigold will hold its own even in the yard of a gasworks; on the tiny scrap of earth the pointsman on the East London lines scrapes beside his hut, in spite of cinders, smoke, foul air, and ceaseless rattle and jolting, it still rears its head; it is not going too far to say that there is not a square of four acres in any part of the City where it is not growing somewhere or the other in the grimy soil. Another faithful flower to London, although it seems strange indeed that it should be so, is

The Lily of the Valley. That such a sweet-scented, dainty blossom should flourish amid chimney-pots and close, blackened walls is almost a miracle. Yet the "coy Lily of the Vale," which in some counties will pine away in spite of fresh breeze and sunshine and cleansing rain, will spread a lovely carpet over the cold, black clay of the City. In some back-yards that still abut on the North London and Great Eastern Railway arches there are patches of this Lily to be seen. Utterly neglected, with brickbats and other rubbish thrown upon them, the shy white blossom still peeps out, and is gathered by dirty fingers and stuck in phials and homely cups upon the mantelshelf. Why

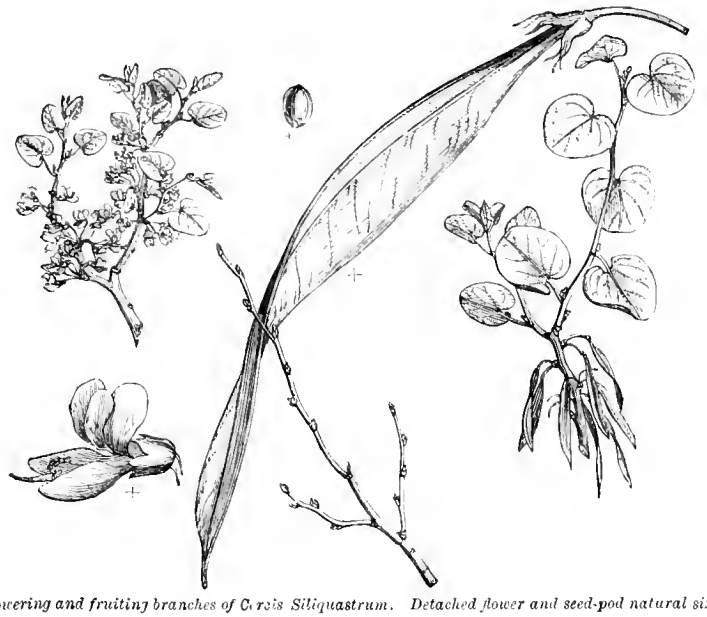
The Wild Clematis should flourish when the Honeysuckle will not is another London marvel.

Full grown leaves of Cercis Siliquastrum.

One would fancy that it must have departed with the long absent hedgerows; but, for all that, here it is in a grand bunch over the roof of the so-called summer-house. That summer-house is well known; it is a humble little shelter, at the end of a Shoreditch garden. On the roof is a wooden grenadier, who is twirled violently round by the wind, and who jerkily presents arms to the four corners of the earth; or, in default of the grenadier, there will be four indifferent models of a cutter, which chase each other round and round with ceaseless energy. Yet the Clematis seems to like it well enough, taking both cutters and warrior in good part. With equal cheerfulness it will grow over the top of a wall, on the roof of a washhouse, or even shade the lid of a black water-butt.

Our London Pride and Sweet William, too, will grow almost anywhere. The London Pride may be seen forming a straggling border, whence it looks up cheerfully at the House Leek perched upon the wall. The old pink Sweet William also will manage to struggle on if carefully guarded from cats and watered with due attention and regularity. Without these attentions the smoke will be too much for it, and every year it gets paler and paler in colour, until at last the crown of blossom is no richer in tone than the cheap and familiar Virginian Stock. For all this the Sweet William still remains a London favourite. There is a touching savour of quaintness in its very name that calls up memories of old

farm gardens, where the scent of the Sweet Brier mingles with that of the Rose, and Foxglove, and Phlox, and jasper Larkspur show their heads amidst Currant bushes and Raspberry canes. The mechanic's wife, busy with the Saturday's marketing, and for a moment casting her eyes over the costermonger's shallow of flowers, always looks kindly at the Sweet William, and, letting



Flowering and fruiting branches of Cercis Siliquastrum. Detached flower and seed-pod natural size.

her affection get the better of her judgment, buys a penny root for the back yard. To make a show the orange Lily can be depended on, and is to be found in many gardens in Kingsland, Dalston, Lambeth, and Vauxhall. It may be enclosed in acres of bricks and mortar, but it flourishes after a fashion.

Of creeping flowers, the Periwinkle is still one of the faithful. It is still the joy and pride of the London householder who can boast a yard of 12 feet or 16 feet square. It is always to be found on those little ornamental cairns which the Cockney gardener loves so well—a small heap of crocks, burrs, bits of coloured glass, the whole surmounted by a dilapidated bust of some celebrity. Set in the crannies is the Periwinkle, and there when well watered and undisturbed it flourishes and puts forth its starry blue blossoms in spite of smoke-laden air. A rival to the Periwinkle is the golden Stonecrop, a thorough-going old London flower that resists the spell of the builder and the factory. It, too, has a place on the artistic cairn. It is also occasionally planted on the roof of the humble rabbit-hutch in which the poor feeble Lettuce-nibblers have but little more air than they would find in a kitchen oven. A workman's London garden, with its rabbit-hutch, pigeon-house slung on wall, tiny fowl-run, flower cairn, and Clematis-covered summer-house is a treasure for a man to be proud of.

Window gardening, too, comes in for its share of attention. Outside many a window in the Gray's Inn Road district can be seen a miniature fence and five-bar gate, or else a model of a brick wall, with a tiny lamp-post at each end. Behind these shelters is a show of flowers. Years ago the Polyanthus and the claret-edged Auricula were plentiful, but now they are supplanted by the Fuchsia and Geranium. The Auricula, too, bad, and has, the merit of being a cheap flower that the costermonger seldom leaves absent from his barrow. If not a flower proper, the Southernwood, or Old Man, can still boast an existence even in the closest quarters. Honest London folk seem to have quite a passion for inhaling the curious and far from altogether pleasant odour that it throws off. But the Southernwood will grow almost anywhere, and the same may be said of the purple Flags, which will flourish even in indifferent air. So much for the back yards. But the Londoner is not always dependent on the well-like patch of ground behind his tenement. On many

A London roof-top there is a tiny garden treated trimly enough to please a Chinese mandarin. There, in a freer air, where, despite the adjacent chimney stacks, the gardener arranges his boxes filled with earth. In these the Sweet Pea and the Canary Flower are fondly reared. Oddly enough, too, on this lofty perch the violet-flowered Tobacco and the great Indian Maize can be seen growing side by side, and here pink Balsams and somewhat pallid double Stocks thrive above the turmoil of the streets. The Nasturtium, too, with more breathing room, comes out in good strong colour, and at times the yellow and violet Pansy stare at their proud proprietor. Yet the roof-top is not the garden proper after all, so let us descend there once more. And now, for it is a true London flower, let us glance at the Lilac. True, its bunches of blossom form but a poor show. Yet the Cockney loves the Lilac, and will never banish it from his few feet of earth. Scant and pale are its flowers; yet they are flowers all the same, and by a great stretch of the imagination some idea, at least, of a scent can be discovered. So is it, too, with the Laburnum; we are only half a mile from the Bank, yet it blooms nevertheless. It blooms with thin, cheese-coloured flowers; its branches are as black as soot; its leaves are like boiled greens; but still it does bloom, and so should be respected. Even now, too, the Russian Currant will strive to do something, although the blacks from near-by chimneys throw a sable pall on all around. In the City air the tiny Virginian Stock still lives; so, too, does the Thrift and Candytuft—good old plants that almost seem to be a part of England's history, so much are they a part of its unwritten poetry. London, then, apart from its private squares and public gardens, is not without its flowers that will still blossom even in the dingiest street, court, or alley.—*Standard.*

Foliage, flowers, and seed-pods of Cercis canadensis. Detached flower natural size.

TREES AND SHRUBS.

THE GENUS CERCIS.

This is one of the very few genera hardy enough to represent in shrubberies and pleasure grounds in this country the large and essentially tropical sub-order Cæsalpiniæ of the enormous family Leguminosæ. Four species are known, all of which are in cultivation. None, with the exception of the common European species, are by any means frequently met with; the difficulty experienced in propagating them may probably account to a great extent for their rarity. It is somewhat strange, however, that so strikingly distinct and handsome a shrub as C. Siliquastrum itself should have been so much neglected, and, indeed, nearly forgotten, by the great majority of planters. Perhaps the publication of details of remarkable specimens of this fine old flowering tree may call the attention of tree lovers to its merits, and so insure its being again taken into public favour. If those who possessed large specimens growing in different parts of the country would send measurements, together with information as to soil, position, age of tree, &c., to the editor of The Garden, valuable data would be available for general instruction and guidance.

CERCIS SILIQUASTRUM * (the Red Bud, or Judas Tree).—The accompanying figures render unnecessary any lengthy description of the botanical characteristics of this species. The purplish pink flowers are produced in great profusion on the twigs and branches, and even spring from the trunk itself, beginning to open before the bluish green kidney-shaped glabrous leaves unfold. As, however, the flowering season lasts some time—it commences the latter end of April or beginning of May—the young leaves have attained some size before the blossoms have all vanished. These are succeeded by thin flat pods, which are often a deep red-brown colour, and impart an especially conspicuous appearance to the tree after the leaves have fallen in autumn. Under favourable conditions under cultivation it will attain a height of 30 feet or more, and old trees often assume very picturesque forms. In some "Observations on . . plants growing in the neighbourhood of Constantinople, seeds of which were collected and transmitted to the Horticultural Society of London" in 1824, the Rev. Robert Walsh tells us that the Judas Tree is common along the shores of the Bosphorus and the sides of Mount Libanus. "It is very beautiful in all its stages. Very early in spring flowers of a bright pale red burst out before any leaf appears, not only from every part of the branches, but from the trunk, piercing the thick strong bark down to the root in a very remarkable manner, and it is for this reason called Red Bud. These buds are gathered and used with other raw vegetables by the Greeks and Turks in salads, to which they give an agreeable colour and taste. As it is a very beautiful tree in all its stages, it is everywhere planted, and in spring gives a ruddy hue to the shores of the Bosphorus. It is hardy and bears well the winter of this climate, which, so near the Black Sea, is sometimes very severe."

The Judas Tree was cultivated by Gerard in this country in 1596, and that author, wishing to correct the then popular belief that it was an Elder on which the arch-traitor hanged himself, declared that such was not the case, and gave Cercis as the one "whereon Judas did hange himselfe." Neither legend is worth the trouble of sifting Some of the botanical publications of about 300 years ago contain more or less roughly executed drawings of the Judas Tree, and, in addition, like the "Herbario Nuovo," a folio volume by Castor Durante, published at Rome in 1585, represent the figure of Judas suspended from the branches.

The following account by the late Mr. George Berry of a fine old specimen is copied from THE GARDEN, Vol. XIII., p. 155: "Permit me to state some particulars of the oldest and largest Judas Tree with which I am acquainted, probably the largest in England. It is growing at Bath, on the premises of an ancient chapel, called St. Mary Magdalene. This remarkable tree I should guess to be not less than 300 years old (the chapel dates several centuries back). It was probably planted, in the first place, as a wall plant against the gable end of the chapel, for the base of its trunk is close to the wall; the stem and head have been gradually drawn away from the building, and are now in a leaning position, being supported by one of the arms resting on the boundary wall adjoining the street. The stem girths 6 feet 1 inch at half-way up to the crown; at 10 feet up its head had evidently been cut off some years ago in a rough and unworkmanlike fashion. Notwithstanding the mutilation, however, three or four upright branches have shot out of the crown, and are now from 12 feet to 15 feet high. This specimen, although so old, still forms an attractive object every spring when covered with its little clusters of Pea-shaped, gay-coloured flowers." To Mr. Bowell, gardener to Lady Parker, I am indebted for the measurements of some fine trees in the gardens at Stawell House, Richmond. Mr. Bowell could not, unfortunately, ascertain the age of these, but the largest is 34 feet high, the stem is 6 feet, and girths 54 inches at 1 foot from the ground, the circumference continuing about the same up to where the branches are given off. Another tree is 24 feet high with a stem about the same in height and girth as that just mentioned. The wood of the Judas Tree is very hard, and is variously marked with black, green, and yellow on a grey ground; it is susceptible of a high polish. In a wild state C Siliquastrum is found throughout Southern Europe, the Levant, to Afghanistan. It prefers a rich, deep, free, sandy soil, and only attains a large size in somewhat sheltered situations.

The following varieties are the only ones worth mentioning: Var. alba: This only differs from the type in having white flowers; it is rare in cultivation. Var. carnea: The flowers of this variety are flesh-coloured, otherwise it agrees with the common red-flowered form. Var. variegata: The foliage of this is variously splashed and marked with creamy white; the variegation, however, does not appear to be of a very constant character.

CERCIS CANADENSIS.* — The same English names are given to this New World species that belong to the European one, viz., Judas Tree and Red Bud. In a wild state this rarely attains more than 30 feet in height, and is found in rich soil from New York, south to Florida and west to Minnesota, Wyoming, Louisiana, and the Indian territory. It is readily distinguished from C. Siliquastrum by its heart-shaped, acuminate leaves, which are hairy in the axils of the veins beneath and by the longer-stalked smaller pale rose-coloured flowers. An American writer says this makes "a pleasing object in early spring, before any of the forest trees have put forth their leaves. It never rises in the best soil to any considerable elevation, but when growing singly its branches extend horizontally to a great extent in proportion to its height. The flowers generally appear by April 12, and are succeeded by a great number of pods borne on short peduncles, and the tree becomes clothed towards the 1st of May with large heart-shaped leaves of a rich dark green." In some parts of the continent, where the winters are found to be too severe for C. Siliquastrum, this succeeds, so it seems worth while to plant it in preference to that in the north of England, &c., where the protection of a wall is sometimes needed to secure the well-being of the South European species.

CERCIS OCCIDENTALIS† principally differs from the last-named species in its obtuse subreniform leaves. It is a native of the Pacific coast, being found in California, Mount Shasta, and Mendocino County, southward along the foothills of the Sierras to San Diego, but always as a shrub, forming thickets, and never becoming a tree.

CERCIS CHINENSIS‡—This species was introduced by Siebold from Japan many years ago. It is, however, not considered to be a true native of that country, as it has never been seen anywhere except in gardens; about the temples it is very generally planted. It is supposed to have been introduced to Japan from China, where it has been met with in a wild state. In Belgium it has proved thoroughly hardy and in this country it seems to grow as freely as the common Judas Tree. The foliage is cordate, acuminate, glabrous, and measures from 4½ in. to 6 in. in length by 4 in. to 5 in. in width. The flowers, purplish in colour, are thickly clustered, and are nearly the same size as those of the common European Judas Tree.

GEORGE NICHOLSON.

Royal Gardens, Kew.

* CERCIS SILIQUASTRUM, Linnæus, "Species Plantarum," ed. i., 374; Sibthorp, "Flora Græca," t. 367; Loudon, "Arboretum et Fruticetum Britannicum," vol. ii., p. 657; Loudon, "Encyclopædia of Trees and Shrubs," p. 257; Koch, "Dendrologie," erst. theil, s. 12.

* CERCIS CANADENSIS, Linnæus, "Species Plantarum," ed. i., p. 374; Loudon, "Arboretum et Fruticetum Britannicum," vol. ii., p. 659; Loudon, "Encyclopædia of Trees and Shrubs," p. 258; Gray, "Manual of the Botany of the Northern United States," ed. v., p. 144; Koch, "Dendrologie," erst. theil, s. 14.

† CERCIS OCCIDENTALIS, Torrey; Gray in "Plantæ Lindheimerianæ," 177 (excluding variety); Torrey and Gray, "Pacific Railway Report," ii., 163; Brewer and Watson, "Botany of California," i., 160. C. CALIFORNICA, Torrey; Bentham, "Plantæ Hartwegianæ," 361.

‡ CERCIS CHINENSIS, Bunge; Koch, "Dendrologie," erst. theil s. 14; C. japonica, Siebold in "Flore des Serres," viii., tab. 849.

FRUIT TREES IN PLEASURE GROUNDS.

THERE are few more beautiful objects just now than fruit trees, yet, strange to say, they are, as a rule, banished from the ornamental parts of our gardens; even the orchard on Grass, frequently the most enjoyable spot in the domain, is hidden by some screen from the best portion of the grounds, as if any tree that produced useful fruit must necessarily be objectionable. Nevertheless, varieties of the same family that do not produce fruit, such as Almonds, Crabs, double-flowered Peaches, &c, are placed high in the list of flowering trees and shrubs for lawns and shrubberies, though not a whit more ornamental than fruit trees in flower, to say nothing of their beautiful fruits. Occasionally one comes across some fine old specimen that has been left where an old orchard has once stood, or where some seedling Cherry, Apple, or Pear has been allowed to grow to maturity; but what I refer to is trees allowed to grow at will, as some large unpruned orchard trees do in Kent, or cider trees in Devon or Somerset; if shorn or trained into shape, beauty of form becomes lost. Then there is the highly ornamental foliage of the Fig and the Mulberry, which, when allowed to grow into large spreading trees, are able to hold their own with any of the orthodox subjects employed in the decoration of dressed grounds. In this locality the Fig is one of the most ornamental trees we have, its foliage withstanding rough gales better than almost that of any other tree, while the crops of fine fruits which it produces as a standard is surprising when compared with the produce of trees on walls. The Mulberry, too, when allowed plenty of space to form a large tree, spreads out broad and high, and the outer branches droop down in a most graceful manner. There is no better method of growing Mulberries than having them on the Grass and allowing the fruit to drop naturally. As an ornamental tree in parks and pleasure grounds, the Mulberry is surpassed by but few. It may be urged that the orchard is the proper place for fruit-bearing trees, and so it is if all could have orchards on Grass; but why those who only have a limited area should grow useless cumberers of the soil on their lawns not in any respect more ornamental than fruit trees passes one's comprehension. Where all are so lovely it would be difficult to select the most beautiful. The drooping branches of the culinary sorts of Cherries, such as the Kentish and Morello, are very graceful, and scarcely less so are the large-flowered Apples, such as Hambledon Deux Ans. In fact, it is to its fruit trees that Kent owes the title of "the garden of England," and I feel sure that any who may be induced to plant on their lawns and in their shrubberies fruit trees as ornamental subjects will be well satisfied with the results.

JAMES GROOM.

Gosport, Hants.

Propagating double Bouvardias.—When the double white Bouvardia Alfred Neuner was first sent out, a good deal of correspondence ensued relative to its propagation, the view maintained by some being that cuttings of the leading shoots only produced double flowers, while those taken from the side branches reverted to the single form. That this Bouvardia did, especially during the first season, produce a good many single flowers is well known; but I could find no difference in this respect between those struck from the principal shoots and those struck from the side ones. The double-flowered variety having originated as a sport from the single kind, there was probably during its earlier stages a tendency to revert to the original form; but as time wore on and the double character got better fixed, cases of reversion became rarer. During last season, out of some thousands which I propagated there were but very few that produced single flowers, while before that the number was much greater, though, as just stated, I could find no difference in that respect amongst cuttings taken from any part of the plant except the roots; some few hundreds propagated by means of root cuttings

turned out to be at least one-half single. I have not, however, propagated any by this latter method since the first season; therefore I cannot say whether the result would be the same now that the double-flowered character seems to be more thoroughly fixed than at that time.—Alpha.

Aucuba berries.—These are larger than those of the common Holly, and give this useful Evergreen a gay appearance. It should be planted in mixed shrubberies, or in beds in the American garden. In order to secure a crop of berries male plants must be planted amongst the females, or rather on the windward side of them, in order that the breeze may distribute the pollen. At Otter-shaw Park are some Aucubas perfectly laden just now with extra large-sized berries, and they have borne equally heavy crops for several years past. At the same place may also be noticed some fine healthy plants of Andromeda floribunda covered with beautiful waxy white blossoms.—Wm. Christison.

Evergreen shrubs.—"Oxon" will find the following evergreen shrubs well worth adding to his collection, viz.: Eugenia apiculata, a plant which bears Myrtle-like blossoms, that last from July to October, and are succeeded by glossy black berries; it is quite hardy, but requires sunshine. Desfontainea spinosa, a Holly-leaved shrub, with showy red and yellow flowers. Mitraria coccinea, with scarlet flowers. Phygelius capensis, with dark red flowers, suitable for a wall. Abelia floribunda, crimson. Veronica Hulkeana, pale lilac. Billardiera longiflora, a small plant, with beautiful blue berries.—C. La Touche, *Clyde Road, Dublin.*

Flowering shrubs.—The list furnished by "Oxon" (p. 304) is a very interesting one. It contains, however, many plants which are not usually catalogued under the heading of flowering shrubs, since their blooms are either green or very inconspicuous. As he admits into it Aucuba and Bamboo, he would do well to add to his list Skimmia oblata and Griselinia littoralis. I wonder he has not included Gaultheria procumbens and G. Shallon, Menziesia polyphylla, Ericas in variety, and other members of the great Heath tribe. His numbers of species of the genera Rubus, Berberis, Spiræa, and Robinia might, I think, be added to considerably if he were to look through the Coombe Wood Nursery grounds or any other good collection. I do not find in his list Choisya ternata, Pittosporum Tobira, Escallonia rubra, or any of the numerous species of Pernettya; but I notice that Calycanthus præcox and Chimonanthus fragrans are both entered as if they were different plants.—W. T., *Tonbridge.*

—— I would add the following shrubs to "Oxon's" list (p. 304), viz, Amelanchier botryapium, Andromeda japonica, Choisya ternata, Desmodium penduliflorum, Escallonia Philippiana, Hamamelis arborea, Heaths in variety, Kerria japonica and its varieties, Ledum palustre and thymifolium, Mespilus grandiflora, Olearia Haasti, Rubus spectabilis, pink and white double-flowered varieties of Rubus fruticosus, Skimmia oblata, Spiræa Lindleyana, Ulex europæa fl.-pl. and hispanica, Zenobia speciosa pulverulenta, and Solanum crispum.—Alpha.

SHORT NOTES.—TREES AND SHRUBS.

Berberis stenophylla.—This is a handsome plant whether laden with fruit in autumn or clothed with golden blossoms in spring; unfortunately the fruiting seems to be the exception, as, in general, fertilisation does not seem to take place very readily, though in some instances the berries are borne in great profusion.—Alpha.

Evergreen hedges for sea coasts.—At the December meeting of the Massachusetts Horticultural Society, Mr. Edward Hersey remarked that nothing in the way of evergreen hedges stands the salt atmosphere and keen sea breezes better than the Red Cedar.

Variegated Elder.—In the public gardens at Brussels this and the golden-leaved variety are used with the happiest effect on the margins of shrubberies. Equally interesting, too, are some fine specimens of a variegated form of Acer platanoides, known in Belgian and German gardens as A. platanoides Leopoldi.—Louis Kropatsch, *Laxenburg.*

Kitchen Garden.

KITCHEN GARDEN SCRAPERS.

In all gardens in which order and cleanliness are observed scrapers must be constantly in use. They are rarely required in pleasure grounds, but they are quite indispensable in the kitchen garden, as in this department the soil is constantly clinging to the workmen's feet, and if not scraped off before going elsewhere gravel and other clean pathways are soon blemished. Spades and forks form good scrapers, but there is much work to be done amongst vegetable crops in which no digging or forking is required, and yet the feet should be cleaned before coming on to the walks. In some kitchen gardens scrapers are fixed in one or more corners of the large quarters; therefore, anyone working in the centre of such pieces of ground has to walk to the scraper before the feet can be cleaned, and this journey, especially when the soil is soft and sticky, is by no means a comfortable one. For this reason fixed scrapers are objectionable, and I would like to offer a substitute for them. In the accompany illustration we have a scraper which has taken it place amongst the tools here for some years past and it answers all purposes for which it is needed admirably. As will be seen, its bottom part is like that of any ordinary scraper, but one side of the iron is made with a prong or socket into which a wooden handle is inserted. This handle may be 4 feet or 5 feet in length and about the same thickness as a hoe or rake handle. Instead of having scrapers of this kind fixed, they are taken into the tool shed along with other implements, and whenever anything is being done on the soil likely to make the feet muddy, one or more of these scrapers are taken out and used as required. We have half a dozen or more of them and find them most useful and convenient. A movable scraper without a handle is always liable to get overlooked, and when dirty many workmen would rather break a commandment than lift it and take it where it is wanted; when, however, its presence is made conspicuous by the upstanding handle, and when it can be readily shifted by means of this appendage, there is no difficulty in making it a companion to the rake, hoe, or vegetable basket. J. Muir.

Margam.

Portable kitchen garden scraper.

5168.—**Mice *v.* Peas and Beans.**—Mice may be kept from Peas and Beans as follows: Chop up Whins (Gorse) in small lengths, say an inch, and put them on the top of the Peas and Beans when sown, then cover all with the soil. If Whins cannot be got, use Thorns or Gooseberry prunings, or Brambles chopped up in the same way. Red lead is often used for the same purpose. As to traps, the figure 4 is as good as any.—Y. B. Watson, *Sella Park.*

CELERY TRENCHES.

These are of different sorts and sizes. Some cultivators like wide trenches, others narrow ones. Some make them deep, others shallow. Wide trenches are the most economical, so far as labour and land are concerned, as having half-a-dozen rows or more in one trench is a wholesale way of growing Celery, but I have always found the best Celery to be produced in single, or not more than a two-rowed trench. When grown in single rows it can be earthed up to perfection, a great point in its favour. For salading especially, quality stands above everything, and the mode of culture which will secure this in the greatest degree is the one to follow; therefore, I advocate its growth in single rows, or at most in double rows. In making the trenches for single rows, they should be about 15 inches in width, and a space of 18 inches should be left between each trench. In two-rowed trenches the space must be increased a little; for these we make the trenches from 20 inches to 2 feet wide, leaving about the same width between them. In making them wider still, 6 inches should be allowed for every additional row, and they may go on until they are 4 feet, 5 feet, or 6 feet wide. The depth varies sometimes, but 9 inches is deep enough to meet all requirements. We have had them less and more, but gained nothing either one way or the other. In some cases they are not thrown up until the plants are ready for putting into them, but we always make ours early in April, and this gives us plenty of time to take a crop of Turnips, Spinach, or Lettuce off the tops of the ridges before the Celery requires to be earthed up. The ridges should be put up straight and firm enough to stand until broken down for earthing up the Celery, but more work than this need never be bestowed on them. J. Muir.

TOMATOES IN THE OPEN AIR.

Everyone now knows that Tomatoes can easily be produced in almost any kind of glass structure, but few seem to succeed with them in the open air. "It is useless trying them out of doors; they will not do;" is the general expression. But have they really been tried properly? I think not, or I am sure the verdict would be different. I could name scores of gardens in districts as genial as this one, and here we get large quantities of fine Tomatoes from our open-air plants every autumn. Had the plants been allowed their own way, perhaps we would never have seen a fruit, and certainly not a ripe one; but this they do not have, or they would develop nothing but quantities of stems and leaves This is what all Tomato plants are most inclined to do, and, if not well attended to, they soon run wild, and the fruits are few and far between. Some years ago many fruit ripened on plants growing in the open border; they were trained to stakes like Raspberries and kept very closely pinched in, but the crops are heavier on plants trained on walls facing the south or east. From these latter we have in exceptionally favourable seasons cut ripe fruit in July, and in all cases in August, and throughout September and October they are abundant. When properly managed they are far more prolific in the open air than under glass. They begin to bloom and fruit almost at the ground, and the stems throw out bunches of flowers every few inches and yield very fine crops. On some of our clusters we have counted as many as twenty, and where they were thinned out to single fruits some have weighed 14 ounces each. The flavour, too, of those grown and ripened during the harvest time is much superior to that of those ripened under glass, especially in a close atmosphere. In short, open-air Tomatoes are so good and easily produced, that I would advise all who have a wall with any vacant spots on it to fill them up with this esculent. During May is the best time to plant. They may be grown and hardened off along with the bedding Pelargoniums and be planted out at the same time. Many who know them to be gross feeders think they are doing right in giving them a rich mixture to root into; but that is a mistake. True, they will grow enor-

mously in rich soil, but enormous growth is not wanted; quite the contrary. The harder and dwarfer the shoots are the better. When grown in poor soil they flower profusely, and become most prolific. As soon as plenty of fruits have been formed—as form they undoubtedly will on all plants grown in nothing but pure loam—supply them with copious doses of strong liquid manure. Pick off all young shoots as they form, and a heavy crop will be the result. Wherever we have a bare strip on any part of our walls—and these occur often between trees—we fork in a few shovelfuls of chopped-up turf, and in this plant Tomatoes. Many of the plants are pruned in to one stem only, and none of them are allowed to have more than two: in fact, it is cordons and not bushes on which we depend for a profitable crop, and this is what all should try. When in poor soil they do not make side shoots rapidly, but they should be looked over frequently to take these off and to nail up the main stem. Of varieties which succeed out of-doors we may make special mention of the Glamorgan, Reading Perfection, and Trentham Fillbasket.

CAMBRIAN.

INDOOR GARDEN.

SHADING PLANT HOUSES.

NOTWITHSTANDING all that Mr. Cornhill has said in favour of lath blinds for shading plant houses, I cannot agree with him that they are the best that can be used. On the score of durability I grant that they may be the best, but whether fixed to the roof or attached to rollers, I consider that they would make the house too dark for the healthy growth of the plants. According to my experience, the lighter in colour and texture the shading material is, the better for the purpose. I can understand putting glass roofs on houses to secure light, but, after having done so, I cannot understand covering them with a dark material for the purpose of securing shade, whether it be put on as movable or permanent shading. The value of a light material is demonstrated by the frequency with which lime or whitening is em-

Cercis Siliquastrum. A young tree 11 *feet high.* *(See p. 346.)*

ployed by numbers of plant growers. I do not, however, mean to say that such shadings are preferable to all others, but they have other advantages besides that of being the cheapest. When the whitewash is laid on in a careful manner, it does not exclude so much light as a darker material does; but there are other considerations to be studied besides the character of the shading. I allude principally to the form and style of house to be dealt with. A structure with high front or side lights will bear a darker roof shade than one in which the front lights are low, because the high front or side lights will admit a large amount of light that will be diffused a good way through the body of the house. Then, again, the higher the house the less shade in most cases is necessary. Where there is a large amount of air between the roof and the plants the rays of light are divested of some of their force by having to pass through it. These are considerations that should influence everyone who is of necessity obliged to resort to shading. Another point of importance is to study the requirements of the various classes of plants under one's care. The capacity of different plants to endure the influence of sunshine varies a good deal; the depth of shade so necessary for Camellias and Ferns, for example, would be certain destruction to Cape Heaths and many other hard-wooded plants. Even in the case of ornamental foliaged plants the cultivator must be prepared to exercise observations as to their capacity to endure the sun, for the body of light required to successfully bring up the colours on Crotons would seriously injure the succulent leaves of Caladiums; these are all points that require consideration before shading is provided. As a rule we shade too much. We shall understand this the better if we stop for a moment and just ask ourselves the question, How many plants do we cultivate that in their natural homes grow entirely in shade? These, it will be found, are but very few. At the same time I do not mean to say that shading can be altogether dispensed with; the artificial conditions under which we grow plants render it necessary, but not to the extent of putting up a fixed shading or using a material that will exclude too much light.

THE MATERIALS I like best for shading are tiffany or hexagon netting, and I like these to be quite white. Tiffany is best for such plants as only require a thin shade: for instance, for stove plants, such as Caladiums and Eucharises, we use netting, and as we cannot get tiffany or netting fixed to rollers, we have adopted another plan for all houses where we can conveniently reach the roof so as to make the shading movable. The material is cut into lengths reaching the whole length of the house, or such part of it as requires to be shaded; the width is obtained by sewing a sufficient number of pieces together. When this is done the whole piece is stretched out, and each end is tacked to a piece of board an inch thick and 7 inches wide. The material being firmly tacked to one edge of the board, we have only to turn over the boards at each end and it is gathered up tightly round them as they meet in the centre. The shading is then ready for use. It has only to be taken to where it is wanted, laid on the roof of the house, and the boards unfolded, leaving the material on the glass. By this simple means any part or the whole of the roof may be shaded by exercising sufficient care in placing the boards on the glass and carefully unfolding them. They might be cut 9 feet or 10 feet long, or to reduce their weight there is no objection to their width being an inch or two less. The weight of the boards is of itself sufficient for lengths of from 12 feet to 20 feet to keep the material in its place. In the case of longer lengths of shading being required it is a simple matter to weight it sufficiently to keep it in its place during windy weather.

SHADING TOO MUCH consists in putting on the shading in the morning and leaving it on the remaining part of the day whether the sun shines all day or not. I am prepared to grant that this is done more from want of thought than from any particular desire to neglect matters, but the fact remains the same—that people generally pay more attention to putting on shading than they do to taking it off. Most people who have a large charge know but too well what would be the result of trusting matters relating to shading to inexperienced hands. They quickly comprehend the necessity of putting it on, but are slow to recognise the possibility of shading too much. I must not, however, forget that in large gardens especially the number of subjects to be dealt with is considerable, and, what is more important, the conditions of many things require altering to suit their various stages of growth. For instance, a batch of succulent cuttings will require eight or ten hours' shading in the middle of summer, and this treatment must be continued until they have formed roots. After that the time of shading should be gradually reduced until they can bear exposure to the sun more or less according to the character of the subjects dealt with. In the case of Cucumbers growing in pits or frames too

Cercis Siliquastrum Full grown tree at Syon 24 *ft. high.* *(See p. 346.)*

much shading is a great evil, as if continued for any length of time it makes them weak, and induces them to collapse altogether. Again, weather conditions ought to influence every cultivator in the use of shading. According to my observation, shading is never more necessary than when we get a sudden outburst of strong sunshine after we have had four or five dull days. Every observant cultivator will have noticed how distressed even the most common plants are under such conditions. It is then that earlier and later shading is most required, and when it will prove a benefit to most plants growing under glass.

J. C. C.

PRIMULA SIEBOLDI AND ITS VARIETIES.

THE different varieties of Primula Sieboldi are quite hardy, provided they are not allowed to become too wet in winter, but unless they are planted in a sheltered nook the blossoms are often injured by strong winds and heavy rains. We therefore grow them under glass and employ them largely at this season for the embellishment of the conservatory. There are now several very distinct varieties of this Primula, enough, in fact, to form a very attractive group, or, if need be, a series of groups. In some the edges of the petals are quite smooth, while in others they are prettily fringed, and the blossoms vary in colour from pure white to purple and red, all the different intermediate shades being represented. We grow ours entirely in pots or pans, the potting being performed in the winter before they start into growth. At that time the plants are turned out of their pots, the soil is shaken entirely from the roots, and then it is possible to separate the crowns that are likely to flower from those that will not. Some of the plump crowns we pot singly in 4-inch pots, while others are put five or six together in 6-inch pots, a few of the most plentiful being also grouped in large pans, as from their surface-rooting character a great depth of soil is not required. The soil which we use is two-thirds good fibrous loam to one of leaf mould and a little sand. Small crowns that will not flower during the ensuing season are put into store pots, and with attention most of them will be strong enough to bloom next year. After potting, the plants are placed in a cold frame and plenty of air is given them during fine weather, the result being good sturdy growth and well-developed foliage. They are allowed to remain in this frame till the flower buds commence to open, when the whole of them are removed to the conservatory, where for about a month they are the admiration of everybody. No heat or forcing of

any kind is necessary; indeed, they do best grown only in cold frames.

After flowering we plunge them out of doors in a cool sheltered spot, where they are kept properly supplied with water; there they are allowed to remain till divided, unless in the event of very heavy rains, when some slight shelter should be accorded them When grown in pots this Primula gives more satisfaction when divided every year than when allowed to remain undisturbed. If permitted to remain a couple of years in the same pot all the strongest crowns will be around the edge, as the rhizomes quickly push away from the centre, seeking, as it were, for a change of food. When planted in a suitable spot in the open ground this habit can be better observed, as the roots are not confined to a limited area. These Primulas may also be grown entirely on the planting-out system, and potted up for flowering in the same way as are Lilies of the Valley and similar subjects; but our situation being very hot and dry, they succeed best with us in pots. A few of the best kinds are alba grandiflora, white; alba cœrulea, white suffused with a bluish tinge; clarkiæflora, deep mageota-rose, prettily fringed; Hermia, rosy lilac; laciniata, bright purplish red, fringed; lilacina marginata, white, edged with lilac; Pink Beauty, interior blush, outside bright pink, fringed; purparea, pale purple; viocæflora, violet; and Ophelia, lavender.

The propagation of these Primulas is very easy; when dividing them, each crown, however small, will form a separate plant and quickly attain a flowering size; but there is yet another way by which they can be increased in far greater numbers than by division alone, and that is by cuttings made of the roots. The latter can be taken off when potting without injuring the plants if judiciously done; we then cut them up into pieces about ao inch long, and dibble them thickly into well-drained pots of sandy soil; they are inserted in a perpendicular manner, and at such a depth that the upper portion is just below the surface of the soil. When inserted, they are placed in a cold frame, kept close and moderately moist, when young leaves will in the spring commence to make their appearance, as from the upper part of each root one or more buds are developed. These grow away quickly, and, when large enough, should be potted off; by so doing they will form serviceable little plants the first year, and after another season's growth will be large enough to flower. Seed is seldom produced; therefore it is not available as a means of propagation, but its place is well supplied by cutting up the roots. H. P.

KEW REPORT FOR 1882.

The issue of this report almost a year and a half after the time when it might have been expected is, to say the least of it, highly unsatisfactory, and a matter admitting of no excuse considering the large staff of officers connected with the gardens well able to execute such work. The report shows that the number of visitors to Kew in ten years has almost doubled, the figures for 1873 being 683,870, whilst those for 1882 reached 1,244,167. Amongst improvements the greatest is unquestionably the rockery, of which an interesting account is given, along with some critical remarks on the style of garden which would be most suitable for the cultivation of choice alpine and herbaceous plants. "As the rocks were built up," says the report, "care was taken to leave between them deep pocketings for the reception of the plants. The pockets were filled with loam mixed with leaf-mould, and in this the majority of the plants appear to thrive. The principle of a rock garden is to imitate the conditions of growth of deep-rooted plants. Almost all sub-alpines are of this character; the distance to which their roots extend makes them to a great extent independent of extremes of temperature, and also of drought. They are all, however, intolerant of standing moisture, and flourish best on sloping broken ground, from which water readily flows off and does not rest near the collar of the plant and its dormant winter buds. Rock fragments appear to be congenial to the development of roots which follow their surfaces; they keep also no doubt the temperature more equable than soil, and yield a more uniform and constant supply of moisture." The arrangement is not perhaps so imposing in appearance as some rock gardens with which we are acquainted, but it is one which affords the necessary conditions for the growth and protection of the plants; and where so many of these have to be provided for in such a place as Kew, it will be obvious that too much stone would occupy more space than could be afforded. We should like to see the mound on which Box is planted made more of by covering it with shrubs or plants of more striking appearance. The small corner at present devoted to bog plants ought also to be enlarged and improved.

Considerable attention has, we observe, been and continues to be given to the improvement of the arboretum by judicious thinning and rearrangement, with a view to facilitating study. The soil in the greater part of the gardens is unsuitable for many of the choicest trees and shrubs, but, notwithstanding this drawback, much progress is being made by means of renewing it wherever necessary, so that, although done at considerable outlay, we may hope in time to see an improvement both in the health of the trees and in their arrangement as regards landscape effect. That the latter is receiving increased attention at Kew, the parterre or Italian garden and the American garden clearly show, whilst over the whole of the garden the arrangement of the beds and avenues has been much altered and improved. In the work of introducing into our colonies plants of commercial value Kew continues to play an important part, and to this matter a large portion of the report is devoted. The lectures to the young men in the garden continue to yield satisfactory results. Chemistry and elementary botany are the subjects principally taught, but practical horticulture should be added, the majority of the young gardeners at Kew being doubtless likely to have work of that kind to deal with, and to them the life-history, cultivation, and propagation of plants would be of the first importance. Much of this is probably learned in the routine of their daily work, but a great deal more might be done in the higher art of horticulture by lectures from well-qualified teachers.

The supplementary list of cultivated plants which during recent years has accompanied the annual report is this year devoted to Palms, of which Kew possesses 420 kinds. The value of this list cannot be over-estimated, as by it we may now hope to get the nomenclature of garden Palms into something like order.

QUESTIONS.

5187.—**Quince stocks.**—Will any sort of Quince be suitable for stocks for grafting Pears on, to be grown as dwarfs? How can the stocks be propagated?—East Anglia.

5188.—**Figs.**—Will any reader of The Garden tell me if he has ever tried Rivers' plan of growing Fig trees in open quarters by lifting them in October and placing them in a cellar? I have no house in which I can spare room for them, and no wall, but I am anxious to grow some.—East Anglia.

5189.—**Rhynchospermum jasminoides.**—Will someone kindly furnish answers to the following questions—viz.: 1. What is the best time for taking off cuttings of this plant, and should they be old wood? 2. What sort of soil do they succeed best in? 3. If bottom-heat is needed, how many degrees should it be?—G. F. D.

5190.—**Green Primroses.**—Can anyone tell me why the old Primroses known as Jacks-in-the-green are all green this year? The coloured flower part has simply not grown at all. I have red ones and a very bright lilac, but I think it will hardly be so pretty as the lilac Hose-in-hose described the other day in The Garden.—M. F.

5191.—**Blue flowers.**—I wish to form beds of only blue blossoms. Will any of your readers kindly give me lists of both outdoor and greenhouse plants with blue flowers, dividing them under kinds for the four seasons (*i.e.*, spring—Bluebells, Squills, &c.)? Any help in this way will be gratefully received.—Rose.

5192.—**Fruitless Pear tree.**—I have had a Pear tree in my garden for the last five years, and though it has made vigorous growth of wood, it has never produced any bloom, nor, in consequence, of course, any fruit. Can any of the readers of The Garden advise me as to the best means of throwing it into bearing? It is an espalier trained on a south wall.—W. J. T.

NOTES OF THE WEEK.

Gardeners' Royal Benevolent Institution.—On Monday last Mr. Cutler wrote to us as follows respecting the circular printed in The Garden (p. 331), and recently sent out with the list of members: "The expense of the circular was about £3, and up to this day I have received £26 11s. in response, so if we do not get any more there is a good margin of profit. But I confidently anticipate at least £100. I have made up my mind to secure the £20,000 this year, and then up go the pensions."

Effects of the frost on fruit.—We had here on April 22 and 23 a severe frost, which, I believe, has nearly destroyed all our fruit. Of Apricots and Plums we had a good set, but the young fruit is greatly injured even under hexagon netting. Our early Peas, consisting of William I., were showing flower, but to-day (the 23rd) they are all black. We had here 15° of frost last night.—F. J. Paul, *Wilmington Lodge, Hurstpierpoint, Sussex.*

—— From other places we have also accounts of damage done to the fruit crops. Mr. Evans writes from Lythe Hill, in Surrey, as follows: "During the past few days we have experienced some very trying north-east winds accompanied by sharp frosts. On the morning of the 23rd we had 14° which completely froze everything through. Although we have had no rain or snow storms, we have had hazy fogs, making everything damp, and frost following has completely done for early Pears, Plums, Strawberries, and Currants. Frost at night and hot sun in the day have reduced the bloom to a state of powder; the young growths of Pears, Strawberries, and many other things are quite black."

—— The weather here in South Wilts is very treacherous. Since about the first week in April we have had on and off cold north and easterly winds, accompanied by frosty nights, but so far as I had seen up to the 18th inst. I could not discover that any serious damage had been done to fruit trees. On the date named, however, 9° of frost were registered even in a very sheltered situation, and the bloom of Pears, Cherries, and Plums has been injured, and where set I find the embryo fruit to be quite black in the centre. I had previously looked upon the prospects of the fruit crop as most encouraging, for a better show of bloom of Plums, Cherries, and Pears could not have been desired. The evil effects of the frost, too, have not been confined to fruit buds alone; on the contrary, early Potatoes planted close to the base of south walls are killed to the ground. Such blooms of the Rhododendrons as were open have the appearance of having been boiled, while those of Azalea pontica not yet open have fared no better. I trust, however, should we not be visited by any more such nights as that of the 18th, that out of the abundance of blossom we may have sufficient left for a crop. Singularly enough, while most things are showing plainly the ill effects of the cold weather, our Crown Anemones are unscathed.—C. Warden.

Sale of Orchids.—At the last sale of Orchids at Messrs. Protheroe and Morris's rooms, Cheapside, the following prices were realised for a collection of unusually fine Odontoglossums from Messrs. Sander and Co.'s nurseries, St. Albans. A superb hybrid with a large flat flower fetched 19 guineas, and another was sold for 15 guineas. Twelve guineas were given for a hybrid in the way of O. Wilckeanum, and Wilckeanum itself fetched 8 guineas. O. crispum (Alexandræ) realised fair prices; a rose-coloured form went for 5 guineas, and two others for 5 guineas and 6 guineas respectively. O. baphicanthum (a fine form) fetched 8 guineas, and the high price of 22 guineas was paid for a beautiful hybrid in the way of Ruckerianum, but of a more rosy hue. Another rose-tinted hybrid went for 15 guineas, and various forms of Alexandræ, all of the highest quality, realised from 11 guineas to 4 guineas, and six plants went for 30 guineas. These hybrid Odontoglossums alone made a fine display in the sale rooms, and there was a brisk competition in the bidding for the finest forms, the majority of which were the pick of Messrs. Sander's enormous collection.

Apples beautiful as trees.—I wish some of your readers—such as Mr. Groom—who have considered this question would let us know the Apple trees which form the largest and most pic

toresque trees when fully grown. I am not now thinking of the quality of the fruit, but if they happen to be good kinds as well as good trees, all the better. There is no tree so beautiful as the Apple, and I believe many people would plant it for the sake of its beauty if they knew the kinds that make the finest trees. Beauty of bloom should be a consideration as well as size and form of tree. —W. R. R.

SOCIETIES.

ROYAL HORTICULTURAL.

April 22.

The show of the Auricula Society, combined with the usual fortnightly meeting of the committees, constituted an important exhibition on Tuesday last at South Kensington. New and interesting plants, however, were not so numerous as usual, and but few certificates were awarded. The certificated plants were the following:—

Angræcum fastuosum.—A small species of dwarf growth, the whole plant being not more than a few inches high. The leaves are small, leathery, and of roundish outline. The flowers are large compared with the size of the plant; they are snow white with the usual long spur, and being in crowded clusters are attractive. Exhibited by Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking.

Dendrobium Harveyanum.—A new species best compared with the much-prized D. Brymerianum, inasmuch as the flowers possess a peculiar fringing to the lips and petals, but they are not nearly so large or attractive. The colour is a rich yellow, and the singularly fringed sepals render the plant distinct and striking. The growth is short, as in D. Brymerianum. Shown by Sir Trevor Lawrence.

Odontoglossum cinnamomeum. — A rare species in the way of O. crocidipterum, but with larger flowers, nearly as large as those of O. tripudians. They are heavily spotted and blotched with a cinnamon-brown, while the labellum is marked with a much deeper shade of the same colour. Sir Trevor Lawrence.

Odontoglossum vexillarium splendens.—A magnificent variety, remarkable not only for the large size of its flowers, but for the unusual depth and richness of the colour, an intense rose-pink. The plant shown by Mr. B. S. Williams, Upper Holloway, bore three fine spikes.

Rose Etendard de Jeanne d'Arc.—A Tea variety remarkable for its floriferousness and perpetual flowering character. The flowers are large, well shaped, and particularly beautiful in the half-expanded state. The colour is a creamy white with a faint tinge of pink. The plants shown by Mr. Bennett, Shepperton, bore each a dozen or more flowers—the second crop since February.

Syringa vulgaris fl.-pl. Lemoinei. — A double-flowered variety of the common Lilac. The blossoms are very double, of the ordinary colour, and produced in dense clusters. Shown by the raiser, M. V. Lemoine, Nancy.

Azalea Souvenir de Marie Rosseel.—A variety of A. indica with double flowers of a lovely salmon-pink colour. The flowers are so plentifully produced even on small plants, that the variety cannot fail to become a popular favourite. It is one of the best double Azaleas we have seen. Shown by the raiser, M. A. L. Rosseel, Ghent.

Primula Sieboldi Purity.—A variety with fine large blossoms almost pure white, there being only a faint suggestion of lilac in the flowers. P. Sieboldi Brilliant, with flowers of a bright rose-carmine. These two fine sorts were shown among a number of others by Mr. Geggie, Waterloo Nursery, Bury.

Pot Roses.—The greatest attraction in the conservatory was a magnificent group of pot Roses from Messrs. Paul's nurseries at Cheshunt. This was one of the finest groups we have seen shown here, every plant being a model of health and skilful culture. The group numbered some half-a-hundred specimens, about half of which were standards. These latter were uncommonly fine, the plants being devoid of supporting sticks, and the heads of flowers drooped in a graceful way. Every bush was profusely flowered, and the large luxuriant foliage set off the blossoms to advantage. There was a large number of favourite sorts represented in this group, and not a few new ones. Those which seemed to be most generally admired were Duke of Teck, Countess of Rosebery, Madame Falcot, Belle Lyonnaise, Madame Lambard, La France, Comtesse Riza du Parc, Innocenti Pirola, of all of which there were exceptionable fine specimens. The white Hybrid Perpetuals were also much admired, particularly the new White Baroness and its near neighbours, Violette Bouyer and Merveille de Lyon. For this fine display Messrs. Paul were appropriately awarded a silver-gilt Banksian medal. A like award was also made to Messrs. Lane, Berkhamstead, for a similarly fine display of pot Roses, huge bushes profusely flowered and representing some of the finest sorts. Besides these Messrs. Lane contributed a large group of forced hardy Rhododendrons, among them being such sterling varieties as Kate Waterer, Sir Joseph Whitworth, Madame Cavalho, Alarm, Lady Olive Guinness, all of which seem particularly amenable to forcing into early bloom.

Orchids.—A very fine Phalænopsis casta was shown by Mr. Heriot's gardener (Mr. Aldous), Cholmeley Park, Highgate. The flowers were unusually large with broad overlapping sepals, pure white save a tinge of lilac at the bases, which tint formed a sort of ring round the column. The lip was white bordered with reddish brown. The foliage was long and but slightly mottled; the spike was seven-flowered. Mr. Pollett's gardener (Mr. Wilson) showed from Fernfield, Bickley, Odontoglossum polyxanthum, a dark form of O. Ruckerianum named insigne, and a form of O luteo-purpureum labelled O. Stuartianum. The new Cypripedium Robelini was shown in bloom by Mr. Crawshay, Rosefield, Sevenoaks. The plant was not by any means in character, the spike being imperfectly developed; therefore, a correct estimate of this Orchid as regards distinctiveness could not be formed. It is apparently midway between C. lævigatum and C. Parishi. The same exhibitor also showed Cattleya speciosissima variety Dawsoni and a very pretty form of Odontoglossum hebraicum with large and attractively marked flowers. In Mr. B. S. Williams' group was the rarely-seen Coelogyne Parishi with pea-green flowers with black pencilled lips, and a fine specimen of the beautiful Epidendrum bicornutum carrying a few spikes of its wax-like white flowers. Sir Trevor Lawrence showed the finest variety of Cypripedium nævium we have seen, the flowers being unusually large and copiously spotted with purple all over the surface of the sepals.

New plants shown by Messrs Veitch included Azalea Diamant, either a hybrid or native species. It is a most distinct species, though not very showy. Among the new seedling Amaryllises those named Admiration, Cupidon, Cirrus, Clytis, and Princess of Wales were the most beautiful, the last named being particularly so, as it combined a softness of tint with large size of flower and admirable shape. Mr. B. S. Williams' group included two handsome new hybrid Sarracenias named Mitchelliana and Tolliana, the last having particularly finely coloured pitchers. The new Japanese Daphne Gwenka was shown by Messrs. Cutbush, Highgate. It is a deciduous shrub, the leafless branches of which are covered at this season with numbers of deep lilac-coloured flowers. A new seedling Adiantum in the way of gracillimum was sent by Mr. P. Black, Fulwood, Preston. It is evidently distinct and also a most elegant Maidenhair Fern. Col. Trevor Clarke sent samples of his dwarf Tropæolum, which apparently grows but a few inches in height, and Mr. Stevens sent from his nursery, at Putney, some more new seedling Abutilons raised by Mr. George. Among them those named General Gordon, Lustrous, Princess of Wales were the finest, and remarkable for its dwarf habit was one named roseum compactum. A few new and interesting hardy plants sent by Mr. R. Dean, Ealing, included a new yellow dwarf Wallflower, a selection from the Belvoir Castle variety; Anemone coronaria Celestial, a deep purple double variety raised by seeds from a single sort; Chrysanthemum coronarium Golden Perfection, with very double flowers of a bright yellow; and Myosotis sylvatica elegantissima, with prettily variegated foliage.

Pelargoniums of the decorative race were shown by Mr. Weatherill, Woodside, North Finchley, one of the most noted growers for the London market. He showed some large basketfuls of four new seedlings, all of which are of high quality and distinct from most others. These were named Alice, Excelsior, Queen Mab, and Woodside Gem, dark varieties, all remarkable for their vigorous dwarf growth and extreme floriferousness. A bronze Banksian medal was deservedly awarded to Mr. W. Warren, Wooton Gardens, Isleworth, for an extensive group of plants of a marvellously fine variety of Mignonette known by the somewhat cumbrous name of Reseda odorata pyramidalis grandiflora. This name, however, accurately expresses the character of the variety, for it has a pyramidal growth, and bears massive dense spikes of flowers. This group was the centre of attraction among the lady visitors, and the perfume pervaded the entire building. A large group of Cinerarias won for Messrs. Carter, High Holborn, a bronze Banksian medal. The plants represented their "brilliant prize" strain, and among the named sorts were Lord R. Churchill, very large magenta flowers, white centre, and General Gordon, intensely bright carmine-magenta. A cultural commendation was accorded to Mr. Slogrove, gardener to Mrs. Crawford, Reigate, for cut flowers of Chrysanthemums, white and yellow varieties of the Japanese race. These, having regard to their lateness, were excellent.

Narcissi were again shown admirably by Messrs. Barr, Covent Garden, and Mr. Ware, Tottenham, both of whom contributed fine collections, in both of which there was a large preponderance of the poeticus varieties and a conspicuous falling off in the large trumpet section, though of the latter there were some excellent blooms of major section. In Messrs. Barr's group —which, by the way, was very tastefully arranged in an undulating mass with a carpeting of Moss— there were some new sorts, noteworthy among which was one named Major Greenback, with a large, wide-mouthed trumpet wholly of a bright yellow, flushed with green exteriorly. The Humei and Nelsoni races of hybrids were in great perfection, as was also the Barri group, and particularly Barri conspicuus, which, without question, is one of the finest of the hybrid Narcissi Many of the Leedsi varieties were still in beauty, particularly the almost white forms. Among the varieties of the Poet's Narcissus, that named poetarum, with a very deeply-tinted cup, was most conspicuous and very beautiful. The commoner sorts were in strong force, the whole comprising an attractive display, for which a silver Banksian medal was awarded to the exhibitors. Mr. Ware was also awarded a silver Banksian medal for his fine group, which included not only Narcissi, but a great variety of rare and interesting hardy plants, the whole forming a display which won a great share of admiration. Only to mention a few of the choice things it included we noted Iris iberica, the new white Zephyranthes Treatiæ, Adonis pyrenaica, a much finer plant than A. vernalis, which it somewhat resembles, Ophrys tenthredinifera, Narcissus intermedius, Primula mollis, Gentiana verna, Androsace sarmentosa, very fine, and Ranunculus amplexicaulis, a plant that every garden should possess. These, with a host of other commoner plants, rendered Mr. Ware's group a most interesting one.

Fruit and vegetables.—The exhibits on this occasion were but few, the chief being two collections of well-preserved Apples, one from Mr. Divers, Maidstone, the other from Mr. Dean, Titsey Park, Surrey. These collections represented the following sorts in admirable condition: Cox's Orange Pippin, Winter Queening, Court Pendu Plat, Golden Knob, French Crab, Beauty of Kent, Rein-

ette du Canada, Sturmer Pippin, and Winter Pearmain. Mr. Gilbert, of Burghley, showed a new sort of Cabbage which the committee desired to be sent to Chiswick for trial. A first-class certificate was awarded to Mr. Thrower, High Canons, Shenley, for Apple High Canons, a large handsome variety, angular in shape, large and very open eye, and pale yellow skin flushed with red. The flesh is said to be excellent, which renders it suitable both for dessert and cooking. As to its keeping qualities, there can be no doubt, since the fruits exhibited were in good preservation.

NATIONAL AURICULA SOCIETY.

April 22.

Auricula exhibitors have again met in friendly rivalry at South Kensington, the result being a most successful exhibition—one of the best indeed which the society has had. The display was altogether large and attractive, though, as regards quality, it was the general opinion that it was somewhat below the average of former seasons, a circumstance in a great measure attributable to the warm and rather unseasonable weather which we experienced a few weeks ago, which tended to forward the bloom too rapidly, particularly in the south. Consequently, the best specimens came from northern exhibitors, of whom there were more than usual—chiefly from the neighbourhood of Manchester. The flower-stems of most of all the southern collections had a drawn, spindly appearance, as if the plants had been kept cold and shaded in order to retard the bloom as much as possible. The same familiar names were among the exhibitors, but it was satisfactory to see that the list is becoming augmented by a few new London growers. There were no fewer than twenty-three entries. The schedule was much the same as in former years, except that the principal prize of the show was the Veitch Memorial Medal and £5, which the committee of that fund had placed at the disposal of the society this season.

This coveted prize, which was only to be competed for by amateurs and gardeners, was won by the well-known Auricula grower, the Rev. F. D. Horner, who, by the way, now resides at Lowfields, Burton-in-Lonsdale, Carnforth. The prize was offered for twelve plants; Mr. Horner's twelve were certainly very fine, every plant being the perfection of skilful culture. The sorts were Mrs. Douglas, Mrs. Horner, Heroine, all very fine selfs, Magpie, Colonel Taylor, Miranda, G. Lightbody, Monarch, John Simonite, Moonlight, and Mars. The usual prizes offered for a dozen plants were likewise competed for, the first being taken by Mr. Douglas, Mr. Whitbourne's skilful gardener at Great Gearies, Ilford. This collection consisted of the following representative sorts: Prince of Greens, Smiling Beauty, Jumbo, G. Lightbody, Blackbird, Col. Taylor, Conservative (new), Lancashire Hero, Pizarro, Frank Simonite, C. J. Perry, and Sunbury Beauty. There were four other collections shown in this class.

The best six plants also came from Mr. Horner, who had Enchantress, Luna, G. Lightbody, Monarch, Heroine, and F. D. Horner. In Mr. Douglas's second half-a-dozen were Acme, Conservative, G. Lightbody, Topsy, Ajax, and Prince of Greens. There were six exhibitors in all in this class.

The sets of four plants numbered ten, Mr. Simonite showing the best. His were Samuel Barlow, Heather Bell, Acme, and Merlin. The collections in this class were fine throughout. There were no fewer than twelve pairs. The best, from Mr. Henwood, consisted of G. Lightbody and Mrs. Douglas, the last a most beautiful self in the way of C. J. Perry. This last-named variety, with G. Lightbody, took the second place, and Richard Headley and C. J. Perry the third.

Single specimens.—As usual, there was a very large number of single specimens for the judges to select the best seven from. Of the green-edged sorts Prince of Greens was first, F. D. Horner second, Col. Taylor third, Kestrel fourth, Prince of Greens fifth, sixth, and seventh. Of white-edged sorts, Acme was first and second, Conservative third, Beeswing fourth, Acme fifth, Luna sixth, and Acme seventh. Among grey-edges, George Lightbody was first and second, Irreproachable third, Thetis fourth, G. Lightbody fifth, sixth, and seventh. Of selfs, the first and second prizes were won by Heroine, third by Kathleen Horner, fourth by Blackbird, fifth by Topsy, sixth by one of Mr. Douglas's seedlings, and seventh by Topsy.

There were two collections of fifty plants, the finest being from Mr. Douglas, the other from Mr. Turner. The two were both exceptionally fine, and it required the eyes of keen judges to discriminate the distinction between them. Mr. Douglas's, however, comprised more variety, the selfs in his collection being wonderfully fine.

Alpine varieties.—There was not much competition in the classes devoted to this beautiful race, a circumstance which seems to indicate that it is not so much grown as the other sections. There were but three exhibitors of alpines, and the bulk of these was shown by Messrs. Turner and Douglas. Mr. Turner had a very fine dozen for the first prize; the sorts were all excellent and were named Garnet, Mrs. Llewelyn, Mrs. Thomson, Unique, Comet, Luna, Gem, Murillo, Signet, Aurora, and Napoleon III. Among Mr. Douglas's second collection those named Ada Hardwidge, Mrs. Meiklejohn, Dolly Varden, and Sensation were particularly beautiful. The same two exhibitors also took the first and second prizes for half a dozen sorts. Mr. Turner had in his set Mrs. Ball, Troubadour, Lavinia, Comet, Bayard, and Rambard, all of which are of high quality. Queen Victoria in Mr. Douglas's group was of special note. The six best single specimens with gold centres selected out of a large number were Unique, which took first, third, fourth, and fifth prizes; while Sensation was second. The six best sorts with white centres were Rambard, Princess of Wales, which were first and second, Queen Victoria third, fourth, and fifth, and Ada Hardwidge sixth.

Polyanthuses were more numerous than usual, though the competition was confined to two or three exhibitors. The finest collection of six plants was shown by Mr. Brockbank, of Brockhurst, Didsbury, Manchester, who seems to be uncommonly successful in Polyanthus culture. His sorts were—Lord Derby, one of his own seedlings; Black Diamond, also a Brockhurst seedling; John o' Gaunt, President, Exile, and Prince Regent; Mr. Barlow's second collection included Model, one of his own seedlings; John Bright, Prince Regent, Cheshire Favourite, and Exile. Of the four sets of three, Mr. Barlow was first with John Bright, Cheshire Favourite, and Exile, while Lancer, Exile, and George IV., from Mr. Douglas, were second. There were not many single specimens; the best six were Cheshire Favourite and Lancashire Hero, from Mr. Brockbank; Lord Beaconsfield, from Mr. Horner; Black Diamond, Lancashire Hero, and an unnamed seedling from Mr. Brockbank.

The best dozen fancy Auriculas were shown by Mr. Douglas, who had Enid, Lord Tennyson, Cygnet, Twilight, Khartoum, Snowdon's Knight, Rosetta, and Julietta, all of which had flowers of a yellow shade varying from that to brown and green. Some were extremely beautiful, and it seems strange that such a beautiful race of Auriculas should receive so little attention. The best dozen fancy Polyanthuses also came from Mr. Douglas, all of which were fine large plants profusely flowered, though we have seen finer varieties.

Primulas constituted one of the most beautiful features in the show, and as there were about half-a-dozen collections of twelve plants shown, they made quite an attractive display. The finest dozen came all the way from Mr. Llewelyn's garden at Penllergare, Swansea, every plant being superbly grown and flowered far better than we had hitherto seen even from this rich garden. The kinds were P. Sieboldi (P. cortusoides amœna) in varieties, P. sikkimensis, verticillata sinensis, rosea, obconica and denticulata purpurea. The next best collection, from Messrs' Paul, Cheshunt, was likewise an interesting one, inasmuch as it contained some rare species, such as P. Obristi, intricata, ciliata purpurea, pubescens, villosa, Munroi, and farinosa. Mr. Llewelyn also showed a collection comprising a few dozen plants and numerous species, among them being the new P. Dolomitis, from the Tyrol, with clear canary-yellow flowers; P. Muretiana, the true P. longiflora, P. carniolica, P. floribunda, P. intermedia, P. nivea and P. involucrata and its variety Munroi.

Prizes for seedlings.—In addition to the foregoing classes, prizes were offered for meritorious seedlings in all the sections of Auriculas and Polyanthuses. Of white-edged sorts Mr. Horner was first with Magpie and second with Miranda. Of green edges Mr. Horner also won both prizes with F. D. Horner and Kestrel. Of grey-edged Mr. Simonite was first with Merlin, and Mr. Douglas second with Marmion. Mr. Horner won both prizes in the class for selfs, having Mrs. Horner and Enchantress. The best new seedling alpines were Mr. Turner's Unique and Mr. Douglas's J. H. Laing. Of black-ground Polyanthuses, Mr. Brockbank was first with his John o' Gaunt and second with Seedling No. 1, while he took the first in red grounds with Lord Derby. The prize for the premier Auricula in the exhibition was taken by Mr. Pohlman with a matchless plant of Prince of Greens.

ROYAL BOTANIC.

April 23.

The second spring show, which took place on Wednesday last, was, like that held a month previously, a successful gathering; in fact, it was the largest April exhibition that has been seen in the Regent's Park Gardens for some years. A wise alteration was carried out on this occasion in the new corridor, viz., that of having the space between the side stages unencumbered by a central stage, as on the last occasion, thus affording ample room for the visitors to promenade. Nothing particularly new was shown on this occasion; indeed, we considered it unusually barren in the way of novelty. The chief attraction was unquestionably the pot Roses, which were numerous and uncommonly fine, particularly those from Messrs. Paul's nurseries at Cheshunt. The group of nine specimen plants, as well as the admirable collection of standards, were the centre of attraction, so beautiful were they in every respect. The nine plants in competition for the prizes quite outdistanced all other collections. The sorts were Duke of Teck, Duke of Edinburgh, Madame de St. Joseph, Edouard Morren, Celine Forestier, La France, Comtesse de Serenye, Léon Renault, and Souvenir d'un Ami, all excellent varieties for early forcing. These plants were all large, shapely bushes, profusely flowered. The standards were much the same as those shown the day previous at South Kensington. Another fine group of Roses came from Messrs. W. Paul's nurseries, Waltham. In addition to a number of large plants were several boxfuls of cut blooms of high quality, particularly the sorts Rêve d'Or and Maréchal Niel, which were shown in quantity. A third group of Roses was a most meritorious collection of small bushes from Mr. Rumsey, also of Waltham Cross. These, though small, bore flowers of very high quality, which were set off by the luxuriant foliage. The sorts, too, were of the finest, the Tea varieties being of especial merit. Messrs. Lane also helped to fill the corridor with a large group of pot Roses.

Next to the Roses the Auriculas, the flowers of the week, claimed most attention. Those shown here were of much the same character as those which contributed to the feast of Auriculas the day previous at Kensington. Mr. Turner, the noted Auricula nurseryman of Slough, was, as usual, the chief exhibitor, having a very large number of show and alpine varieties representing the very finest sorts, so that visitors had a good opportunity to make a selection of the best according to their own ideas. The prizes offered for a dozen

Auriculas were competed for by three of the best growers, viz, Messrs. Douglas, Pohlman, and Turner, who were placed in the order named. Mr Douglas's dozen was the pick of his large collection, the names being Lancashire Hero, Marmion (new seedling), Lord Clyde, Prince of Greens, C. J. Perry (self), Jumbo, Pizarro (self), George Lightbody, Smiling Beauty, Frank Simonite, Mabel, and Conservative (new seedling). This was quite a representative dozen of the finest sorts. Both of the other exhibitors showed excellently, but had scarcely such evenly matched plants as Mr. Douglas's.

STOVE AND GREENHOUSE PLANTS were scarcely worth mentioning, as there were so few among the four collections of twelve plants of any interest, and some were decidedly below mediocrity as regards quality. Mr. James, of the Castle Nursery, Norwood, showed a neat fresh-looking group for the first prize, the Aphelexis, Azaleas, and Heaths, and Genetyllis being the best plants. In one collection was a creditable plant of the new Zanzibar Balsam (Impatiens Sultani), which seems to be well adapted for early spring flower, and one of the other collections was a large trained plant of the double Pelargonium Madame Thibaut, and Lady Goldsmid's gardener showed an uncommonly fine plant of Hibbertia Rheedi, a charming Australian plant, not often seen, but well deserving of extensive culture for the greenhouse. It is a shrubby plant, and produces in spring a profusion of small, clear yellow flowers. There was also in Mr. Wheeler's group the old Adenandra fragrans, a fine plant, and Leucopogon Richei, an Australian shrub with tiny white blooms borne in the greatest profusion. In addition to the competitive exhibits there were numbers of other stove and greenhouse plants shown, among them being an interesting series of varieties of Anthurium Scherzerianum from Mr. James, Lower Norwood. These were the varieties rotundiflorum, with rounded spathes, sanguineum, maximum, Jamesianum, light carmine-rose colour, Veitch's variety, and Anderson's variety.

AZALEAS of the indica section ought to have been a great feature at the show, but they were not; indeed, there was but one creditable collection in the exhibition, and some of the groups ought never to have been allowed to enter into competition at such an important show as this, being discreditable to any cultivator, even of the smallest pretensions. Some of the plants were mean, scrubby specimens, with scarcely any flower upon them. A contrast to these was an admirable group of six plants from the Slough Nurseries, whence the best Azaleas invariably come to the spring shows in London. These were all fresh-looking plants, not too stiffly trained, and completely smothered with bloom. The selection of sorts, too, was good. They were Jean Vervaene, one of the best of its colour—a salmon-red edged with white; Comtesse de Flandre, matchless in its way; George Loddiges, bright Indian red; Duc de Nassau; Mons. Thibaut, the finest bright orange-red; and Mdlle. Marie Lefebvre. Among the collection from Mr. James, of Norwood, was Apollon, still one of the finest white Azaleas, and Bride of Abydos, a beautiful sort also. The beautiful Azalea mollis is becoming to be exhibited more now that a greater diversity of colour has been obtained. In a dozen plants shown here by Messrs. Lane there was every gradation of tint from bright yellows to vivid reds. Messrs. Lane also showed the finest Rhododendrons. These were huge bushes, profusely laden with bloom, and, with another collection of smaller plants, enlivened the conservatory in a beautiful way.

AMARYLLISES were shown finer than usual, though there were but two collections. The best came from Mr. Little, who has made a speciality of the Amaryllis for some years. The best in his collection, we thought, were those named Firefly, fiery red, good shaped; Princess Dagmar, fine bold flower; Hercules, remarkable for rich colouring; Burtoni, and Admiral Hornby. The other collection, from Mr. Butler, included Nero, Olga (light striped), H. H. Gibbs, Madame Titiens, and Princess Alexandra. The two last named were decidedly pretty, particularly the last, which has the sepals edged with white.

CINERARIAS formed a bright feature in the show, for, besides the collections in competition for the prizes offered, were several large groups, among them being the large one from Messrs. Carter, similar to that shown at South Kensington. There were three competing groups. Mr. James, the well-known raiser of Woodside, Farnham Royal, was unapproachable, his collection of a dozen plants being a long way ahead of the others in point of quality of the flowers, all of which were large and of perfect shape. There was, however, not such a diversity of colour among them as in the other groups, therefore were rather less showy. Mr. Little's second group was a fine one, as all the plants carried huge heads of bloom.

PELARGONIUMS were shown admirably by Mr. Turner, his collection of nine plants being really very fine, and would not have disgraced a Pelargonium show in June. The specimens were large, a yard or so through, and were profusely flowered. The sorts consisted chiefly of the decorative race, among them being the nine following excellent varieties: Mad. Lemoine, a fine light sort; Lady Isabel, one of the best of all; Rosy Morn, excellent; Triomphe de St. Maode, Duchesse de Morny, Kingston Beauty, a well-known light sort, still one of the best; Joe, Rosetta, particularly fine; and Decorator. Mr. Little's second group consisted of smaller plants, but were creditable nevertheless. The sorts Fair Rosamond, Emily Everard, Smith's Seedling, and Miss May Gill were particularly noteworthy.

MISCELLANEOUS CLASS.—There were as usual numerous contributors to this class, which forms such an important element of a flower show. There were several large groups of miscellaneous plants shown, which added considerably to the success of the exhibition. A large space was occupied in the corridor by Mr. B. S. Williams, of Upper Holloway, by a collection of flowering Orchids interspersed with fine-foliaged and numerous other interesting plants. Among those worthy of special note were Cochliostemon Jacobianum, a fine bold plant which Mr. Williams always grows and flowers so well; Ochna multiflora, the pretty stove shrub figured in THE GARDEN some time ago; Rhododendron fragrantissimum and R. odoratum, a new species. These, intermixed with Azalea mollis, hybrid Sarracenias, and numerous Orchids, such as Cattleya Mendeli, Odontoglossum Oerstedi, O. Marshallianum, and O. vexillarium, made a fine display. Messrs. Cutbush, of Highgate, contributed a group of interesting Australian and other greenhouse plants, among them being the elegant and pretty Hypocalymma robusta, which was illustrated in THE GARDEN last year; also Choisya ternata, the beautiful Mexican shrub, now often called the Orange-blossom shrub; Daphne Gwenka, a new Japanese shrub; Leptospermum bullatum; Adiantum Pacotti, a new Maiden-hair Fern; and various kinds of Hedaroma, Erica, and other plants. Narcissi were once more shown by Messrs. Barr, Covent Garden. The group was large, and was very tastefully arranged, the various groups of varieties being massed together. The flowers, however, showed indications of the past unfavourable weather; the bleak winds produced an injurious effect upon the delicate texture of some varieties. The sorts were chiefly those that had been shown on previous occasions this season, though there were a few new ones, notably those named Gloria Mundi, a very fine incomparabilis variety, remarkable for the widely expanded cup of bright orange. Those of the Ajax section named Her Majesty, Harrison Weir, President Arthur were also uncommonly fine. This bright gathering of yellow flowers was the admiration of all the visitors.

Messrs. Veitch showed a small group of novelties, including several of the new Amaryllises exhibited the day previous at South Kensington. They also contributed a gathering of two of the finest Daffodils, namely, Emperor and Empress, the flowers of both of which were larger and finer in every way than are generally seen.

NEW PLANTS.—There was, as usual, a large number of plants submitted to the notice of the judges, who awarded the following certificates: Botanical certificates of merit to Cypripedium insigne sylhetense, shown by Messrs. Veitch; Phalænopis casta from Mr. Aldous; Sarracenia Mitchelliana, S. Tolliana, Grevillea Manglesi, Ptychosperma Seemanni, and Kentia Lindeni from Mr. B. S. Williams.

Floricultural certificates were awarded to Auricula Marmion from Mr. Douglas, Auriculas (fancy) Dynasty, Consummate, Glory, and Constance from Mr. Pohlman; Amaryllises Admiration and Princess of Wales from Messrs. Veitch; Azalea Souvenir de Marie Rosseel from M. Rosseel; Azalea Paul de Schryver from Messrs. Veitch; Cinerarias Princess Ida, Pioneer, and Beadsman from Mr. James, Farnham Royal; Amaryllis Mrs. Hird, from Messrs. Paul, Cheshunt; Cyclamen rubrum giganteum and Hillingdon Rival from Mr. Little, and Azalea Antigone from Mr. Turner.

A list of awards is given in our advertising columns.

Chrysanthemums from Derry.—Mr. Josiah Jeffery has sent us blooms of the following Chrysanthemums, viz.: Crimson Velvet, Venus, White Venus, and the fringed Marabout. These belong to the late-flowering section. St. Mary, of which he also sends blooms, is unquestionably one of the very best of the early-flowering kinds; he finds it as a summer bedder to be simply invaluable, and where cut flowers are in request its value can hardly be overrated, as daily gatherings may be made from it from June to October. La Petite Marie, a beautiful kind, belongs to the early-flowering section, and bids fair to become a favourite; it is very dwarf, which makes it suitable for planting in beds that are not particularly well sheltered. With Mr. Jeffrey it only grew 9 inches high, and was completely covered with pure white flowers. For bedding purposes he puts in cuttings in November into boxes about 3 inches apart each way; the boxes are then placed on coal ashes in cold frames, where they remain till planting-out time in April. The boxes containing the cuttings, or rather plants, as they are by that time, are taken to the beds which they are to occupy; the plants are then cut out of the box with a knife and planted carefully, so as not to bruise or disturb any of the young roots. After planting nothing more is needed, and they last till cut off by frost in autumn.

Vine leaves (*J. S. I.*)—Nothing ails them as far as we can see. The little warts do no harm.

—— (*W. E., Highfield*).—The leaves sent seem to be scribbled—an evil for which air given early in the morning is the best remedy.

Peach leaves (*T. H. F.*).—There is no trace of fungi on your leaves but there is of insects. Our belief is, however, that cold is the cause of the injury.

Magnolia conspicua.—When calling at Hackwood Park a day or two ago I observed a large plant of this Magnolia on an east wall covered with bloom a grand sight at this time of year.—J. CROOK, *Farnborough Grange*.

White thrush.—I have here a white song thrush, taken last year from a nest in the abbey grounds and successfully reared. It is quite white, even the beak and legs, and it has pink eyes. Have any of the readers of THE GARDEN ever before heard of a white thrush?—WALTER JOHNSTONE, *Bayham Abbey*.

Monstrous Primrose.—The very curious sport of the common Primrose which I send you was brought to me on the 19th inst., consisting, as you will see, of three full-sized Primroses in one stout calyx, with the usual lengthened foot-stalk. It formed in itself a perfect little nosegay for the button-hole.—H. P. JESTON, *Cholesbury Rectory, Tring*.

Names of plants.—*E. S.*—Rivina lævis (name of Apple next week)——*D. Dowdeswell*—1, Carex pendula; 2, Stellaria glomerata; 3, Scilla nutans; 4, Oxalis Acetosella.——*S. W. W.*—1, Sedum carneum variegatum; 2, Thrysacanthus rutilans; 3, Kleinia repens; 4, Euphorbia Helioscopia.——*G. Carpenter.*—Ribes aureum.——*Lady Mathison.*—Hæmanthus puniceus.——*H. L. (Highmead).*—Dendrobium Falconeri; D. aggregatum majus——*R. F. W.*—1, Narcissus Pseudo-narcissus fl.-pl.; 2, N. Pseudo-narcissus variety; 3, Sanguinaria canadensis; 4, Ornithogalum nutans.——*G. C.*—1 Abies excelsa elegans; 2, Pinus Cembra pumila; 3, Pulmonaria angustifolia; 4, Aralia Veitchi.——*K. A. S.* Dicentra formosa; Fritillaria Meleagris; Fumaria lutea; Anemone nemorosa fl.-pl.——*L. M. K.*—Azalea amœna.——*W. M. Crowe.*—Hibiscus rosa-sinensis.——*H. P. Jeston.*—The Wallflower is that called The Rocket; the other plant is Myosotis dissitiflora.

No. 650. SATURDAY, May 3, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

DAFFODIL CULTURE FOR MARKET.

THE marvellous Daffodils shown by Mr. Walker of Whitton, at the recent Daffodil conference induced us the other day to visit his grounds, and although we expected to see a rare collection of well-grown Narcissi, we were not prepared to find such enormous quantities and such a choice collection of kinds as Mr. Walker possesses; indeed, we had no idea that such a flower farm—a veritable counterpart of a Dutch bulb farm—existed so near London. Mr. Walker is not only a thoroughly practical cultivator, but a keen observer, a fact which has doubtless conduced largely to his success. His business is to grow flowers for the London markets, and he does it with a few classes of plants only, which he cultivates with that thoroughness which is characteristic of the market grower. Everything market men take in hand must be grown so as to yield a profitable return, and in order to ensure this, all the produce sent to Covent Garden must be grown in the highest perfection. The chief subjects of culture in the Whitton grounds are flowers and fruit—indoor flowers, such as Cyclamens, in winter; open-air flowers, such as Narcissi, Tulips, and Pæonies, in spring and early summer; while the rest of the year is mostly devoted to fruit.

DAFFODILS, as we have said, are grown on an enormous scale; in fact, they may be seen everywhere about the place—in the shade as well as in the open. They are grown in extensive breadths by the quarter acre and half acre. This prodigious quantity is grown expressly to supply cut blooms, which Mr. Walker has been in the habit of doing long before the present fashion set in of employing Narcissi so largely in floral decorations. That the demand, large as it has been for the past few years, is still increasing, may be gathered from the fact that from these grounds alone as many as a hundred dozen bunches, representing 14,000 blooms, have been sent to Covent Garden at one time. These meet with a ready sale at a remunerative price, particularly if Eastertide happens to fall in the height of the Narcissi season, when the demand for such as the white Poet's Narcissus is astonishing. Narcissus culture, as may be imagined, is carried on here in a systematic way. The natural soil of the grounds is of a rather stiffer character than could be wished; consequently the Narcissus crops require more attention than if the soil had been lighter. The bulbs of some of the sorts are apt to degenerate if the beds are on a dead level; therefore in order to obviate this they have to be raised so as to afford a drier and warmer medium for the roots. Mr. Walker's plan is to lift the bulbs every third year. This is carried out as soon as the foliage decays, and no time is lost in replanting the bulbs in fresh ground after having separated the offsets from the parent bulbs. These mother bulbs, as they are called, are planted together for the succeeding season's yield, and the smaller ones are assorted and planted so as to come on in succession. The first season after replanting, the flower crop is not at its best, but the second or third year the bulbs become thoroughly re-established; after the third year the generality of Narcissi commence to deteriorate.

LIFTING THE BULBS.—Mr. Walker is no doubt right in lifting the bulbs triennially, not only in order to suit the exigencies of his business, but also on account of the Narcissi. There can be no doubt that the system pursued in these grounds is the outcome of large experience, and the secret as regards the production of such blooms as astonished everyone at South Kensington. Growers who make selling the bulbs a matter of business must of course lift annually; therefore they could not compete at all as regards quality of flower with the Whitton productions. Another important consideration at the Whitton grounds is good manure, and plenty of it, but its application requires great judgment; the proper quantity to apply can only be determined by actual experience; but it is evident that Mr. Walker regards it as a mistaken notion that bulbous plants do not require manure.

THE COLLECTION OF NARCISSI here is one of the richest in species and varieties about London, though of course comparatively few are grown at present on an extensive scale for marketing. A first-rate variety for that purpose must possess peculiar characteristics. First of all it must be showy and bright—this is a matter of primary importance; next it must possess sufficient substance to endure close packing. Then it must be floriferous, and not require any kind of coddling treatment, which some of the new kinds of Narcissi, particulary the hybrids do, their constitutions not being strong enough to enable them to succeed on the Whitton soil even on raised beds. Consequently, such delicate kinds are unsuitable for growing on a large scale for profit; but Mr. Walker is an enthusiastic admirer of the genus, and is endeavouring to form a complete collection not only of species, but also of varieties and hybrids. The reliable kinds grown to yield cut blooms in large quantities commence with the Tenby Daffodil (N. obvallaris), undoubtedly one of the very best of all on account of the solidity and fine shape of its flowers and their rich yellow hue. This kind is grown chiefly in orchards, in long breadths about a rod wide. Grown in this way the trees afford sufficient shelter from winds and rains when the flowers are at their best, which usually is about the middle of March. Close upon the Tenby follows the noble-flowered Horsfieldi, and then in quick succession, come among the large-trumpeted Daffodils, the various varieties of N. bicolor in the following order—viz., Empress, sulphurescens, albidus, primulinus, maximus, and last of all the typical bicolor, which is, moreover, the smallest of the series. Of these the favourite sorts are Empress, bicolor maximus and primulinus, the latter having flowers of great substance, and which travel well. Emperor is largely grown, and among the major group are the large maximus, the finest of all, spurius, major, and several others of a similar stamp. Those who entertain the opinion that several of these Daffodils that have distinct names are alike would probably think otherwise if they saw them growing here in quantities side by side. Many sorts that closely resemble each other in the flowers vary considerably as regards foliage, habit of growth, and period of flowering For instance, we never saw the difference so plainly before as here between Horsfieldi and Empress. In the former the foliage is stout enough to hold itself erect, while the leaves of Empress are strongly recurved. They differ, moreover, in the shade of tint of the leafage; Horsfieldi is the greenest, while that of the Empress has a silvery lustre, which is seen plainly when in large breadths Speaking of Horsfieldi, Mr. Walker asserts that it delights in a light, poor soil, while Empress enjoys a richer and moister one. The Peerless Daffodils (incomparabilis) are in great demand, judging by the quantities grown. Of the single-flowered sorts, such beautiful ones as Stella and aurantius take up the largest areas. The last named is the kind which everyone so much admired at the conference. It has a bright orange-red cup, which contrasts admirably with the white sepals. It is highly appreciated in the market, and is one of those sorts of which a grower cannot have too much. None of the single sorts of incomparabilis, however, equal in popularity the beautiful double-flowered kind called Sulphur Crown or Codlins and Cream, the large rosetted flowers of which are of a soft primrose-yellow, more like that of a Rose than a Daffodil. The Sulphur Crowns constitute a great portion of the Daffodils grown, and immense breadths in orchards are planted with them. When in full bloom, these strips are a rare sight, but the demand for them is so large that the flowers are cut as soon as they are half expanded, or rather as soon as all traces of green in the petals have disappeared. It is found that if cut before the green tints have vanished, the flowers never assume their characteristic creamy colour, but remain green. The Poet's Narcissus is perhaps the mainstay of the Narcissi ground, inasmuch as it yields the greatest returns. Its flowers are always in demand; therefore there is a greater area devoted to this kind than to any other. Here it is grown entirely in orchards beneath the trees — veritable seas of snowy whiteness, a sight not often met with. There are but three or four kinds of the Poet's Narcissus grown in quantity. These comprise ornatus, which is the first to flower, and which constitutes the main bulk of the crop. Its flowers are large, finely-shaped, and pure white. Then follows tripodalis, the peculiarity of which is that it has three of its sepals reflexed; then after the ornatus crop follows recurvus, the latest of all, a most distinct variety readily distinguished by the lax foliage, which sharply reflexes. The double form of this, the common double white Daffodil, is probably the most popular of all, and the demand for it necessitates an enormous area to be devoted to its culture. Like most of the other forms of poeticus, this, too, is grown in orchards where the slight shelter afforded is beneficial to the flowers. At the present time this sort is just coming into season, and for the next few weeks will form the chief supply of Daffodil bloom in the market. Lastly, we must mention

THE POLYANTHUS VARIETIES, which are also grown in prodigious quantities. All these are in fully exposed situations, where they can derive the fullest amount of light and sunshine. The favourite kinds here are White Pearl, a pretty white-flowered variety; Bathurst, Bazelman major, Staten General, Grand Monarque, Muzart, orientalis, and Schizanthus orientalis. The delicious fragrance of all the Polyanthus Narcissi render them general favourites. Early in the season they come from the south of France, later they are sent from the Scilly and Channel Islands, and after the supply is over at these places, growers about London have their turn, and thus the market is

kept well stocked with these lovely flowers for weeks and even months at a time.

Gathering.—In the height of the Daffodil season there are three gathering days in the week for market. Gathering the flowers is done chiefly by women, who bring them from the grounds in rough bunches to a shed, where they are neatly bunched ready for market. The bunches are firmly packed in oblong boxes in such a manner that the lowermost bunches do not become crushed or bruised by the upper. This is effected by laying the alternate layers cross-wise with the heads of flowers outwards. Arranged in this way, a great quantity can be packed in a close compass, and the flowers turn out fresh and uninjured at the market. W. G.

GRAPES AND FLOWERS TOGETHER.

Seeing that you have been so good as to insert my remarks on this subject, I venture to enlarge them a little by way of explanation. It must not be supposed that the flowering plants are allowed to stand month after month in one place in my greenhouse-vineries. Few remain there all the year round, and those which do (such as Vallotas) are constantly moved from house to house and place to place, my cold frames, the cool house, and the open air playing an important part in my system of cultivation. Whenever plants can bear the frame or outside temperature they are laying up health, and it is astonishing what low temperature plants will bear when the frames do not stand too high out of the ground when they are opened wide, if only for a short time in the middle of the day, temperature allowing, and are covered with mats at night. In the last paper (p. 333) my successes were spoken of. I will now enumerate some of my failures. It is a great disappointment that Heaths, Tremandra ericoides, Bouvardias, Boronias, and most of the woody Cape plants will not do. They must have a separate treatment, such as a Cape pit, from that which they receive from me. *Non omnia possumus omnes.* Still the flowers already enumerated give a wide choice, and to these must be added one of the greatest helps in keeping a house full of bloom, namely, Hydrangeas, of which a constant succession of plants with one head may be had by cutting from off a large plant in autumn or at any other time, the shoots showing bloom, and striking them in a gentle bottom heat. To add to their colour, water them occasionally with water containing some steel filings.

I may mention that another failure is Strawberries, which flower luxuriantly, but will not fruit in my soft yellow sand. This I am counteracting by a plan suggested to me by Mr. Barr. His suggestion was to get the widest deal boards, about 11 inches, set them on edge about 18 inches apart, dig out the old soil, make a hard bottom by stamping, and fill up with about a foot of enriched loamy soil. The boards prevent the surrounding sand from sucking away the moisture at the root, and so another difficulty is overcome. My gardener says, "Master, I don't think anyone has as many enemies as gardeners." He is about right. Returning to my greenhouses, another great thing is to get good soil—loam, leaf mould, peat, Cocoa-nut fibre, and silver sand, and to find out from books or experience which is suitable. For instance, Coleuses (which I strike from the old plants just kept alive during the winter) like the lightest soil, growing well in fibre alone. Primulas, Calceolarias, and Gloxinias like light soil also, and Cyclamens a medium soil, whilst Cinerarias, Chrysanthemums, and especially Roses, delight in a loamy mixture. I buy my soil except leaf-mould, but a little lasts a long time. Another hint is worth having. Many plants (especially when potted in small pots) like more water than they get by overhead watering, and these are from time to time placed in earthenware saucers, which may be bought with the pots, getting now and again a saucerful when they flag. Amongst them may be enumerated Callas, Heliotropes, Hydrangeas, Stocks, and others. Manure must not be forgotten. Half a teaspoonful of some of the advertised mixtures on the top of a pot often works wonders, but my experience is that it does no good to Gloxinias, and little to Pelargoniums or Geraniums, whilst Euphorbia splendens, Roses, and Abutilons revel in it. A little weak cow or horse manure water is good for most plants. Soot need not be applied artificially with me, there being always a good supply of it floating about.

Flowers for church and table decoration, white and coloured. I get in the early months of the year. When Dahlias have been killed by the frosts and Chrysanthemums are over, I begin with Callas, Roman Hyacinths, an abundance of Primulas and of sweet single and double Jonquils and Campernelles in pots (most early and valuable), Cyclamens (especially white ones), Abutilons (turn back the petals and snip out the stigma), Hyacinths, Cinerarias, French Daisies, white Polyanthus, Geraniums (especially double sorts, for they do not drop), Deutzias (double and single), Lilies of the Valley, Narcissi, Daffodils, and so on. If I cannot grow Gardenias or Eucharis Lily, there are sweeter flowers to be found in the Narcissus poeticus plenus and ornatus. Indeed, there is nothing prettier and sweeter in March or April than half-a-dozen of ornatus in a 5-inch or 6-inch pot, planted early, buried in ashes, and grown nearly to flowering in a cold frame. After Daffodil time there is plenty of choice of flowers outside and in, for, with study and experience, greenhouses and gardens may always be kept gay with bloom. Cloth of Gold Pansy is the most useful outdoor plant I have, in December last producing me 50 or 60 blooms for table decoration at a time. Referring to another subject, I save my gardener much time and trouble by buying rooted cuttings, growing plants, and tubers, plenty of which at cheap rates are always advertised in your pages or in *Gardening*. This plan saves expense and failure in raising from seed, and you get just as many or as few as you wish. As to Gloxinias, I recommend everyone to grow them. Some sprays of Maiden-hair Fern and Gloxinia flowers deck a table as few other things can. Gloxinias are the easiest things to grow that we have. About five shillings in the spring will buy a score of corms (our supply of heat does not enable us to grow them from leaves), and these planted will flower enough at the close of the year to show which are worth keeping, and in the following spring a 6-inch pot will be buried in foliage, and there will be a grand show all through the summer and autumn under the Vines. I counted to-day twenty-seven visible buds on one, which has had no more care taken of it than to let it grow on, wintering it near the pipes under one of the stages. I grow only the erect kinds, and must have fifty pots at least, many of them lasting several years. Closing my remarks, I venture to ask if anyone has grown Vines on the plan of letting them (say after the first year) bear all they will for two or three years, then pulling them up, sweetening and feeding the border afresh, and planting new canes. It strikes me that by pursuing this plan and renewing the Vines in succession, excellent results might be obtained. But, as I said in my first paper, I am an amateur.

Subscriber.

EFFECTS OF THE LATE FROST.

Seldom or never has a week's weather worked more sad havoc among the plants and crops of the garden than that ending on the 26th ult. Dry and cold though, on the whole, April proved, neither were of sufficient severity to arrest the growth or threaten the safety of the fruit nor other crops of the garden. On the contrary, they proved of considerable service in arresting the progress and giving greater hardiness to vegetation previously fostered into abnormal precocity and promise by the winterless winter that most of us had begun to hope had come to an end in a genial spring, when suddenly, with but little warning, the fruit crops had to meet with and pass through almost a week of frosts of December-like severity. In this district these ranged from 8° to 18°, the former being about the maximum of the winter previous to the last week of April. The result is in general terms the wreck and ruin of the splendid fruit prospects prevailing hitherto. As far as can as yet be determined, the Plum crops have suffered most. Here they may be said to be totally wrecked on walls, pyramids, bushes, and cordon trees alike. This is the more to be regretted, as Plums were scarce last year. This promised to be a Plum year of the most fruitful kind, and most of the fruits were securely set; but as frost after frost occurred, and it increased in intensity from 8° to 12°, and even 18°, the fruit perished. Fortunately, we had not moved our screen of boughs from Peaches, Nectarines, and Apricots on walls, and where these were thickest a sprinkling of fruit has escaped, but it is grievous to see the clusters of fruit almost large enough for tarts as black as one's hat in many open and exposed positions. The fruit saved as well as the fruit destroyed furnish a most powerful argument in favour of protection of some sort, for without it our walls would assuredly have been fruitless.

Early Pears have suffered severely, and according to present appearances the major portion of the Pear crop is also doomed. Apples are later, but they were so severely frozen that the blossoming shootlets drooped their heads like wilted Cabbages or Cauliflowers, and it is feared that such severe freezing repeated three times in so many successive nights may have destroyed the fruit in its semi-embryonic state. The blooms look to have recovered, but, unfortunately, the pistils and ovaries seem more tender than the petals, and I have known the latter to keep their freshness and beauty while the fruitlets had already perished. In some districts the Gooseberries, Currants, and Raspberries are wholly wrecked. The fruit on the crowns of our canes and bushes appears frozen past recovery. So far as can be seen, the Strawberries are not hurt. Considering the mildness of last winter, those in the open are later this year, and although they were frozen very severely, it is hoped that the trusses of fruit yet buried in their crowns may have escaped injury. The frost, considering its lateness and abnormal severity and the mildness of the previous winter, has been less destructive among the Roses than might have been anticipated. Teas here and there showing flower in the open have had their branchlets frozen so severely as to be withered up as if they had passed through the fire; but, writing roughly, those on walls, whether covered or uncovered, have escaped. Even the Maréchal Niel in flower in the open on the end of a plant stove does not look to have suffered so severely as Céline Forestier on the same aspect (east). The dwarf wall facing south, furnished with all the best Teas—most of them in full growth—has not suffered much, so far as appearances go. Possibly, however, the severe

freezings may tell on the health of the plants later on. In general terms, too, the Hybrid Perpetuals seem to have passed through these tremendous frosts with little injury and few losses; while as for the Briers for budding, the growths, bound hard and fast in the iron fetters of the frost, and held back between the biting teeth of the freezing east wind, are off again since the cold rain of Sunday and to-day as if nothing had happened. Happily, we pruned our Perpetuals late, and the shoots were short on them compared with the Teas.

Our hopes of having Rose shows in May have, however, been rudely dashed to the ground by the week's frosts in the latter end of April. We shall be most thankful to reap a fair Rose harvest in due season, *i.e.*, should we escape the wholesale destruction of plants that some less severe frosts of recent years have brought upon us. So far as we can judge at present, we shall have few deaths among our Roses, and but little permanent injury through the frosts that have skimmed all the cream so clean off our brilliant fruit prospects. The frost cut every flower off our masses of Myosotis dissitiflora, and has left Marie Louise Violets that have flowered so bravely and sweetly all winter with semi-blanched prostrate foliage, as if they had had a sprinkling with scalding water. This fine Violet is obviously not nearly so hardy as the Victoria Regina, Czar, and the old double blue, all of which are as green at Leeks, notwithstanding they have passed through the same amount of cold.

Bury St. Edmunds. D. T. FISH.

PLANTS IN FLOWER.

Tree Carnation Valencia.—I herewith send you a flower of this Carnation. I am aware that some have been disappointed with this variety, and I should be glad if you would give your opinion of it, judging from the specimen which I send.—C. WARDEN, *Clarendon Park, Salisbury.*

*** A very beautiful flower, as large and as fine in every way as one could wish. The flower is nearly 3 inches across, is very double, the petals being prettily fringed and toothed. The colour is the richest crimson imaginable, and the perfume delicious, as strong, and as sweet as that of the old Crimson Clove.—ED.

White Violas.—Some charming yellow-eyed white Violas have been sent to us by Mr. Gray, Eglington Castle. They are bright in colour and quite untarnished by the weather, though exposed to sharp frost during three nights. Mr. Gray is of opinion that if these white Violas were better known, they would be highly appreciated by growers for market—an opinion in which we fully concur. Their purity and fragrance would be sure to make them favourites.

Isolomahireuta.—Many Gesneraceous plants can be had in flower at almost any season of the year, more especially the Tydæas, to which Isoloma is nearly related. Its blossoms are tubular, bright orange-scarlet in colour, and they remain in beauty for some time. A distinct feature of this plant is the brownish hairs which cover leaf, stem, and blossom, thus indicating the origin of its specific name. It is a native of South America, and thrives under the same treatment as the Tydæas.

Pinguicula caudata.—The more we see of this lovely Mexican Butterwort the more we are convinced of its value as a greenhouse plant on account of its simple culture and protracted flowering season. Its large bright flowers will compare with those of the finest varieties of Masdevallia Harryana, and many would like it better than that Orchid on account of its distinct style of growth. The best place in which to grow this beautiful plant is a cool greenhouse—not a draughty, dry house, as greenhouses generally are, but in a house where the temperature is cool and the atmosphere moist—such, in fact, as that of an Odontoglossum house; indeed, the best plants we have seen of it have been growing in a shaded cool Orchid house. In Mr. Peacock's garden at Sudbury House, Hammersmith, it is grown to perfection in company with the Odontoglossums, and is invariably in bloom except in winter. In Messrs. Shuttleworth & Carder's nursery at Clapham we also saw it beautifully in flower along with the cool Orchids, but less shaded than in Mr. Peacock's garden. It therefore appears to be indifferent as to light and shade so long as it can have a cool and moist atmosphere.

Iris ruthenica.—This little Iris, which flowers almost every month in the year, is now in full bloom in Mr. Ware's nursery at Tottenham. The flowers, which are about the size of those of I. sibirica, are of a bright lilac-purple, with white blotched falls prettily veined and pencilled. It is a dwarf growing species, and the flowers nestle amidst the slender grassy foliage as if to protect themselves from the weather. It may be easily grown in an open situation in ordinary soil.

Phlox divaricata.—This blue, or rather purplish blue, North American Phlox is among the most attractive of early flowering dwarf Phloxes, and, moreover, the most distinct, inasmuch as no other Phlox possesses the same peculiar colour. The flowers are produced in clusters, each bloom being about the size of a shilling-piece. The plant grows about a foot in height, and forms a dense mass of flower-stems where it thrives well. Some admirable specimens of it have been sent to us by Mr. T. Smith from Messrs. Rodger, McClelland's nursery at Newry, where it is already in full bloom.

Anopterus glandulosa.—This belongs to the once popular, but now much neglected, class of New Holland shrubs, and very pretty and distinct it is when in bloom, in which condition it may now be seen in the temperate house at Kew. It is a plant of erect habit, with dark green leathery leaves 6 inches or 8 inches long, and upright terminal racemes of white, wax-like flowers. Speaking generally, it resembles, to a certain extent, some of the Andromedas, but is stouter in growth than any of them, and the blooms are much more open. It acquires a good size in its native country, but with us it seems to flower freely enough in a small state.

The Tenby Daffodil.—On February 26 we sent you flowers of Tenby Daffodils from Tenby. We have left you to-day (April 22) a few flowers gathered from our grounds at St. Albans. The bulbs were planted at the end of the bulb season. The idea occurred to us that any variety of Narcissus might be had in flower at least two months by successional planting. The flowers now sent were cut on last Easter Monday along with flowers of maximus, major, Sulphur Phœnix, Orange Phœnix, spurius, incomparabilis (single varieties), &c.; in fact, all our late planted Narcissi have flowered almost at the same time.—COLLINS BROS., *Waterloo Road.*

Primroses Madonna and Ambrose Balfe.—Two Primroses bearing these names have been sent to us by Mr. T. Smith from Messrs. Rodger, McClelland's nursery at Newry. Both are first-rate sorts; the former has flowers of a rich yellow, deeper in the centre. Ambrose Balfe is almost a white and is most pleasing. Both belong to the Polyanthus section, as they carry their flowers in umbel-like clusters on short stems above the foliage. A double-flowered Primrose is also sent, but without a name. It seems to be identical with that called platypetala fl.-pl. The flowers are like miniature rosettes, and the colour, a kind of bright violet-purple, is highly attractive.

The Pyrenean Adonis (A. pyrenaica).—This is, we consider, a much showier plant than the commoner A. vernalis, to which it is undoubtedly nearly allied, the plants being similar in growth and foliage. The flowers, however, are different. In A. pyrenaica they are not only larger, but have three or four rows of petals, while in A. vernalis there are usually but one or two. The colour is a bright clear yellow; therefore very showy, particularly when associated with the finely-cut foliage, which resembles that of Fennel. Both of these species of Adonis succeed best in a free sandy loam in an open position, but neither can be classed among easily-grown plants; indeed, well-grown specimens of either kind is an uncommon occurrence. Both plants, however, are well worth extra attention, being so beautiful. They may now be seen in flower in Mr. Ware's nursery at Tottenham, where they succeed well in the moist soil there. A. pyrenaica is particularly fine this season, and each time Mr. Ware has exhibited it, it has been much admired.

Geum miniatum.—This almost perpetual flowering hardy perennial is now in great beauty in various gardens and nurseries about London, and notably in Messrs. Paul's hardy plant nursery at Broxbourne, where it thrives to perfection. The vivid orange-scarlet colour of the large flowers renders the plant a striking object in the open border at this season. This is a rather new plant, raised, we believe, by Mr. Parker from seed obtained by crossing G. aureum with G. coccineum. The colour of the flowers is exactly intermediate, and the plant possesses the hardihood of both parents. There is just now a host of interesting hardy plants in bloom in the Broxbourne nursery, including many rare species.

Piptanthus nepalensis.—This is a stout growing shrub of rapid growth, evergreen during mild winters, but liable, if the weather is severe, to lose most of its foliage. Except in the milder parts of England, it is perhaps seen to best advantage when trained to a wall, as not only is it then somewhat sheltered during severe weather, but late spring frosts are not so liable to cut off the flowers. The leaves are something like those of a Laburnum, but larger and of a deeper green. The young bark is also of the same tint. The blossoms, which are borne on the points of the shoots, are of a beautiful rich golden yellow, and very conspicuous viewed against the deep green of the foliage. It is now in flower on a wall at Kew.

Eurybia (Aster) Gunniana.—This pretty Australian shrubby Aster, Mr. Smith says, is the first to open its flowers against a sunny wall in the nurseries at Newry. It is, moreover, one of the best of the shrubby Asters. The growth is slender, and in the flowering season each branch is clothed with a multitude of white Daisy-like blooms associated with small foliage. It evidently thrives to perfection at Newry, as hosts of other plants of a similar degree of hardihood do, but it does not succeed so well in the neighbourhood of London except in very snug corners where every glimpse of sunshine can be had. Its congener, Olearia (Eurybia) Haasti, has proved itself thoroughly hardy everywhere, and a really first-rate evergreen shrub it is. It succeeds best in light warm soils.

New seedling Narcissi.—From Mr. Peter Barr we have received an interesting and beautiful series of seedling Narcissi, all of which seem to be a decided break from the ordinary run of new Narcissi. This group Mr. Barr calls Tridymus, on account of three flowers being produced for the most part by each variety of which it consists. All the varieties seem to form a section midway between the Ajax or trumpet group and the incomparabilis group, inasmuch as the cups are between the two groups as regards length. As the majority bear triple flowers on a stem, they are showy plants. First in the series is a seedling sent to Mr. Barr by the Rev. A. Rawson, of Windermere. This is named Tridymus A. Rawson. It has twin-flowered stems, bright yellow cups about an inch long, and paler sepals. From a Dutch nursery (Messrs. de Graaf's) Mr. Barr has received a seedling named Tridymus S. H. de Graaf. It is also twin-flowered, but is not so showy as Mr. Rawson's variety. The others in the gathering are seedlings raised by the late William Backhouse. They are named Tridymus Duchess of Albany, with bright yellow cups and primrose sepals; Tridymus Princess Alice, with rich yellow cups and almost white sepals; Tridymus Princess Alice Maud Mary, very small, but pretty; Tridymus Prince Frederic Saxe-Weimar of Coburg, a large showy flower with pale yellow sepals and a deep yellow cup; and Tridy-

mus Duke of Albany, in the same way as the preceding, but smaller. There is also a new form of bicolor named Charles Dickens. It has a large clear yellow trumpet and creamy white sepals; making a beautiful flower. These seedlings are good additions even to the already long list of Daffodils. The names of some of them, however, are, we think, inordinately long. Better have Latin names than such drawn out, cumbrous names as one or two of the above must be considered to be.

Fuchsia syringæflora.—Of this rather uncommon greenhouse plant Mr. Green sends us a marvellously fine specimen from Sir George Macleay's garden at Pendell Court, Bletchingley. The specimen sent consists of a huge flower-stem, the cluster of flowers itself measuring over 2 feet in length and nearly as much through. There are myriads of tiny rose-pink flowers, which, instead of drooping, as in most other Fuchsias, are erect. This head of bloom must have produced a very fine effect when on the plant, which grows several feet in height when planted out and cultivated to the high state of perfection that Mr. Green does. This Fuchsia is an excellent plant for a cool conservatory where plenty of room can be afforded it, and it is always best to plant it out in free soil, as it grows more luxuriantly and does not require half the attention as when grown in a pot.

Double Wallflowers.—Two of the finest double-flowered Wallflowers that have come under our notice have been sent to us by Mr. Baylor Hartland from his garden at Cork. They both happen to be very old varieties, but we venture to say that no new sorts surpass them. One is very dark—a local variety, Mr. Hartland says, raised near Cork some fifty years ago, and all but lost to cultivation. The flower-spikes are massive, and the flowers themselves dense rosettes of petals. The colour is a deep maroon-crimson—in fact, almost black; it is named Blood Warrior. The other is called Golden Drop. It is the counterpart of Blood Warrior, except in colour, which is an orange-yellow. No two Wallflowers that have been sent to us have been so much admired as these have been, and we are sure that Mr. Hartland would do good service if he could take steps to distribute them.

Daffodils from Cork.—A gathering of various species and varieties of Narcissi from Mr. Baylor Hartland's garden, at Temple Hill, Ballintemple, Cork, includes a few interesting kinds, such as a triple-flowered form of N. odorus rugulosus, but it is a question if this three-flowered character is permanent. There are also the double N. odorus, called the Irish Jonquil, and N. odorus minor, a pretty form somewhat smaller than all the rest. Among the large trumpet-flowered kinds are Emperor, bicolor maximus, and a bicolor which Mr. Hartland says is "a local form of bicolor gathered in a field where it is wild." It is identical almost with the original N. bicolor as figured in the *Botanical Magazine*. The specimens include also N. bifrons, a form of intermedius, and the very distinct N. incomparabilis semipartitus with a split crown.

Datura (Brugmansia) sanguinea.—A grand old tree of this Datura may be seen in the conservatory at Kew, where it grows vigorously and flowers profusely every year. The limited head room afforded it by the house in which it grows necessitates the removal of the whole of the growth to within a few inches of the old stem, which has grown crooked and gnarled through long service under so severe a *régime*. In some parts of Ireland this plant is quite hardy, and attains a very large size when allowed to grow unmolested by the pruning knife. There used to be a specimen of it in Fermanagh that measured 15 feet in height and 2 feet 6 inches in circumference of stem, the branches, which hung down to the ground, covering an area of 165 square feet. When well flowered, this tree bore between 200 and 300 blooms, all open together. Our winters are too cold for it to thrive out-of-doors in England, but there is no reason why in such a house as the winter garden at Kew it should not attain the proportions just given. Unlike the rest of the Daturas, this red-flowered one cannot be multiplied by means of cuttings, although thousands have been tried; we have seen hundreds tried ourselves. There is a secret method, however, by which it may be propagated, and that secret is, graft short ripened pieces on D. suaveolens. If the stocks are firm and the scion of the proper age, a union will be effected in about a month. A warm greenhouse, not a propagating pit, is the most suitable place for these grafts until they have taken properly. The Kew plant is now finely in flower, and for the information of those unacquainted with this species, we may state that the flowers are trumpet or funnel-shaped, 6 inches long, and of an orange-red colour.—B.

Hydrangea scandens.—This plant, commonly known as Schizophragma hydrangeoides, is remarkable on account of its climbing habit, which readily distinguishes it from other Hydrangeas. It is a native of Japan and fairly hardy in this country, but when grown out of doors seldom flowers, the buds being usually destroyed by late spring frosts, but a specimen of it in the temperate house at Kew is just now in bloom. Its flowers are borne in flattened corymbs 8 inches or 9 inches in diameter, but the sterile blossoms which constitute the attractive feature of Hydrangeas are but few; therefore it is by no means so showy as some other kinds. When trained to a wall it attaches itself thereto by means of roots, like Ivy, and if the wall is damp makes rapid progress. It is very suitable for clothing unsightly walls in a cool house, in which it would doubtless flower well provided the situation was not too much shaded. It may also be made to assume a bush-like shape by supporting it with sticks, but against a wall is its proper place.

Primroses and Polyanthuses.—A large gathering of these from Mr. Green's nurseries, Thorpe, Norwich, show what an infinite variety of tint there exists among these flowers. We imagine that every shade of colour that the Primrose is capable of producing is represented in Mr. Green's nursery. The colours are simply indescribable, ranging from blacks through all shades, to brilliant yellows and reds, while one, the old blue Polyanthus, is of a slaty tint. The other Polyanthuses, for the most part, are gold and silver laced, and one is finely doubled and deep crimson tipped with yellow. The Norfolk Primroses seem to be much later than those about London, which are now on the wane.

Flowers from Alloa You appear seldom to receive cut flowers from Scotland, so I send some to show what our cool climate produces. I have always liked hardy herbaceous plants, and especially spring-flowering kinds, of which some of the cream are now in flower here, and of which I send you a few. The natural soil here is rather too wet and clayey for hardy plants, especially Primulas, but I mix leaf mould and peat together and put round their necks in the autumn. In this they make fine roots and never fail to produce a good display all through March and April. The flowers I send are well-known sorts, except the Primrose with a green calyx and a seedling Anemone, very large and richly coloured.—John Dick, *Scharpark, Clackmannanshire*.

*** With this note Mr. Dick sends Carnations, border Auriculas, Hepaticas, Wallflowers, Primroses, Arabis, a very fine variety of Anemone fulgens (semi-double), A. coronaria, Erica carnea, Primula nivalis, Scilla sibirica, and others.—Ed.

Blue flowers.—"Rose," who wishes to form beds of these, might begin with—1. Scilla sibirica and, if she can afford it, Chionodoxa Luciliæ. These would carry her through February and March. 2. Towards the end of March Myosotis dissitiflora and Anemone apennina form successions; they are both equally adapted for bedding purposes. A bed of Gentiana acaulis if planted in a favourable position is a lovely sight in April. 3. In early summer Nemophila insignis comes in; there are also the blue Violas and Pansies, and a little later on blue Cornflower (Centaurea depressa) is the best and dwarfest kind, and Love-in-a-mist (Nigella hispanica). 4. Later in the summer, in July and August, Campanula carpatica and C. pumila make beautiful masses of blue; groups of the sky-blue perennial Larkspurs (Delphiniums) should not be overlooked. 5. From late summer till the frosts, the blue Lobelias, of which there are many shades of colour, will carry on the display.—F. E. B.

ORCHIDS.

Odontoglossum Roezli splendens.—A spike of this variety sent to us by Mr. Wright from Mr. Sydney Courtauld's garden at Bocking Place, Braintree, shows what a superb Orchid it is—far finer than the type, the blotches of deep crimson on the flower being twice the ordinary size. This rich colouring in contrast with pure white has a very fine effect. The plant from which this spike was cut, Mr. Wright states, is carrying seventeen flowers, though only in a 5-inch pot—a fine example of skilful culture.

Sale of flowering Orchids.—Messrs. Protheroe & Morris's usual monthly sale of Orchids in bloom took place on Tuesday last, at their auction rooms in Cheapside. There was a large collection of plants offered for sale, including some very choice varieties. The following are a few of the highest prices realised: A fine variety of Cattleya Mendeli fetched 30 guineas, and various other good forms realised good prices. There was an unusual number of fine forms of Odontoglossum crispum; the best fetched 15 guineas. 11 guineas, 8 guineas, and 5 guineas, and a fine variety of O. triumphans went for 10 guineas. Masdevallia Harryana Denisoni went for 5 guineas, and the same amount was given for a good variety of M. Harryana itself, and a very fine dark form of Odontoglossum vexillarium was sold for £6.

Odontoglossum Wilckeanum.—There seems to be among Orchid growers more doubt as to the identity of this Odontoglossum than in the case of any other on account of the numbers of plants that flower in various collections during a season that agree more or less closely with the characteristics of what is considered to be typical Wilckeanum. No doubt from a broad point of view all the so-called Wilckeanums are nothing more or less than forms of O. luteo-purpureum, some having their flowers more richly marked than others. In some collections we have seen several plants labelled Wilckeanum which in reality differ more widely than do many so-called species one from the other. For example, we saw a few days ago in Messrs. Shuttleworth and Carder's nursery in the Park Road, Clapham, several examples of the Wilckeanum variety, and not two alike, some being much superior to others, inasmuch as the flowers were larger and had broader sepals, more richly blotched with cinnamon-red. One form named Wilckeanum citrinum was readily distinguishable by the distinctly citron-yellow ground colour of the flowers, which rendered them very attractive. Besides this series of O. Wilckeanum there were several other choice species and varieties among the hosts grown here, the chief among them being the very fine new O. Shuttleworthi, which lately received a first-class certificate at South Kensington. Though this had been in flower for some weeks, it was still in character, except that the ground colour had somewhat lost its whiteness. There was also a fine form of baphicanthum, one of the prettiest of hybrid Odontoglossums. This particular variety had much more yellow in the ground colour than usual. It is presumably a hybrid between O. crispum and gloriosum. Among the large numbers of O. triumphans in bloom are some exceptionally fine forms, some having flowers fully a third larger than usual and very richly marked. O. hebraicum, the one with the mosaic markings on the sepals, and O. Phalænopsis were among other noteworthy kinds, the latter being particularly well grown in shallow pans suspended close beneath the glass—evidently the right position for it.

TREES AND SHRUBS.

A NEW SHRUB.*

SARCOCOCCA is a near ally of the common Box (Buxus) of our gardens; indeed these two, together with Pachysandra and—from a garden point of view—a couple of comparatively unknown and uninteresting genera, form the tribe Buxeæ of the enormous natural order Euphorbiaceæ. But three species of Sarcococca are known, one of them, S. prunifolia, having long been cultivated as a conservatory plant in British gardens. S. Hookeriana, a native of Sikkim—where it is found at elevations of from 7000 feet to 8000 feet above sea-level—is a much more recent introduction, and in some respects a much more valuable plant, as it is by far the hardiest of the three, having stood out at Kew against a wall for some years. It is a pretty dwarf-growing evergreen shrub with dark green slightly leathery feather veined leaves. In S. prunifolia, a taller growing plant, the longer stalked leaves are a lighter green and the nervation is altogether different, there being three principal nerves. When in flower S. Hookeriana is certainly attractive, the clusters of ivory-white filaments surmounted by the coral-red anthers forming a striking contrast with the dark green foliage. The generic name refers to the fleshy nature of the fruit, a circumstance very uncommon in the Euphorbia family.

Royal Gardens, Kew. GEORGE NICHOLSON.

Flowering branch of Sarcococca Hookeriana.

Flowering shrubs.—I am much obliged to your correspondents for their information in reference to this subject, which I ought to have headed "Flowering and ornamental shrubs." Being in a hurry, I did not mention the following, which I have growing and which are recommended by your three correspondents—Eugenia apiculata, Desfontainea spinosa, Abelia floribunda, Ericas in variety, Choisya ternata, Skimmias, Escallonias, Pittosporum Ralphsi, various Pernettyas, Andromedas, Kerrias, Olearia Haasti, Spiræa Lindleyana, and Furze. I also inadvertently mentioned Calycanthus præcox and Chimonanthus fragrans as distinct plants. The following I have also growing, though a few are in pots in a cold frame at present, viz.: Acacia dealbata, Andromeda Mariana, Androsæmum officinale, Erica arborea, Azara microphylla, Hymenanthera crassifolia, Bryanthus erectus, Rhynchospermum jasminoides, Lardizabala biternata, Robinia Pseudacacia Decaisneana, Clianthus puniceus, Eriobotrya japonica, Corylopsis spicata, Diospyros virginica, Celtis crassifolia, Berberis aristata, fuchsioides, and cratægina, Elæagnus angustifolia and crispa, and Banksia australis. I lost a large shrub of Phygelius capensis, but did not care enough for it to renew it.—OXON.

—— Allow me to correct an error in my list of evergreen shrubs recommended to "Oxon." I did not mean to recommend Phygelius capensis as suitable for a wall, for it seems to me to be specially unsuitable for such a purpose. The three I do recommend for a wall are Abelia floribunda, which requires that shelter; Billardiera longiflora, a diminutive and climbing plant; and Veronica Hulkeana.—C. L.

Exochorda grandiflora.—Despite cold winds and the fact of its slender branchlets being secured tightly to a wall, thus destroying much of its beauty, this shrub is now very attractive at Kew—literally a mass of snowy blossoms; whereas in the open ground they have suffered from frost, as well as those of many other subjects, notably the Chinese Pear (Pyrus spectabilis), the blossoms of which are in most cases spoilt.

GOLDEN-LEAVED SHRUBS.

MANY variegated-leaved shrubs, pretty though they may be when in the propagator's hands under glass, soon lose their beauty when exposed in the open ground. The sun frequently discolours the paler portions, and gives the foliage a burnt appearance, but where the whole leaf is suffused with yellow, and not variegated in the ordinary acceptation of the word, the foliage as a rule remains perfect throughout the season, though in some cases, especially where wholly or partially shaded, the leaves after a time become nearly green, their most attractive stage being when first expanded. All are now very bright and cheerful, the rich golden hue of some making them very conspicuous, even at a long distance off, especially where associated with shrubs of a dark green colour. Amongst yellow shrubs the palm must, I think, be given to the golden-leaved form of the Mock Orange (Philadelphus coronarius), though others tread closely on its heels. This golden Philadelphus is less vigorous than the typical form, but otherwise, except in colour, there is no difference between them. Besides the strikingly rich tone of its foliage, it has another point in its favour, and that is, it is easier propagated than any of the other yellow-leaved shrubs with which I am acquainted. Cuttings of it put in a frame strike readily if inserted in the autumn or young shoots in the summer. The autumn cuttings even strike fairly well in a sheltered spot in the open ground, and, moreover, suckers can often be detached with a few roots, and thus supply a plant at once. The golden variety of Spiræa opulifolia is also fast becoming a popular shrub, and where judiciously planted, a very bright and cheerful one. It is seen to best advantage early in the season, for as the summer advances it acquires a greener tint. Like the Philadelphus, this Spiræa is less vigorous than the typical form. The golden Weigela (W. Looymansi aurea) is seen at its best during the height of the summer's sun; indeed, last season some plants of it employed to hide an unsightly fence to which they were secured formed one of the brightest pieces of leafage that I ever noticed, the colour being greatly heightened by the roasting to which they were subjected. This Weigela may be struck from cuttings put in during autumn or winter when in a deciduous state, but I have been most successful with young shoots made into cuttings in summer. These latter must be kept close and shaded till rooted, which will not be long. Care must be taken to stop damp or decay should any signs of either be seen.

The golden variety of Ribes alpinum forms a dwarf spreading bush a foot or so in height, very suitable for exposed parts of rockwork and similar places, where, during spring and early summer, it is very conspicuous, but as the season advances it becomes much greener. Where the shoots come in contact with the earth they often root, so that it can be increased in this way, especially if artificially layered. Cuttings of it by no means strike root readily unless the stock plant is taken into a little heat a short time beforehand, in order to draw the young shoots out, as is done in the case of Fuchsias and similar subjects. When putting in the cuttings it should be borne in mind that, though hardy, as they were grown in a little heat, the same should be maintained till they are rooted, for if put in a lower temperature than that in which they have been grown, many will probably be lost. The golden-leaved Elder (Sambucus nigra aurea), like the typical form, does well almost anywhere, but is most effective in a hot and exposed position, as then the colouring is very bright. This Elder retains its colour throughout the summer. The most conspicuous examples of it I have seen were dotted here and there in a mixed border amongst shrubs fully exposed to the sun, but in fairly good soil. The Elders, growing quicker than their neighbours, soon overtopped them, and formed large spreading heads of a bright golden colour. This golden variety strikes readily from cuttings made of the half-ripened shoots put in in a frame during summer, or autumn cuttings will root, but not in so satisfactory a manner. Rooted suckers, too, may sometimes be obtained.

* SARCOCOCCA HOOKERIANA, Baillon, "Monographie des Buxacées et des Stylacerées," p. 53 (1859).

Corylus Avellana aurea (the Golden Nut) contrasts strikingly with the purple-leaved variety, but its growth is much less vigorous than that of that kind, and, taken altogether it does not stand in the front rank amongst golden-leaved shrubs. The golden Ptelea is a variety of the old Ptelea trifoliata, itself a very distinct and ornamental shrub, or rather small tree, especially attractive when thickly laden with its flat-winged capsules, something like those of the Elm, but rather larger and with more substance. The golden variety has leaves deeply suffused with gold, a colour which is retained throughout the season. Altogether it is a very desirable shrub. This Ptelea is increased by working it on the green-leaved kind. The golden Laburnum is a tree rather than a shrub, yet it well deserves a passing notice. The same may be said of the golden Oak and Acacia. The golden Laburnum is a counterpart, except in colour, of the common kind, and equally vigorous. Its colouring is not so uniformly bright as that of some of those just mentioned, yet when in the full sun the exposed portion of the leaf has a pleasing golden tint. This variety does not come true from seed, but is generally budded on the green-leaved kind. A number of plants of the latter, I may mention, had been budded with the golden variety, and some of the buds did not grow; after a time, however, the stocks unexpectedly pushed out golden shoots from various parts of the stem and these remained golden. This case is analagous to that of the variegated Abutilon Thompsoni, which, grafted on a green-leaved form, will impart its variegation to the stock, and the variegated Jasmine is another plant which behaves in the same manner. Quercus concordia has a beautiful rich colour, which is well maintained to the end of the season. It is deservedly becoming very popular, but as it is not easily propagated, it will, doubtless, be far from a common plant for some time to come. The golden Oak is grafted on the common English kind. The golden Acacia is a variety of the common False Acacia (Robinia Pseud-acacia), in which the leaves are suffused with yellow. There is also a golden-leaved variety of the Catalpa, which from its large bold foliage might be used in a young state for sub-tropical bedding.

Among evergreen shrubs golden-leaved kinds are but little represented, that is those in which the leaves are tinged with yellow and not strictly variegated. Of these a variety of the common Holly, known as Moonlight, is one, and another is Euonymus japonicus flavescens, a form of the common Japanese Euonymus with yellow foliage, more pronounced on the upper parts of the shoots than on the lower. Like all these Euonymuses, cuttings of this will root at almost any season of the year under the shelter of a frame. Among the different Coniferæ there are a great number suffused more or less with a golden tinge, one of the best of them being the golden Yew, the foliage of which is very bright. ALPHA.

Notes from Vienna.—At the Vienna Flower Show, huge specimens of Anthurium magnificum, coriaceum, Schlechtendali, Philodendron cannæfolium, Sellowianum, robustum, pinnatisectum and others were sent from the Imperial gardens at Schonbrunn. Among rare plants were to be seen Adenium obesum and Fokea capensis. The latter is said to be the only living specimen in existence. Rhododendron Edgeworthi, Gibsoni, Dalhousiæ, and brachycarpum varieties were dispersed amongst the fine-foliaged plants and created a showy display. From the garden of Baron de Rothschild came a fine specimen of Anthurium Andreanum with six flowers, several plants of Tillandsia heliconoides, a lot of well grown Caladiums, and several specimens of Acacia lineata, furcata, and Coccoloba pubescens. From the Imperial gardens at Innsbruck was sent a collection of alpine plants in pots, but owing to the absence of sunny weather few of them had their flowers expanded. From the garden of the Duke of Brunswick came specimens of Pimelea spectabilis, Chorozema ilicifolium, Boronia megastigma, Grevillea Preissi, and a small lot of Franciscea calycina Various plants of recent introduction were sent from Vienna nurseries; amongst them were conspicuous Anthurium Ferrierense, Cycas Therkessi, and several Pritchardias.—LOUIS KROPATSCH, *Laxenburg, Vienna.*

Books.

FOOD AND FEEDING.*

IN this excellent practical little work it is evident that the recipes have been actually tried by the author, or by persons whose accuracy and experience in the various manipulations can be safely relied upon. The book is so correct from beginning to end on the subject upon which it treats, that it would be superfluous to quote extracts from it. We would, however, direct attention to Sir Henry Thompson's chapter on "Fish in Relation to Diet," as we believe the frequent use of fish and fish soups amongst us would tend to promote both health and economy. The remarks in "Food and Feeding" are quite distinct from all or any to be found in our cookery books. Some medical writers, in good set terms, warn us against the pernicious effects of improper diet, but Sir H. Thompson has taken the trouble to direct us how to prepare food properly. Among the many causes which contribute to impair health and produce disease, the most general is the inferior quality of our food. This, again, is frequently aggravated by the injudicious manner in which it is prepared, few persons bestowing half the attention to the preparation of their food, or the preservation of their own health, as they daily devote to their horses and dogs. A few more of such good common-sense books as Sir Henry Thompson's would prove a good means of promoting a healthful existence.

FRUIT-FARMING IN KENT.†

THIS pamphlet contains full and trustworthy information on the subject of fruit culture in Kent, and may be read with profit by fruit growers for market in all parts of the country. The following will show the kind of information to be found in its pages:—

"Fruit growers in Kent," Mr. Whitehead says, "are recognising more and more the advantages of having divers kinds of fruits in their orchards and plantations, in order that if one kind fail there may be a chance of another being productive. Not only do they plant divers kinds, but they also plant those which bear quickly. For this reason Plum trees have been extensively planted, and Damson trees particularly, as well as because the demand for Plums is generally large, and Damsons are always most saleable. Kentish Plums ripen just after the importation of foreign Plums has ceased, and, as a rule, are of much better flavour and quality. It is held by some that the Plums produced in the plantations of Kent are better than any in England, though the Evesham growers rather dispute this. Plums have made high prices in the last two seasons, because the crop has been short. In the last season, those growers who were fortunate enough to grow Plums obtained from 5d. to 6d. per lb. for them; but in Kent, as in other parts of England, there were very few to sell, as the wet seasons had injured the wood, and the blossom, which is usually an attractive feature between the time of the blossoming of the Cherry and Apple trees, was scanty beyond precedent. Plums are sent from Kent principally to the London markets. Their average price to the grower is about 1½d. per lb. Green Gages grown in East Kent have flavour, size, and colour incomparably better than the best from France. Mr. Webb says, 'There are some orchards in Kent planted entirely with Plums, generally 6 yards by 7 yards apart, and they are very productive, notably one of Green Gages at Gillingham. A few years ago this piece was a model of a fruit plantation. The trees were very large for Gages, and bore abundantly, making, I believe, in one year more than £100 per acre.' The sorts of Plums that are commonly cultivated for market purposes in Kent are the Victoria, a large and regular cropper, whose fruit is in much demand for culinary purposes. The early and late Orleans, or Orlines, as natives call them, are also useful sorts, of a second-rate quality, but the trees are good bearers in fairly light soils. Belgian Purple, Gisborne's, Early Rivers, Kent Diamond, White Magnum Bonum, Prince Engelbert, Sandall's, Goliath, Pond's Seedling (whose fruit is enormous), and Mitchelson's are among those principally grown for culinary use and for preserving. For dessert purposes, Early Mirabelle, Early Green Gage, Oulins, Golden Gage, Jefferson, Yellow Impératrice, Washington, Coe's Golden Drop, Green Gage, Blue Impératrice, Prince of Wales, and Late Green Gage are most cultivated in Kent.

"DAMSONS.—It is a favourite method of forming a plantation to place Damson trees with Currant or Gooseberry bushes. Damson trees are also set with Filbert and Cob-nut trees occasionally. Rows of Damson trees are frequently planted round the outside of fruit plantations as a shelter. The kind of Damson that has found special favour among Kentish fruit growers is the Crittenden or Farleigh Damson, raised, according to tradition, by Mr. James Crittenden, of East Farleigh, in Kent, early in the present century. The fruit is larger than the ordinary Damson and the Cheshire and Shropshire Damsons, having a fine bloom with a brisk sub-acid flavour. This kind of Damson can be raised from the suckers which grow numerously from the roots of the trees, though some nurserymen prefer trees formed by grafting upon the Brussels stock This is a very heavy and regular cropper, though last season it shared the same fate with all other Damsons and Plums. The trees were much affected by aphides in the summer and autumn of 1882, which appeared to prevent the putting forth of blossom in the last spring. A few fruit growers washed their Damson trees with soft soap and water, by means of the engines for washing blighted Hop plants, in the autumn of 1882, and grew, in some cases, quite a nice little crop upon trees thus treated, while others not washed grew no fruit. Crittenden Damsons always make at least 2d. per pound. In the last season they made 5d. per lb. It is difficult to say for what purposes these Damsons are used. Some say for jam and Damson cheese and other confections. Others, again, hold that they are used entirely for manufacturing port wine and for dyeing. Whatever may be their destination, it seems that too many cannot be produced; therefore, as well as because they are easily reared, and come quickly into bearing, and produce abundantly, the fruit growers of Kent plant these common Damson trees rather than Plum trees of excellent description; just as they rather incline to plant Apple trees of common, but productive kinds. Plum and Damson trees are frequently put in Grass orchards alternately with Apple, Cherry, or Pear trees; also in plantations with fruit bushes. When set by themselves, or with fruit bushes, they are planted 18 feet by 21 feet apart. Occasionally Damsons are set 15 feet apart. These trees require to be well manured. Not much pruning is done to them after the young trees are fairly in shape, having what is called 'basin-shaped heads.' When they are fairly started with evenly-balanced branches, they are pretty much left to themselves, unless a gross or 'sappy' shoot requires removing, or it is necessary to 'cut back' when a branch is broken off or becomes injured in any way.

"STRAWBERRIES.—It is estimated that there are at least 2000 acres of land planted with Strawberry plants in West Kent upon the tertiary soils lying between Sevenoaks and London. Here and there a grower has as many as 100 acres of Strawberry land in the best parts of this district, where the plants continue to bear well for six or eight years, which is much beyond their average duration in other localities. The plants are obtained

* "Food and Feeding." By Sir Henry Thompson. Warne & Co., London.

† "Fruit-farming in Kent." By Chas. Whitehead, reprinted in pamphlet form from the Bath and West of England Society's Journal. Clowes & Sons, Charing Cross.

from runners taken from the strongest plants directly the fruit has been picked, and are set in nurseries and transplanted out in the autumn. Some growers cut the runners directly from the plants in the autumn and put them in the field. They are set ordinarily 30 inches apart each way, as at this distance the horse-hoe may be used. The best fruit is picked very early in the morning, so that it may be fresh for the markets. Occasionally the growers sell the produce of their Strawberry farms to persons who pick, pack, and take all the risks at from £17 to £19 per acre. It is also very usual for the growers to contract to supply their fruit at from £17 to £27 per ton. Sometimes the finest fruit in punnets makes 1s. or more per lb., and the average price is between 6d. and 8d. per lb. Much poor woodland in the West Kent district has been grubbed and planted with Strawberries and Raspberries, both of which answer admirably, and may be safely cultivated by tenant farmers with ordinary leases.

"RASPBERRY PLANTATIONS in West Kent have increased largely latterly, as well as in the district round about Rainham, Sittingbourne, and Faversham, and in that round about Maidstone. Raspberries are easily cultivated, and come into bearing the second year. Kent growers plant the canes, which are raised speedily from cuttings, in rows about 3 feet apart, with the plants from 12 inches to 15 inches apart in the rows. The canes are not staked, and are cut down in the autumn to about 3 feet from the ground. They are often set in alternate rows with Red Currants. Women pick the fruit in galvanised iron pails to preserve the abundant juice; it is sent to the contractors or to market in tubs. An average crop ranges between 1¼ tons to 1½ tons per acre; 2 tons are sometimes grown. In the last season a fortunate grower in Kent grew at the rate of 2 tons per acre from Raspberry plantations, for which he obtained £30 per ton by contract, made before the picking commenced. About 2½d. per pound is the average price of the fruit to the grower. It is estimated that the increase in the Raspberry plantation in Kent is twenty per cent. in the last five years.

"GOOSEBERRIES are also very largely cultivated in the Maidstone district, as well as in East and West Kent, and are planted both under Plum, Damson, and Apple trees, and by themselves, as has been shown before, and occasionally with Cob and Filbert trees. The Gooseberry bushes prefer rather light soil of a porous nature, and thrive especially upon what are known as 'stone shattery' soils in Kent. They are planted 6 feet apart with standards and bush fruit trees, which would give 1210 bushes to the acre; or 5½ feet apart when set by themselves, which would take 1440 bushes to the acre. The plants are easily propagated by short pieces of the leading shoots, which are cut off in the autumn. These pieces, about 8 inches in length, are put in a nursery, and in two years become good-sized trees, ready for forming a plantation. Kentish growers prune the Gooseberry bushes very closely each year, cutting away the coarse wood, and leaving young wood principally for fruit-bearing. The sorts usually grown are the Whitesmith, Early Sulphur, Warrington, Crown Bob, Yellow, Rifleman, Golden Drop, Lancashire Lad, and Monarch. The three first are largely cultivated for picking green, and the Warrington also for picking late. There is no better Gooseberry than this for both these purposes, and none more generally found in the Kentish plantations. It is the practice to send Gooseberries to market in an unripe state until the price falls to an unremunerative point. There is a considerable demand for the fruit in this state, and an enormous demand for it when ripe for eating and for jam-making. There is not much competition from abroad in the case of this fruit, and though it does not reach a high price except in seasons when it is very scarce, it is on an average a profitable crop. The same may be said of

"RED CURRANTS, in the cultivation of which there has probably been an increase in Kent of about 10 per cent. in the last four or five years. A lightish soil suits these bushes, which are usually set by themselves, or with Raspberry canes, and sometimes with Plum and Damson trees. The mode of propagation is the same as in the case of Gooseberry bushes, as well as the distances at which they are set apart. Kentish pruners cut away much of the young wood from these bushes, as the fruit comes upon what are called snags, thrown out each year from older wood. The price of Red Currants runs about 2d. per pound upon an average, and the demand for them is very large for making jam, jelly, and for culinary purposes.

"BLACK CURRANTS have also been extensively planted in the last few years, but, unlike Red Currants and Gooseberries, they require a deep, moist soil, that does not crack in hot summers, as the fruit would run in such circumstances. There are only three sorts generally grown in Kent, viz., the Black Naples, which is the same as the Green Bud, Baldwin's, and Lee's Prolific. In suitable soils Black Currant bushes are very prolific. Mr. Webb speaks of bushes which have grown as much as 24 lbs. each, and cites an instance of a planter who had grown 250 bushels on two acres of bushes three years old, which realised £118, less the expense of picking and sale. These bushes are raised from cuttings. Any piece with 'eyes' will grow. They are not, however, formed upon single stems with cup-like heads, as Gooseberry and Red Currant bushes, but are made to grow from stocks, or stubs, close to the ground, from which shoots are sent up in abundance. In the autumn the old shoots are cut away, as the fruit is better produced upon young vigorous wood. Much clearing out is requisite in the case of Black Currant bushes upon congenial land. For this fruit there is always a great enquiry, principally for jam and lozenge manufacture. The price rarely falls below 2½d. per lb. An average crop of Black Currants, in circumstances suitable to their cultivation in Kent, is probably between 1400 lbs. and 1700 lbs. per acre."

FLOWER GARDEN.

GENTIANA ACAULIS AS EDGINGS AND IN MASSES.

THE prettiest plants in the garden just now, either in or out of doors, are plants of this lovely Gentian. We grow it in lines by the sides of walks and on slightly raised mounds. The lines by the sides of walks are about 1 foot wide. About once in six or seven years the plants are taken up directly they go out of flower; we find it necessary to take them up occasionally, as they get so matted together that the growth becomes weak and the flowers reduced in number and get smaller, *i.e.*, after they have been growing in the same soil for any length of time. I should also state that our plants are growing between flat pieces of stone set up edgewise. Both plants and stones are taken away and laid on one side, the soil is then taken out to the depth of 9 inches, and its place supplied with good turfy loam that has laid for a few months in a heap. About 6 inches of this is put in, and then the stones are put back in their places in an irregular manner, except that they are made level with the surface; we leave about 2 inches of space between the stones for the reception of the plants. The latter are then divided into such pieces as will conveniently go between the stones and planted, so that they do not touch one another. As they are put in some soil is carefully packed about their roots, sufficient being used to cover all but the surface of the stones. The whole is made pretty firm and then well watered. As to time, we prefer taking them up and dividing as soon as they go out of flower, as that gives them ample time to get re-established before the flowering season returns. Planting thus early, however, entails a little more labour than would otherwise be the case; they require, for instance, to be watered in dry weather to assist them in getting established, and we shade them as well when the sun shines brightly with green branches laid lightly on them. Where these attentions cannot be given them the planting had better be delayed until early in September, a season when we mostly have moist and growing weather that enables them to take care of themselves. Those that are late planted will not, however, flower so well the first year as stock planted earlier. Those grown on slightly raised mounds are dealt with at the same time and in the same way as the others. These masses are irregular in form, about 4 yards in circumference, and when first planted the centre is about 9 inches above the surface, but I find they get lower as the soil settles down, so it is best to allow for this sinking down at the time of planting. When so raised they are certainly more effective than when growing level with the surrounding surface. The stones which we use are from 1 inch to 2 inches thick, and about the size of a man's hand. The way in which the roots wrap themselves round them is sufficient evidence that they afford the plants just the conditions they like, and although we never put them close together, they make a carpet of green sufficiently close to cover the whole surface in one year. I have never met with the same success when I have attempted to grow this Gentian without the aid of stones. Our loam, too, seems to suit them; it is rather heavy, although it comes off the red sandstone.

J. C. C.

ORNAMENTAL CUCURBITACEOUS PLANTS.

CUCURBITS, although not so showy as one might expect, are, nevertheless, when appropriately used,

Flowers and branch of Sicyos angulatus.

very effective. For covering old buildings and tree trunks they are unsurpassed, as their quickness of growth enables them to clothe them in a surprisingly short time. For this purpose the common Bryony is very useful and doubly so, being within the reach of everyone. Even on account of the variety in their fruits alone they deserve a place in every garden. The squirting Cucumber itself never fails to interest one; it grows regularly every year from self-sown seed, the only attention required being to thin out seedlings where not desired. Of the genus Sicyos, one or two of the species are quite hardy; most of them are annuals, but they reproduce themselves freely from self-sown seed. They are climbing or trailing plants, some of them having been known to attain a height of 50 feet to 60 feet on trees, to which they cling with their corkscrew-like tendrils much in the way in which Vines climb. Although they grow most luxuriantly in strong loam, any garden soil will suit them much better, as over-luxuriance in their case becomes troublesome. The fruit, which is borne in small clusters from nearly all the joints, is very singular, being covered with stiff hairs, irritating to the touch. S. angulatus, of which an illustration is here given, is one of the best and hardiest. It is an annual and a native of North America, where it is found on the banks of the Columbia. The leaves, which are angular and slightly cordate with the angles sharp pointed, are of a beautiful light soft green colour and furnished with remarkably long tendrils, by which the plant clings to the neighbouring brushwood, from which it hangs in graceful festoons. The flowers, which are borne in corymb heads, are large and of an at-

tractive sulphur colour. S. pachycarpos, which is similar to the above, is also a desirable plant.

D. K.

SINGLE DAFFODILS BECOMING DOUBLE.

Now that gardening journals afford such facilities for the interchange of information and cheap postage for interchange of specimens, gardening science ought to progress rapidly. One interesting subject, about which there ought no longer to be any doubt, is that of the doubling of single Daffodils when planted in a soil possessing the requisite doubling conditions. Having devoted much time during the past month to collecting information and examining evidence about this, I may say that the abundance of what I believe to be trustworthy testimony is such as would be sufficient to convince any jury of Englishmen. I have particulars of the change from single to double having taken place in at least twenty gardens in different parts of the kingdom. It has hitherto been the habit to discredit this information, because those whose observations teach them that single Daffodils when planted in gardens continue single are far more in number than those who find that they turn double; and whatever may be the conditions required to produce the doubling, it is not to be supposed that they exist in more than a small proportion of the gardens of the kingdom. The variety of which the doubling has been most frequently noticed is the typical wild Lent Lily (N. Pseudo-narcissus verus), but sometimes in the same gardens N. poeticus and N. incomparabilis have been observed to change from perfectly single to double. Two owners of gardens—one at Frome, in Somersetshire, the other near Hawick—have told me that a few years ago there was not a bulb of N. poeticus in their garden; that they planted bulbs of the single variety, which, after remaining quite single for a year or two, became double, and that now every bulb of it in their garden produces double flowers. In one of these gardens the experiment has been repeated with the same result. In the garden at Frome also a long row of single wild Daffodils was planted, which began by doubling at one end. The doubling gradually spread, and in three or four years every bulb was producing double flowers. Several of my informants have given me leave to mention the name of their place. One of the best attested cases occurred at Steventon Manor, near Micheldever, in Hampshire. Some years ago the owner of this made a new flower garden, in which the only Daffodils planted were wild single-flowered bulbs from a wood at Longparish. I know the wild Daffodils there, and know them to belong to the typical kind, but if I had any doubt about this it would have been ended by the wild specimens which were sent with the information. Most of these flowers became double the next year, and when the astonished owner repeated the experiment the result was the same. Another case was at Knowle Hall, in Warwickshire. Mr. Silver, who was a few years ago gardener there, was surprised to find single wild Daffodils become double when planted in rich soil in his garden. He is now living at Brynkinalt, near Chirk, in Denbighshire, and having tried the experiment there carefully three or four times, is perfectly willing to submit to any cross-examination on the subject. I may add that the postmaster at Knowle also finds wild Daffodils change to double in his garden. But the mere doubling of the Daffodils is not the most curious part of the matter. The double form assumed is hardly ever that which the wild Daffodil assumes when it becomes double in its native habitat in Devonshire and Hampshire. In doubling in gardens it at once adopts one of the major forms. In fact, I am assured by most of my correspondents that the doubles of it cannot be distinguished from the common large garden Daffodil. Double flowers from Steventon and Brynkinalt from bulbs which a year or two ago were single and wild seemed to me to belong to what is usually called N. Telamonius fl.-pl. Undoubtedly they were larger and more yellow than any form of double I have ever seen assigned to wild Pseudo-narcissus, but they were too nearly withered before being set for me to speak with certainty as to the variety. The garden recently occupied by the clergyman of Warkworth, in Northumberland (not the rectory garden) and the garden of Alton Vicarage, in Hampshire, as well as that of Brackley, in Northamptonshire, all have this doubling power, which I have no doubt would be found to extend to others near these centres of intelligence. I would especially invite the investigations of those whoare interested in the subject to observing the change of variety, as well as of form of flower, of these wild single Daffodils. My own belief is that these yellow trumpet Daffodils are far more intimately related than they are generally believed to be. About four miles to the south of Conway is a wild mountain side, where the number of protruding rocks and large loose stones must always have prevented cultivation, though the soil is good loam and Bracken and Briers grow in abundance. Thirty acres of this at about 1000 feet above the sea level is more or less covered with wild Daffodils. I have often spent hours among these when in flower, and have in vain searched for variations from the type, the limits within which the flowers vary either in colour or form being very narrow. From this store, which is inexhaustible, and no doubt truly wild, I have supplied about twelve gardens, which claim to have the doubling power, with plenty of bulbs, and have asked to be allowed, in one and two years, to require the result. I shall be glad to supply any other gardens where careful experiments will be tried. High cultivation and richly manured and deeply trenched soil seem to be desirable, though not indispensable, conditions for success, but the whole history of these conditions is at present a mystery.

C. Wolley Dod.

Edge Hall, Malpas, Cheshire.

DAFFODIL CLASSIFICATION.

In order to facilitate the arrangement of my own sketches and notes on the Daffodils, I some time ago drew up the following simple arrangement or classification of these popular flowers. It is very simple, and its use would simplify matters in speaking or writing of these classical blossoms. I had intended to have brought it before the *connoisseurs* assembled at the Daffodil conference, but other matters intervened, and after all it will meet more eyes, and perhaps be of more practical service as here given:—

POPULAR CLASSIFICATION OF DAFFODILS.

RUSH-LEAVED.

N. Bulbocodium (Hoop-petticoat Daffodils).

1. Golden Hoop-petticoat Daffodils

Examples:

N. Bulbocodium var. tenuifolius, conspicuus, minor, minimus.

2. White or sulphur Hoop-petticoat Daffodils.

Examples:

N. Bulbocodium var. monophyllus, Graellsi, citrinus, obesus, minor, sulphureus, nivalis.

FLAT-LEAVED.

N. Pseudo-narcissus (Trumpet Daffodils).

1. Yellow Trumpet Daffodils.

Examples:

N. Pseudo-narcissus, N. maximus, N. major, N. spurius, N. princeps, N. nobilis, N. lorifolius, N. Telamonius, &c.

2. Bicolor Trumpet Daffodils.

Examples:

N. bicolor, N. b. maximus, N. pr mulinus, N. sulphurescens, N. Emperor, N. Empress, N. Horsfieldii, &c.

3. White or sulphur Trumpet Daffodils.

Examples:

N. cernuus, N. moschatus, N. tortuosus N. Lobularis, N. cernuus pulcher, N. Milneri, N. Exquisite, &c.

4. Pigmy Trumpet Daffodils

Examples:

N. minimus, N. minor, N. nanus.

5. Polyanthus Trumpet Daffodils.

Examples:

N. tridymus, N. Mastersianus, N. bicolor dianthus, &c.

A glance at this table will show how little we know of the variety among the Rush-leaved or Hooped-petticoat Daffodils. I believe these varieties are far more numerous in Spain and on the Pyrenees than we have any conception of at present. Mr. Perry, who is now on the track of the rarest wild Narcissi in Europe, will, I hope, some day be able to enlighten us on this point; as also will, I trust, Mr. Wilson, jun., who has just had a pleasant tour in Portugal, where the lovely N. triandrus is found in its best and largest forms. As a fact, we have of recent years been so taken up with garden Narcissi and seedling or hybrid Daffodils, that the wild forms have been sadly neglected. My first and only request of travelling friends for years has been for bulbs of all the wild Narcissi they may meet with, and the result has surprised me in many ways. One thing I trust Mr. Perry may be able to settle for us, and that is the home or native habitat of the white or sulphur Daffodils.

N. cernuus and N. moschatus have been grown in English gardens ever since 1629, no doubt even yet earlier, and although I have made many enquiries, I never yet met anyone who had actually gathered or seen any one of these white Daffodils growing absolutely wild. Spain is their accredited native country since Parkinson's time, but I believe this has never been corroborated since his epoch. Redouté, in figuring N. candidissimus (or is it N. albus, as I am writing from memory?), gives the Pyrenees as its home, but no traveller seems to have met with it there.

The origin of double Daffodils must, in the first instance, have been from the wild or single types, but, as Mr. Barr pointed out at the Daffodil conference, the double N. incomparabilis aurantius, or Orange Phœnix, not unfrequently reverts to a single orange-crowned Chalice flower—the same which attracted so much attention at the conference the other day. I do not say that double Daffodils do not produce good growable seeds, but I am convinced that a better plan of obtaining them would be to fertilise single Daffodils with pollen taken from double, or rather semi-double, flowers.

The double Daffodil raised by Dr. W. H. Browne from a seed of N. nanus is very distinct and effective. The first flower I had seen of it was given me at the conference, and it was very much admired. I hope Dr. Browne will, at his leisure, tell us exactly how he did raise this double Daffodil, since we have, I believe, no record of a double Daffodil having been raised since Parkinson himself raised the double form which bears his name in the year 1618. Although Dr. Browne tells us this double variety was raised from N. nanus, it differs in size and colour from the single type, and instead of calling it N. nanus fl.-pl., perhaps a better name would be Dr. Browne's double Daffodil. That it should have appeared at the Daffodil conference side by side with the great Welsh Peerless or N. incomparabilis James Dickson, was a happy coincidence; both new kinds were a pleasant, because unlooked-for, surprise.

F. W. Burbidge.

LILIES AND THE WEATHER.

This has been the most trying week for Lilies which I remember. The early spring had brought them very forward, and L. auratum and L. speciosum had many of them strong growths from 2 feet to 3 feet high, such as they usually have in the second week of May. The four hard white frosts in succession tried them terribly. We had 10°, 14°, and 11° of frost; our beds are in all sorts of situations, from complete exposure to sun and wind to complete shade and shelter. I have looked carefully over them; in some there are no signs of injury, in others a few stems are bent too much to hope for recovery, in others more, in others most are so. Those most sheltered from sun and wind as a rule are least injured, though some plants in full exposure have stood. I think it will be found through the country that those planted in Rhododendron beds have escaped, and that my friend Mr. McIntosh's white parasols with which he treats his favourites have done good service, and L. cordifolium and L. giganteum in large leaf have suffered the most, but I hope some of them have escaped serious injury. Of course we have many Lilies of all sorts in different situations not sufficiently advanced to be much hurt, but I have never seen so much damage done before. We had put up what was thought sufficient shelter, and what would be so in any at all ordinary seasons, but it is evidently necessary to take measures against the worst. It is curious to see how little some plants care for frost (that is if dry). In a bed of Gentiana acaulis (Gentianella) I counted about 250 expanded blooms in their

fullest beauty absolutely untouched. A large bush of Spiræa grandiflora (Exochorda) in full flower and young leaf and the large Anemone fulgens were the same, which rather surprised me. Erpetion reniforme, Vallota purpurea (earthed up), and Goodyera japonica seem all right.

GEORGE F. WILSON.

Heatherbank, Weybridge.

A HYBRID MONTBRETIA.

(M. CROCOSMÆFLORA.)

IT is but a few years since we first heard of the pretty M. Pottsi flowering for the first time in Mr. Potts' garden at Lasswade, near Edinburgh, and which we figured in THE GARDEN some four years ago. Since that time M. Lemoine has been busy in crossing and raising hybrids between M. Pottsi and the old Tritonia aurea, also well known under the name of Crocosma aurea. The result of M. Lemoine's industry has been the production of a valuable plant, which he calls M. crocosmæflora, on account of its flowers partaking of the size, colour, and shape of the original Crocosma aurea, one of its parents, while floriferousness and

Montbretia crocosmæflora.

brilliancy are inherited from the other parent, M. Pottsi. M. crocosmæflora is, indeed, when well grown, a strikingly showy plant—showier, indeed, than either of its parents. We remember seeing last year or the year before some uncommonly fine pot plants of it in the Horticultural Gardens at Chiswick, where it was admired by everyone, flowering as it did late in the autumn before the regular influx of winter flowers set in and when bloom was scarce. These plants were between 2 feet and 3 feet high and of the same style of growth as that represented by the accompanying engraving. The flowers were nearly the size of those of Tritonia aurea and of a deeper and richer colour, which, seen in contrast with the grass-green foliage, had a pretty effect. This hybrid Montbretia is said to be hardy, and so it may be in southern gardens, but as a rule it is far more satisfactory in pots underglass. The bulbs require to be potted as early in spring as possible; after the foliage appears above the soil attention as to watering will be required, and when the foliage is in full vigour a watering now and then with weak manure water will materially assist in developing strong flower-spikes. A good sandy, loamy soil is best for this plant, and when grown in pots good drainage must be afforded it, as, like other Cape bulbs, it is impatient of stagnant moisture. In warm and sheltered localities it may be advisable to grow it in the open border in company with its parents and other bulbs of a similarly hardy character, but its bulbs should either be lifted after the foliage has decayed, or they should be well covered with ashes or other material which would effectually protect them from frost.

A SPEEDILY-MADE SUMMER BOWER.

A VERY beautiful summer bower may be reared and quickly covered by getting half-a-dozen long supple poles of Ash or Hazel, such as are plentiful where coppice is being cleared; have them of about equal strength; sink their ends firmly into the ground, and draw the tops together, and firmly secure them so as to form the framework. At the foot of each pole may then be sown a few seeds, each of Sweet Peas, two varieties of Convolvulus major, two of Tropæolum Lobbianum and of the Canary Creeper (Tropæolum aduncum), enriching the soil well first, either by replacing the old with new, or by well mixing with it a quantity of good rotten manure. A wide network of string can be carried round the poles on which to train the plants as they grow, and by autumn the result will be a pleasant bower, the ingress to which should be near a walk; the floor can readily be made dry and clean by laying down on it a few flat tiles or boards, or a thick carpet of beautiful velvety wood Moss lifted in large flakes. The seeds named ought to be sown at once in good soil; all of them will grow with great rapidity when once started, and they will speedily clothe the rough framework with leaves and flowers both showy and fragrant. A. MOORE.

Cranmore.

Nomenclature of Daffodils.—Regarding the renaming of Daffodils, it seems to me to be a mistake to name a plant after some Mr. or Mrs. So-and-so, as most florists' flowers are. Such names give no information as to what form or colour the flowers are: but when we have, say, Narcissus incomparabilis sulphureus aureo-tinctus (one of the longest names in Barr's catalogue), we can form some idea of what it is—a sulphur variety of incomparabilis, with a tinge of orange on the crown (aureo-tinctus); and then in Narcissus odorus minor plenus (another long name) we have the exact idea, viz., small, double, sweet-scented, and yellow.—P. E. N.

Yellow Crown Imperial.—This plant will not grow with me. I plant large bulbs of it in good soil in the same border in which the brown-coloured variety succeeds admirably, but the yellow one never grows strongly enough to flower: yet every spring as I go through our village I can see it flowering as well as anyone could wish in a cottage garden, where it has evidently stood for many years undisturbed. It is seven years since I planted two dozen strong bulbs of it in four separate clumps, and only one of these sets has given me any flowers, and these were poor and weak. One set furnished a capital example of suspended animation, for not one of the six bulbs made any growth the first year, yet they remained sound. Next year some growths appeared above ground at the same time as the others, but so weak that they did not reach a height of 12 inches. I may mention that everything else grows with the greatest freedom in the same border. I am much disappointed in not being able to succeed with this yellow variety, for I consider all the different Crown Imperials to be striking objects at a time when outdoor flowers of the same character are scarce.—J. C. C.

SHORT NOTES.—FLOWER.

Batchelor's Buttons (*J.*).—Ranunculus aconitifolius (Fair Maids of France) is sometimes known as Batchelor's Buttons, but the name is also applied to double-flowered varieties of our common yellow Buttercups.

Primula rosea grandiflora.—This is undoubtedly one of the brightest coloured of all the Primulas; it is much more brilliant than P. rosea. When grown in pots its flowers seldom rise much above the foliage, and therefore its beauty is lost. A swamp is the only place in which either this or its parent can be seen to the best advantage, and they are all the better for having their roots in running water, if that be possible. Under such treatment the flower-stem elongates to 6 inches or 9 inches, and then the effect is charming.—D. K.

Primrose or Polyanthus?—I said over a year ago that it would soon be difficult to tell where the Primrose ended and the Polyanthus began in the new seedling forms lately raised, so mixed had they become. We have here numbers of plants in which the Primrose and Polyanthus habit is combined, some flowers being borne on single stems, and others in large clusters. Not only that, but I have several plants, and one very tall and conspicuous specimen in particular, with a purple flower, which produces the Polyanthus stalk bearing a cluster of flowers, all of them with long slender Primrose stems 3 inches and 4 inches long, giving the cluster a wide straggling appearance. I have noticed these loose heads before, but none so distinct as the one under notice, which often bears a truss with fourteen Primrose flowers on a Polyanthus stem.—J. S. W.

Arabis blepharophylla.—This is a pretty plant at this season of the year. Its flowers, which are produced freely, are of a deep rose colour and very handsome, often on well-grown specimens attaining an inch in diameter. It grows from 6 inches to a foot in height, and is densely clothed with hairy, spoon-shaped leaves. Another plant, sent out under the name of A. Stelleri, I take to be a variety of the above; it has much paler flowers, and is not nearly so handsome. A. blepharophylla is the only rose-coloured Arabis in cultivation, white being the prevailing colour; A. blepharophylla requires a sunny spot on the rockery and light, rich soil. The very best place for it is an old wall or wedged in between stones, as it is very susceptible of damp. It strikes freely from cuttings, which are produced in early autumn.—D. K.

FERNS.

BEST CULTIVATED FERNS.

(*Continued from p.* 276.)

MENISCIUM.—Although this genus comprises only a few species, these are sufficiently distinct to render it interesting; the majority of them are strong-growing, handsome plants, but one at least amongst them is of such small size that it is frequently used in Fern cases, a purpose for which it seems particularly well adapted. Nearly all of them have a beautiful venation quite peculiar to them. All Meniscums, being swamp plants, are useful for planting in ferneries near the margin of water, a place where many Ferns do not grow unsatisfactorily. As to soil, they thrive luxuriantly in a mixture of half loam and half fibrous peat, with a few pieces of crocks or charcoal intermixed. Though their roots, which are fleshy, are fond of moisture, they have a great dislike to stagnancy of water.

M. DENTATUM is a Brazilian species, of robust growth and great beauty; its handsome fronds sometimes attain a height of 6 feet; they are pinnate, the pinnæ being set somewhat far apart, and measuring from 6 inches to 7 inches in length and 1½ inches in breadth. The whole plant is of a pleasing pale green colour; when grown as a sub-aquatic it has but very few rivals. Stove.

M. PALUSTRE.—This is also a Brazilian species; although of somewhat smaller dimensions than the preceding, it is nevertheless a most useful and highly decorative plant, producing numerous pinnate fronds rarely exceeding 4 feet in height; the pinnæ which measure between 5 inches and 6 inches in length and nearly 2 inches in width, are of a very dark green colour, contrasting singularly with the species above described; their undersides are crowded with sori of a beautiful bright chestnut colour. Stove.

M. SERRATUM.—A most interesting species from Tropical America, with pinnate fronds abundantly produced from a creeping rhizome, and seldom reaching more than 15 inches in height. The pinnæ, which are deeply serrated on their margins, are alternate and somewhat loosely set, of a very dark glossy green on their upper surface and paler below where the most beautiful venation, the principal attraction in the plant, is shown by

alternate lines of ridges and furrows very conspicuously marked. The side or lateral pinnæ generally measure from 4 inches to 5 inches in length and 1 inch in breadth, whereas the terminal one is fully 6 inches long and 2 inches broad. It is altogether a most attractive and interesting species, and one which does not require a great deal of room in which to attain full development. Stove.

M. SIMPLEX.—This charming little Chinese species has until now been found only in the vicinity of Hong Kong. It is as totally different in habit as it is in size from any other species belonging to the genus; instead of being a strong grower and spreading, it is a miniature little plant, rarely attaining more than 7 inches in height: and whereas all the other species are pinnate, the barren fronds of this little evergreen one always remain simple, lanceolate in shape, about 2 inches broad at their widest part, and conspicuously auriculate at their base. The fertile fronds, although of the same shape, are seldom more than half-an-inch in breadth, and completely covered with reddish sori. It is also well adapted for growing in a Fern case, where it thrives remarkably well, and makes a pleasing contrast with other Ferns of a lighter or more finely divided character. Greenhouse.

M. TRIPHYLLUM.—A lovely species from Southern India, with numerous subcoriaceous pinnate fronds freely produced from a thick, very scaly, underground creeping rhizome, and averaging between 12 inches and 18 inches in height. They seldom have more than one pair of pinnæ, with an odd one, oblong lanceolate in shape, and generally measuring about 6 inches in length and 1 inch in breadth, all cuneate, very unequal at the base, and slightly hairy on the veins, which are abundant and very conspicuous. The whole plant is of a very dark green colour. Stove.

MICROLEPIA. — This genus, which contains plants from nearly all parts of the globe—from the lovely dwarf-growing African M. anthriscifolia to the handsome strong-habited M. platyphylla from the East Indies—is very closely related to the Davallias, from which the Microlepias botanically differ in having a half cup-shaped fructification and intramarginal sori only. As in Davallia, some of the species are provided with rhizomes, which are, however, all underground and creeping, while those of the Davallias require to be kept on the surface. Some of the species are, however, without rhizomes, and produce their handsome fronds plentifully from thick tufted crowns. As decorative plants most of them deserve special notice and all are well worthy of cultivation; for besides being of easy culture and rapid growth the majority of them have finely divided foliage of a peculiarly gracefully arching habit, and all of them seem to possess a much more enduring constitution than the majority of Ferns, accommodating themselves to situations exposed to the influence of sun and even drought where most other kinds would infallibly perish. Some such species as M. hirta cristata and M. hirsuta angusta are most valuable as basket plants—the former for large baskets, the latter for those of smaller dimensions. All the Microlepias, too, make capital rockwork plants, where, when planted out, they soon make fine specimens. Indeed, the culture of these useful and not sufficiently appreciated plants cannot be too earnestly advocated, the more so inasmuch as they are not fastidious in their requirements. Nearly all of them thrive well in a mixture of equal parts of good fibrous peat and silver sand, with an additional portion of loam for a few of the strongest growing kinds. Although they do not, especially during summer, object to frequent syringings, which have the effect of inducing them to make robust growths, it is advisable to keep their foliage dry, as when treated in that way the fronds, though perhaps not produced in so great an abundance, are firmer in texture, do not get spotted, and possess the advantage of lasting much longer on the plant than they otherwise would do, as one may often see M. strigosa planted out in a cool fernery, and kept dry overhead during all the season, with fronds two years old. Such a result cannot be expected, or in any case is not produced, where the plants are syringed, although their fronds then spring up in greater quantities, and have generally a more luxuriant aspect.

M. ANTHRISCIFOLIA.—This is a charming South African Fern and the dwarfest species of the whole genus. It is deciduous and quite peculiar in growth, its beautifully quadripinnate fronds resembling in their numerous and finely-cut divisions those of Cheilanthes elegans. They are abundantly produced from strictly underground creeping rhizomes, small, and of very wiry texture. These fronds, which grow almost upright, seldom measure more than from 6 inches to 7 inches in height, but their breadth varies from 2½ inches to 3 inches in width at their widest part. They have a soft green colour and velvety texture, and, being borne on slender and slightly hairy short stalks, give a delightful effect to the whole plant. This species possesses the advantage of being quite hardy. In the York Nursery it has stood uninjured for several winters on the outdoor rockery; being of small dimensions and a capital grower, it may with advantage be used for making edgings in the cool fernery under glass. It is also remarkably well adapted for growing in hanging baskets of small dimensions, but special care must be taken not to allow it to get dry during the resting season as its slender rhizomes soon lose their vitality if the soil around them remains dry for any length of time.

M. HOOKERIANA.—This species from Assam is somewhat scarce in cultivation, although, on account of its robust constitution, distinct character, and comparative hardihood, it well deserves to be grown more extensively than has hitherto been the case. Its strictly pinnate fronds are lanceolate in shape, and borne on flexible hairy stalks from 12 inches to 18 inches long, rising from an underground scaly rhizome. Its pinnæ, which are set closely together, slightly petiolate, and of soft texture, are serrated on the edges, and measure from 4 inches to 5 inches in length. They are also conspicuously auriculate at their base, the terminal one being generally much elongated. The whole plant is of a pleasing pale green hue, and particularly well adapted for planting out in the cool fernery.

M. HIRSUTA ANGUSTA.—A very graceful species, found all over the Malayan Archipelago, and one which is of great service where hanging baskets of moderate dimensions are required, few plants being better adapted for that purpose. Its long, narrowly-lanceolate fronds, of soft texture and pendulous habit, are very ornamental, especially when seen from below, their pellucid character being then shown off to advantage; they are bipinnate, the pinnæ being alternate, and the pinnules deeply dentate, and borne on green round stalks slightly hairy and flexible. The very rhizomes from which they are produced in abundance are ornamental when trained round a basket, the long shaggy, dark brown scales with which they are densely covered rendering them interesting. It may also be grown with advantage in the rockery, but in that case it should be planted on a prominent piece of rock where a large surface can be secured to allow its rhizomes full development. The whole plant seldom measures more than 18 inches in height, and is of a pleasing pale green colour throughout the year. Stove.

M. HIRTA CRISTATA.—A beautifully crested form of M. hirta from the South Sea Islands, and greatly superior in decorative qualities to the original species from which it sprang. It is of an elegant spreading habit, and much more vigorous than the type. Its beautiful tripinnate fronds, of a soft light green colour, are produced in profusion from numerous crowns crowded together instead of rising from rhizomes, as in most other kinds; they are borne on stout, yet flexible, stalks, and grow from 2 feet to 3 feet in length. They differ from all other known species not only in having their extremity heavily tasselled; but even the pinnæ are freely branched and subdivided near their apex, and the natural weight of these crests and tassels and the much-divided pinnæ and pinnules give the whole plant a very attractive appearance by producing a gradual and graceful curve of the stalks. It is one of the few Microlepias which, though robust growers, object to loam. It should, therefore, be grown in fibrous peat and sand only; it is also one of those which suffer most from any insufficiency of water at the roots at any time of the year. The whole plant is slighty hairy, and on that account should never be watered overhead. Another peculiarity of this grand form is that, although plants 6 feet or 7 feet through are often seen in horticultural shows, no specimen, in Europe at least, has ever been known to produce fertile fronds, so that the only way of increasing it is by division of the crowns, an operation attended with most success if performed in the early part of the year. Stove.

M. PLATYPHYLLA.—This very handsome East Indian Fern is a robust grower, sometimes attaining between 3 feet and 4 feet in height. Its magnificent tripinnatifid fronds, of almost erect habit, are produced from a very fleshy underground rhizome, and borne on long flexible stalks of a peculiarly light green colour. The pinnules, which are divided nearly to the rachis and somewhat loosely set, are from 10 inches to 12 inches in length and from 3 inches to 4 inches in breadth; they are of a cheerful glaucous green, prettily undulated at the margins, and their under surface is rendered very attractive by large conspicuous sori of a bright reddish brown, contrasting singularly with the bluish hue which prevades the whole of the plant. It is an evergreen species which makes a very good specimen when grown in pots, but which grows still more rapidly if planted in a substantial compost in the rockery where an abundance of water can be given it during summer. Greenhouse.

M. PROXIMA.—A robust-growing species from Ceylon, and one which is highly ornamental where room can be afforded for the full development of its gigantic tripinnate fronds. The latter are lanceolate in shape and slightly hairy, rising from a creeping rhizome of about the thickness of one's finger. The pinnæ are alternate and set somewhat far apart, the pinnules being pinnatifid in their turn and deeply serrated at their edges. The fronds of this species measure from 3 feet to 4 feet in height. Stove.

M. PTEROPUS.—This fine Himalayan species, which is very rare in cultivation, is of robust growth, and differs from all other kinds belonging to the same genus by the deltoid-ovate form of its tripinnate fronds. The latter are of coriaceous texture, and produced in profusion from a stout fleshy underground creeping rhizome peculiarly and conspicuously clothed with brown, smooth scales. They seldom attain more than from 22 inches to 25 inches in height, and are about 15 inches broad, borne on stalks from 12 inches to 15 inches long, and also furnished with scales similar to those which cover the rhizome. The pinnæ are alternate, and their rachis, contrary to nearly all other species, is winged throughout, and also furnished with brown scales on its underside. The whole plant is of a dark glossy green, and requires a substantial soil to enable it to acquire full development. Greenhouse.

M. SCABRA (villosa).—This beautiful and distinct species is found growing plentifully in Nepaul, on the Himalayas, and in Japan, but always at a sufficiently high altitude to make it a cool-growing plant. It is of medium growth, its broadly ovate, lanceolate fronds, of a rich dark green colour, generally measuring between 15 inches and 18 inches in height; they are borne on slightly hairy stalks and produced from a crowded crown, dissimilar in that respect to most other Microlepias. They are simply pinnate, although they possess a bipinnate appearance produced by the deep dentation of the pinnæ, which are somewhat auriculate on the upper margin. It is of a pleasing light green colour and an excellent species for planting in the cool rockery.

M. STRIGOSA — A beautiful Japanese species and one of the best known and most appreciated of the whole genus. Its fine, tall, lanceolate, bi-

pinnate fronds, of a peculiarly bright light green colour, are borne on elongated, round, flexible stalks from 10 in. to 15 in. long; the length of the whole frond and stalk included varies between 36 inches and 40 inches. It has a most graceful arching habit and is an excellent grower, particularly well adapted for planting out in the rockery, where, strange as it may appear, it requires but little soil comparatively to its robust habit to develop its beautiful fronds, which are produced from fleshy rhizomes which are particularly fond of the surface of the soil. The soft hairy character of the whole plant, coupled with the beautifully crenate form of the pinnules, give it a most pleasing appearance, and render it highly interesting and distinct among other Ferns. Greenhouse. PELLÆA.

FRUIT GARDEN.

RAISING AND PROVING NEW GRAPES.

THE raising of new fruits is a subject that has, within the last twenty or thirty years, exercised cultivators a good deal, and notably so in the case of the Grape, which, owing to the facility with which the Vine can be propagated, renders it a popular subject to operate upon with the object of raising new kinds. Notwithstanding what has already been done in that direction, there is still a wide field open to those who choose to explore it, and if anyone were to raise a really good new Grape of any sort, it is probable that by good management he would make a small fortune out of it. For example, we have two good late-keeping Grapes now in the Lady Downes and Alicante, which may be said to be grown exclusively for late crops, for they are planted at the rate of a hundred to one of any other sort for that purpose; but neither are first-rate as regards quality, and a good variety, with the quality of the Muscat or Hamburgh, that would keep as well, would undoubtedly supersede both directly. There is no kind of fruit so popular as the Grape, and a good kind is certain to sell well. It was predicted that Mrs. Pince would supersede the two kinds just mentioned; and we have little doubt that it would have done so, only it did not prove such a good keeper as was expected, and it rarely colours well, which is its worst fault, although it is a good enough Grape to eat. Another undoubted acquisition would be a good white Grape of the same habit and quality as the Black Hamburgh, and this is still to come. There are a good few white Grapes suitable for early and general culture, but we have none equal to the Black Hamburgh. The nearest approach to the Hamburgh in shape of bunch and berry and habit is the Buckland Sweetwater, but it is rather uncertain and a poor cropper. Nevertheless, it both finishes well and keeps well. Other good kinds are Foster's Seedling and the Muscadine, but none of these are grown to anything like the same extent as the Hamburgh, and they are only grown for the sake of variety. What is wanted is an early white Grape which shall be a good buncher, free bearer, and a fairly good keeper, the last quality being an important one in private gardens, where the crops have to be kept for longer or shorter periods, just according to the needs of the establishment. A white Black Hamburgh, to use a paradoxical expression, is, however, quite a probable acquisition at some future time, and might even be expected from seed of the Black Hamburgh itself, or from a sport. At Wentworth, near Rotherham, an old Black Hamburgh Vine once, if I recollect rightly, produced a white bunch, and the perpetuation of such sports is only a question of propagation. There have been a good few new Grapes raised in recent years, mostly all of which, we believe, have remunerated the raisers well. Two or three guineas apiece for plants that can be propagated readily by thousands soon after sowing the seed must pay; and we know from those who have had most to do with the bringing out of new Grapes that members of the horticultural trade are always willing to buy up such productions and take all risks. The qualities most desirable in a Grape are size of bunch and berry, good colour and flavour, fertility, and a vigorous constitution, and it is quite possible to secure all these qualities in one Grape. We have them all in the Hamburgh, Muscat of Alexandria, and in several other varieties.

VARIETIES TO BREED FROM.—Most raisers of new Grapes have realised the importance of working with such varieties as the Black Hamburgh and Muscat of Alexandria for breeding purposes, these two possessing all the most desirable qualities. Thus we have a good few new Grapes, so-called, named after these kinds, viz., the Muscat Hamburgh, Golden Hamburgh, Champion Hamburgh, and others said to partake of the Muscat in a great degree, the character of either as a parent being a recommendation in itself. There are good reasons, however, for doubting the reputed hybrid origin of some new Grapes, owing to the uncertainty of cross-fertilisation in their case, an operation which, presumably, has been very loosely conducted in some cases, the probability of a cross having been secured not being by any means certain, for it is well known that seedling Grapes vary almost as much as other fruits propagated in that way. The mere fact of a flowering bunch of another variety having been suspended or shaken over flowering bunches is no guarantee of a cross having been effected; and some reputed crosses gained in this way, though good Grapes, bear no signs of a cross in their character, but are just as might be expected from self-fertilised berries of the varieties that bear the seed. This applies, however, chiefly to varieties other than the Hamburgh or Muscat of Alexandria, both of which there is good reason to believe come true from seed or differ but little from the parent. Of seedlings from a number of varieties, hardly any two plants come quite alike; but I have raised the Black Hamburgh from seeds often without detecting any difference in the foliage, and this is, I believe, the experience generally of those who have raised seedlings from it. The common Hamburgh, Mill Hill, and Champion Hamburgh, &c., are probably only varieties raised in this way. It is certain that these present very little difference in their fruit or foliage. I saw some time ago quite a swarm of seedling Hamburghs, self-sown, that had sprung up in the border of a vinery, and that had been allowed to grow all the season, not one of which differed from another in leaf or habit. For these reasons, such varieties as the Muscat and Black Hamburgh should prove good parents, as if their offspring is different from the parents, the probability is that a cross has been effected. It is a bad plan to propagate from varieties that are disposed to be seedless; and the idea of raising large-berried Grapes that shall be seedless, as has been attempted, appears a hopeless one, seeing there is no example on record of such fruits swelling or perfecting their growth without seeds. It is quite probable, too, that as good results might be obtained in the way of new varieties from self-fertilised as from cross-fertilised seed; and although crossing, if intelligently carried out, may be desirable, there is almost as good a prospect of success the one way as the other. No fact is better ascertained than that seedlings of both trees and plants vary much in size and habit, and it is the same with the Vine; and some varieties appear to vary more than others. One word of caution to the would-be raiser of new Grapes. He must not be too sanguine, for the usual experience is, that the majority of seedling Grapes are of very little value; much, however, of course, depends on intelligent selection. Those who are likely to succeed soonest are those who raise the greatest number of seedlings at the same time; and that is an easy matter, provided room can be found to grow and prove them, which, in many private gardens, is not the case. It requires several years to prove new Grapes in anything like a satisfactory way, for they do not fruit the first year, nor surely the second.

SOWING AND RAISING.—The seed should be sown early in February in a stove heat. It soon comes up, and the seedlings should be potted off as soon as they have made their rough leaves in a light rich soil. But it will be much better if the most promising sorts can be planted out in a small house and trained near the glass, as they will make much better progress and fruit more abundantly and surely in that way; and it is exceedingly desirable that they should have every facility to perfect their development. The probability is, that strong and fertile sorts will produce a few berries the second year, which will give some idea of their size and qualities; but not of the bunches, which do not develop their true character till the Vines get stronger and older. The quickest way of getting up vigour is to inarch the seedlings on the laterals of some older Vines in the vinery the same year in which they are sown, and stop and pinch them like the other laterals, in order to plump their buds, and thus get better bunches earlier. Seedlings sown at the time stated will be in a fit condition to inarch on summer-grown Vines about midsummer, and the operation of inarching is easy and certain. The operator has only to select a good side branch when the tissue is just beginning to harden, but still quite green and growing, the seedling being about the same stage. Take a slice off both, nearly into the pith, and tie them tightly together with soft matting, keeping the edges of both stock and scion together at one side at least, for it will not be possible to match both, the seedling being but slender in the stem. Not one plant will miss if the operation be properly performed. The ties should be slackened gently as the union takes place, till, in a couple of months, they may be removed altogether and the top portion of the stock cut away, leaving the seedling only. In other respects, seedling Vines require to be treated pretty much the same as plants raised from eyes. In addition to the plan of raising new Grapes from seed, another field is open to the enterprising grower in selecting and proving the lesser known kinds mostly grown on the Continent, some of them being quite unknown to English cultivators. The Alicante and the Gros Colmar are varieties, for example, which were in existence long before they came into repute in this country.

TYPICAL VARIETIES OF CULTIVATED GRAPES.—It may be useful to refer to this subject before concluding. There are a few varieties of Grapes of unmistakable general excellence that may be regarded as typical sorts for vinery culture. To begin with black Grapes, the Black Hamburgh deserves notice first, and there are several varieties of it, such as the Mill Hill, Frankenthal, and Dutch Hamburgh, not to mention other reputed varieties which exist only in name. All the sorts mentioned differ much under different culture, so that there is now hardly any certainty of any one of them being obtained true. Originally the Dutch, Mill Hill, and Frankenthal Hamburghs were undoubtedly distinct, but all the three are now commonly substituted one for the other, and it requires an expert to tell the difference. I have, however, occasionally seen varieties of Hamburghs, about the distinctness of which there could be no doubt, both as regards fruit and foliage. The common Hamburgh is the typical kind, and is one of the most accommodating varieties in cultivation, it being quite possible to have it ripe any month in the year. As it is, it is the most extensively cultivated of all black Grapes, and also the most generally excellent. Before the advent of recent new black Grapes, Black Prince used to be a popular variety, extensively grown and exhibited. It is a typical variety. The bunches are long and tapering, berries oval, and always of a deep black colour, with a fine bloom, and of good flavour. The Vine is also a good bearer and early. It is a far more certain and generally a better Grape than either the doubtful Muscat Hamburgh or Madresfield Court, the one being a most uncertain setter and the other a poor keeper, while the Black Prince is reliable in both these respects. It is a desirable variety to breed from. Wherever highly flavoured Grapes are esteemed, Black Frontignan should find a place. The Vine is not a strong grower, but it is fertile; the bunches and berries of moderate size, with the true Frontignan flavour.

It is also early. Gros Guillaume (Barbarossa) is a very distinct variety, producing extra large bunches and berries that take on a deep black colour when well finished, and a good keeper; one of the best late Grapes, thinner skinned and better flavoured than the Alicante or Lady Downes. It is a strong grower and needs room; it is a desirable variety to cross with the Muscat of Alexandria, which it in some respects resembles. Black Alicante and Lady Downes are valuable chiefly on account of their keeping qualities; both are very distinct in habit of growth and quality of their fruit, which is second-rate. Not desirable varieties to originate sorts of high quality from. What the Black Hamburgh is among black Grapes Muscat of Alexandria is among white ones. It is the best white or yellow Grape grown, but not an easy sort. It is an excellent grower, great bearer, bunches and berries large, and flavour first-class. The chances of raising good new sorts from this variety are very favourable. The Royal Muscadine is a free-bearing, early variety of good general quality for cropping purposes, and the most popular out-door sort in cultivation. Bunches and berries of moderate size and of pleasant flavour. For flavour Chasselas Musque is not surpassed; it is, indeed, the best flavoured Grape grown, having a Muscat taste, but not cloying the palate like the other Muscats. It is not a strong grower, and is only desirable on account of its flavour. The White Frontignan is just the counterpart of the black variety of the same name, and equally excellent. There are many other varieties of Grapes grown in our gardens that might be mentioned, but those just named embrace the most typical and best varieties. J. S. W.

Fruit the cheapest food.—We must produce better fruit and more of it. Nutritious, healthful, economical, it was meant to be eaten. As a peep into possibilities, we find that one Apple tree, growing on less than two rods of ground, has produced in a single year a hundred bushels of fruit—in some recorded instances more. Two Pear trees on the same amount of land have done as well. It is safe to say that never in the history of the world has one-fourth as much sustenance for man or beast been derived from roots or cereals occupying equal space. A Grape Vine is a wonderful economist of space; occupying a crevice in a rock, or a contracted corner where nothing larger than a Thistle could grow, it climbs a tree, the side of a building, or runs along a fence, and furnishes a delicious dessert for fifty people. Considerations like these are worthy of attention. —*Western New York Horticultural Society's Proceedings.*

Does Pine growing pay?—Mr. Groom tells us (p. 307) that Pine culture has been given up in hundreds of private gardens, and that market fruit growers have almost entirely put it aside, from finding the balance, as regards that kind of culture, year after year on the wrong side of the ledger. I, however, still maintain that Pines can be profitably grown in this country. Mr. Groom says if he wanted a number of cart-loads of leaves they would cost him more than would an equal quantity of stable manure, but he does not say how he applies the stable manure, whether for bottom heat or for linings. He also tells us that soil is equally costly, seeing that he has to pay from 8s. to 10s. per load for such as would be fit for Pines—prices which I consider reasonable. In a pit the size of that which I described I allowed four loads of soil for fifteen ridges. I planted five suckers on each ridge, and in six or seven months after the pit was planted I generally cut ripe Pine-apples. I sometimes cut all in the pit in twelve months and sometimes sixteen months, but never over eighteen months. When the fruit was all cut in a pit I always made it a rule to have the latter cleared out as quickly as possible and got ready for replanting. In the first place the suckers were removed carefully from the old plants; then the soil was put aside for other important purposes, for I always considered that it lost nothing in value, even after producing a good crop of Pine-apples and abundant suckers to replant the pits; therefore, when such results can be obtained on leaf beds I cannot see any cause for complaint as to the price of soil. Mr. Groom and others who cannot procure leaves to make leaf beds for their Pines should abandon their culture, and leave it to those who have leaves. If Pine growers depend on hot-water pipes or stable manure, or even tan for bottom heat for Pines, they may rest assured that they will always find the balance on the wrong side of the ledger, and this I affirm after many years' experience.—Donald Murray.

Watering fruit trees.—Many only water their wall trees and choice standards when the fruit is swelling in summer, but if there is one time more than another when such trees are benefited by artificial waterings of liquid manure it is now, in order to induce the young fruit to swell and stone and to cause the shoots to grow luxuriantly—all advantages of the highest order in producing and maturing perfect crops.—Cambrian.

Vine roots in inside and outside borders.—Allow me to correct a misstatement which "J. S. W." makes (p. 308) in reference to this subject. He says that Mr. McIndoe, of Hutton Hall, had no other version of his ("J. S. W.'s") side of the question than that with which I chose to furnish him. Mr. McIndoe's information on the whole subject came from another source. I had nothing to do with it in any way, nor with a single word he has said about the matter.—T. Baines.

Peach Golden Eagle.—This, one of the very best of late Peaches, ripens its fruit in October, and it is one that sets freely both in and out of doors. It produces very large fruit, measuring from 9 inches to 10 inches round, and even in some cases more. The colour is a bright lemon, and the flavour is rich and piquant. This variety, although it has been in commerce for several years, has been but little sought after until the last year or two; and now I am told by fruit-tree raisers that nearly everyone is buying it for planting in late houses and in Peach cases. This variety kept good in our late Peach house until the second week in October.—C.

The syringe *v.* camel's-hair brush.—Having used the syringe for Peaches and Nectarines when in bloom for three successive years, allow me to direct attention to its superiority over the camel's-hair brush as a fertiliser. When first told to use the syringe I very much doubted the result, but I now find it to answer admirably, each year enormous crops having been set through its agency. I may mention that our early Peach house is usually started the first week in December, and often when the trees were in bloom we had little or no sun, which of course was all against the use of the syringe, but still I gave them daily a light sprinkle with it, and as much air as I could admit under the circumstances to ensure the blossoms getting dry before night, and not one fruit have I seen rot or damp through being syringed. I have heard of the syringe being used for Vines when in flower and hope to test its effects on them myself, but so far this season I have not had an opportunity. If it should answer as well for Vines as for Peaches, it will be a great boon to cultivators to feel that they have a remedy for the non-setting or swelling of fruit.—J. Hinton.

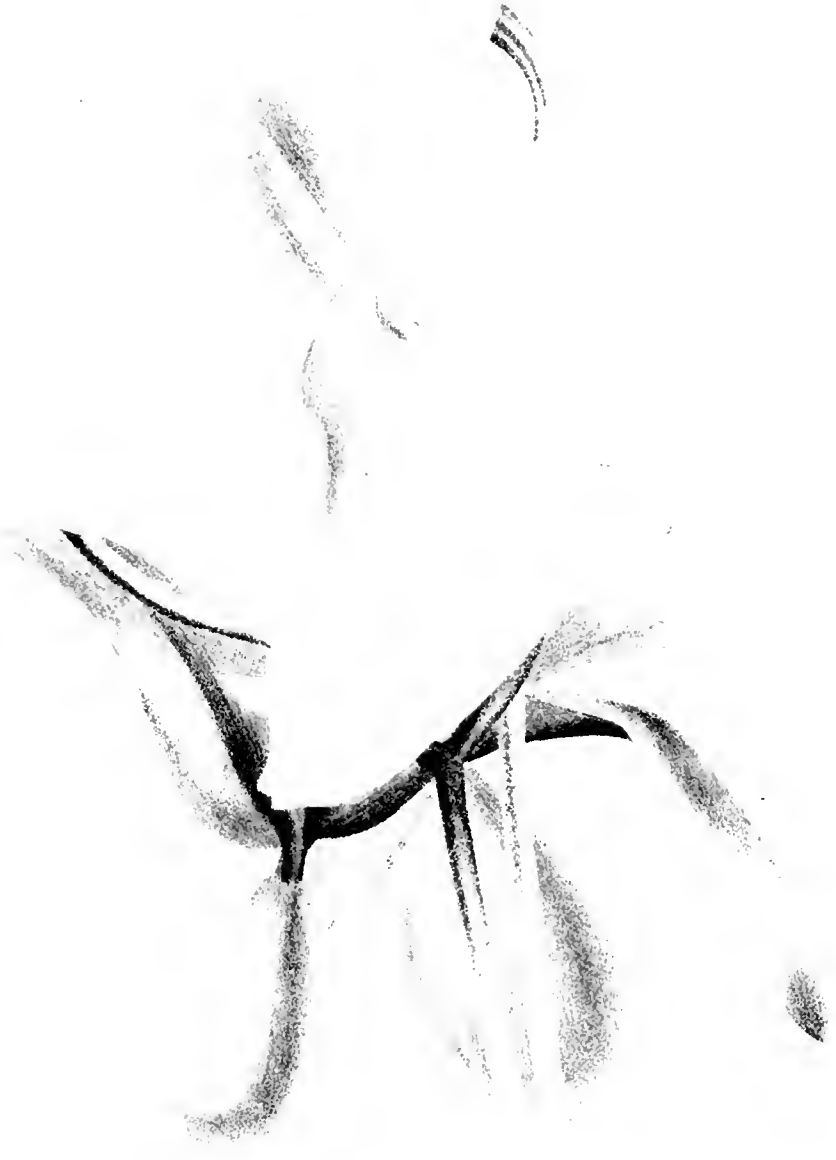
Sun for early Peaches.—I do not think it is sufficiently realised how much the size, colour, and flavour of Peaches are affected by direct exposure to the rays of the sun. When the fruit is swelling it is not more indebted to the foliage which surrounds it, if as much, for the elaboration of its juices as it is to itself. While the fruit is green and growing it is as susceptible to the influence of light and air as the most tender foliage, adding new tissue and elaborating the sap in the same way; hence it should at no time be shaded. The practice of exposing the fruit to the light when it is finishing is right enough when it has not been seen to earlier, but I have always noticed that the best fruit every way is always that which has been exposed to sunshine from the beginning. That crimson cheek—sometimes only a faint blush in the paler varieties—is not put on in a day or a week, but requires time, and corresponds to the purple bloom on the Grape berry, which also indicates high quality.—J. S.

Garden Flora.

PLATE 438.

LÆLIA AUTUMNALIS VENUSTA.

It is somewhat singular that whilst the varieties of some species of Orchids are almost infinite, there are others which scarcely vary at all, not even under cultivation. L. autumnalis is a case in point. The varieties of this Lælia at present in cultivation may be counted on the fingers of one hand, while the forms of its near ally, L. anceps, seem almost endless. The typical form of L. autumnalis is a strikingly pretty plant, though from an orchidist's standpoint (or rather an orchidist whose ideas of excellence in an Orchid is associated with large size and brilliant colour) it would be scarcely worth troubling about, now that there are some magnificent varieties of it. The flowers of the original L. autumnalis are only about one-third the size of those of the variety herewith illustrated, but the colours are bright and attractive, which compensates for the small size of the blooms. This typical form still exists in gardens and does not seem to have altered in the least during the past fifty years it has been in gardens. An illustration in the *Botanical Magazine* for 1841 shows this plant admirably. The variety of this Lælia that has become so popular during the past few years is atrorubens, having flowers abont the size of those of venusta, but of an intensely deep crimson-purple. A coloured illustration of this was given in The Garden just four years ago. This variety is truly a magnificent Orchid, indispensable in every good garden, as it flowers in late autumn when so few others are in bloom. The variety venusta herewith figured is one which the Messrs. Backhouse, of the York Nurseries, flowered last autumn. It closely resembles the grandiflora variety, though Messrs. Backhouse consider it sufficiently distinct from that variety to justify giving it a distinctive name. It is a very fine variety, remarkable for the crystalline texture and soft lovely colour of the large flowers, which characters, however, the colour printer has failed to reproduce accurately. This variety will unquestionably be much sought after by Orchid connoisseurs. It is as yet very scarce, though it has already found its way into the well known collection at Downside, Leatherhead, Mr. Lee having secured a plant of it when put up for sale at Stevens' in December last. In habit of growth this venusta variety resembles that of the atrorubens variety, having similar tall and stout flower-stems, rising from 2 feet to 3 feet in height. So much beauty is derived from these Mexican Orchids during winter, that it is scarcely necessary to say how valuable they are, and, having regard to the ease with which they may be grown, even beginners in Orchid culture should possess them. All the Mexican Lælias require an intermediate temperature, and L. autumnalis and a few others of a similar stamp, such as L. furfuracea and L. majalis, need abundance of light and sunshine in order to ripen their pseudo-bulbs. While in active growth, which occurs after flowering, the plants should have abundance of moisture and all the light possible. After the new bulbs have attained their maximum



size, the plants should be placed in a sunny house close under the roof, so that they may obtain abundance of light, sun-heat, and air to thoroughly ripen the bulbs. Some cultivators grow L. autumnalis on suspended blocks, others grow it in baskets, but probably there is nothing better than pots or shallow pans which may be suspended at will. An ordinary Orchid compost suits the plants admirably, but in all cases it is indispensable to have efficient drainage, so that there will be no stagnant moisture at any time about the roots.

G.

SEASONABLE WORK.

FLOWER GARDEN.

Dracænas.—Most of the varieties of Dracæna are so tender as to be only suited for indoor decoration, but there are a few so hardy as to render them all but indispensable for open-air use in the summer flower garden. The kinds to which we allude are D. australis, which has broad, bright green foliage; lineata, a sort with narrow green foliage; gracilis, a kind with very narrow striped green and brown foliage; and Veitchi, a species much like australis, but stiffer in the foliage, and therefore better able to withstand the force of the wind. For sub-tropical bedding arrangements these Dracænas are invaluable, and a very few plants serve for a large bed, as, owing to the recurved and drooping habit of some and the spiral and perfectly round form of others, in order to show them off to the best advantage, it is necessary to give them plenty of space, nine or twelve good plants being ample to furnish a bed 12 feet in diameter. Thus planted, and the ground beneath them carpeted either with Sedum acre elegans or Golden Thyme, no more beautiful sub-tropical effect could be desired. They also make capital lawn plants, and in warm, sheltered positions stand our average winters. Several large plants of them stood out here for years, but they all succumbed to the severe weather experienced in 1880 and 1881. They may be propagated at any season from seeds or cuttings. Ours are obtained by cutting up the old stems and corm-like roots into pieces of about 1 inch long; these are placed in pans of sandy soil just in the way in which Vines are propagated, and plunged in a brisk bottom-heat, in which they quickly form roots and break into growth.

Summer bedding arrangements.—These at the present time demand all but a monopoly of attention as regards propagation, arrangement, and planting. Winter effect having to be considered as well as summer, in order to avoid much autumnal removal, every hardy plant anything like suitable is pressed into the service; this to some extent excludes as unsuitable many plants which we should otherwise like to use, and in some degree robs the summer garden of its gaiety, but this loss is more than repaid by the extended season during which it is effective. Space will not admit of giving in detail all the arrangements now being made from the standpoint just alluded to, but the following treatment of a large circular bed may be taken as a fair example of the many ways in which hardy and tender bedders may be planted in combination: It is edged with Herniaria glabra, green, and the groundwork, or divisional lines, which cut up the bed into smaller circular or oblong beds, consist of Veronica incana, greyish white, the smaller angles being filled with Ajuga reptans purpurea, and the central and smaller beds as follows: In the centre is a large plant of Thormium tenax variegatum, which is quite hardy here; this is surrounded by Viola Blue Bell and Ageratum Cupid in mixture. The oblong beds have for the centre small plants of Cupressus erecta viridis, and a surrounding line next the Veronica of Coleus, the centre being filled in with tricolor Pelargonium Sophia Dumaresque. The small circles have as centres small plants of Retinospora pisifera aurea; one half of them is filled with Lobelias of the pumila section, and the other half with Alternantheras. It will thus be seen that the whole of the framework of the bed, including the centre, is entirely composed of hardy plants, and therefore its conversion to a winter bed is an easy matter. Some of our beds have more, and others a less number of hardy plants than that here given, so that the bed just described may be accepted as about the average. When determining these arraogements and selecting plants for them, our preponderating thoughts are length of season during which the plants continue effective, the reducing of labour by propagation of tender kinds, and the saving of house room for other and more profitable purposes. Most of the plants which we use have from time to time been alluded to; among those now being planted are Sedum glaucum, corsicum, and acre elegans, Saxifraga rosularis and oppositifolia major, Cerastium arvense and tomentosum, Echeverias, Sempervivums, Lamium maculatum aureum, Gold and Silver Thymes, Gnaphalium lanatum, Helichrysum plicatum, Veronica incana and rupestris, small shrubs, Yuccas, Chamæpeuces (Fish-bone Thistles), Violas, and Calceolarias.

PROPAGATING.

Aroids.—Most Aroids are easily propagated; the climbing kinds, such as Philodeodrons, Monsteras, &c., pushing forth aërial roots in great profusion, need but a suitable spot in which to establish themselves, and, in the case of others, division may be practised successfully. With Caladiums another method is followed, by which numbers may be obtained from but few plants. When they start in spring, as soon as the first leaf is developed, shake them out of their pots and remove the soil. This done, if the corm is large, several shoots will be growing therefrom, and just at the base of each shoot several young roots will be pushing forth. In that case, take a sharp knife and remove each shoot with its adhering fibres. In this way every one will form a young plant, which must be potted in a small pot and kept close till the roots start, when they may be inured to the air, and grown on as rapidly as possible during the summer in order to get established by winter. After the young growths have been removed pot the corms as before, when another crop of shoots will soon be produced, which may be treated as just mentioned. In this way great numbers are produced every season. With two or three kinds of Amorphophallus we were somewhat puzzled, for, with the exception of an offset now and then, we could not increase them, and the smooth, regular shaped root-stock rendered it doubtful if they could be increased in the same way as Caladiums. We found, however, on trial that they could. Care was taken to have the centre shoot well rooted before removing it, when numbers of young shoots were in most cases produced from different parts of the old root.

INDOOR PLANTS.

Allamandas.—When these have made very long straggling growth without showing flowers they may have their points nipped out; the shoots should then be trained regularly over the trellis, bringing the points low down. This will cause a quantity of the black eyes to break that in due time will show bloom. See that the plants are now liberally supplied weekly with manure water.

Bougainvillea glabra.—Keep the strongest shoots, which are those that must be depended on for flowering, in an erect position, as if allowed to droop they break back, which interferes with the blooming. Of all the hard-wooded stove plants that we have ever grown, this under pot culture, if allowed to get anything approaching dry at the root, has its blooming the most interfered with. If it gets a check in this way before the bloom is formed, the shoots usually do not extend further, but set a few flowers at the points in place of the long wreaths that are forthcoming when all goes well with the plant. Both this and Allamandas will stand manure water in a stronger state than most things, and to have them in the vigorous condition essential to profuse flowering, they must have it, as has been stated, weekly after the roots and top growth have begun to move freely.

Plants in small pots.—For the purposes of ordinary cultivation it is a great mistake to use larger pots than can be made to suffice either for flowering plants, or for those that are grown for their effective foliage. In the case of the former, where too much root room is allowed, it induces over-extension of the shoots and foliage, and often a straggling condition collectively without proportionate increase in the quantity of flowers. Where larger pots are used for fine-leaved subjects than needful, their appearance is neither so attractive, nor are they so enduring, as gross, overluxuriant foliage soon loses its bright, healthy look. In addition to these objections, where plants are so treated as to induce extraordinary development, there is necessarily less room for variety; consequently in the potting operations that take place with the stock generally through the spring months it is well to give no more root-space than is requisite, trusting to the aid of surface manuring or liquid stimulants to keep the plants in a robust, healthy state. This particularly applies to such plants as are wholly or partially shaken out, and which have their soil renewed annually. Where plants are wanted for exhibition purposes, and size is an object, to some extent, this course may be departed from, especially when grown in thoroughly light-giving structures and kept close to the roof, conditions which directly check over-extension of the top growth. In the case of soft-wooded plants of quick growth, a continuous supply of manure water at short intervals is indispensable at this season, and it must never be given too strong. For quick-growing plants like shrubby or herbaceous Calceolarias, Cinerarias, Fuchsias, Pelargoniums, Hydrangeas, Petunias, and tender annuals we have found no better plan, when once the pots get thoroughly full of roots and the flowers formed, than to use it continuously every time the soil requires moistening until the blooming is over. Hard-wooded greenhouse plants, such as Azaleas, Aphelexis, Boronias, Acacias, Chorozemas, Correas, Daphnes, Myrtles, Erioste-mons, Pimeleas, Polygalas, Pteromas, Neriums, Hoveas, and Genistas, at this season of the year, when taxed with the development of their flowers or with shoot growth, are greatly benefited either by manure water or the use of some solid fertiliser applied to the surface of the soil, which will not only assist the current season's bloom, but its effects will be still more apparent on the ensuing growth.

Seedling Primulas and Cinerarias.—Those who have really good strains of these useful plants, and who are desirous of saving seed which they can rely on, should select, in the case of Cinerarias, plants that possess the best form and colour of flower. Each plant possessing these properties should be isolated from the inferior stock whilst in bloom, as in this way only can seed that will produce flowers of the requisite stamp be secured. As regards Primulas, the later sowings made last year which have not been so much weakened by blooming as the earliest will be in the best state to seed freely; these should be set on a shelf or stage under the influence of strong light and sufficiently supplied with water, nipping out the successional flowers formed after enough for seed purposes have been secured.

Roses.—Tea Roses in pots that have been forced and flowering for some time will, if strong, yet keep on making wood that will yield flowers, but to have them of large size and sufficient in quantity the plants must be regularly and liberally fed with rich surface dressings. Where any falling off occurs in this matter, the after-growth will come too weak to flower; or if a portion of it does bloom, the produce will be thin and poor. It rarely happens that pot Tea Roses in the hands of private growers yield nearly the quantity of flowers of which they are capable through want of liberal feeding. The nature of these Roses is to keep on all but continuously

growing when in a temperature that admits of such taking place, but unless they receive a regular and liberal supply of manure in either a solid or liquid form, they neither increase in size nor produce flowers in abundance. They require and will bear much more in the way of stimulants than is generally supposed, and so applied they have a much better effect than any quantity of solid matter added to the soil which they will bear at the time of potting. Where the plants are turned out in beds, and their roots have thus unrestricted space in which to extend, they naturally are better able to take care of themselves, but even in this case a free use of manure water will be found advantageous. Whether cultivated in pots or planted out, they should be regularly syringed every day to keep down red spider, not merely sprinkled in the way often thought sufficient, but letting them have water without stint, so as to drench the foliage. Where Rose culture under glass is ever expected to be above mediocrity, there must be a ceaseless outlook for mildew, especially during this and the ensuing month, and wherever a curled leaf is seen sulphur should at once be applied.

FRUIT.

Pines.—The weather being generally bright, early-started Queens, now swelling rapidly, will take more generous food than can be given in dull, wet seasons. Keep the soil in a healthy growing state by the use of clarified liquid and guano water, and damp all available spaces after closing, which should be pretty early, so as to ensure a high temperature from the afternoon sun with a corresponding degree of atmospheric moisture; but guard against much overhead syringing, as it encourages the growth of crowns and suckers, at all times prejudicial to the full development of the fruit. Endeavour to keep the bottom-heat steady at 90°, ventilate early when strong firing is needed to maintain a night temperature of 70°, gradually increase the air until about 1 p.m., and close in time for the afternoon sun to raise it to 90° or 95°. If any winter starters remain on hand give them the above treatment until they begin to colour, and then remove them to a dry, warm place to ripen. Examine the roots of plants intended for starting early in June, and, while guarding against injury from drought, induce a period of rest by withholding water for a short time and keep them moderately cool, particularly through the night.

Successions.—Where strong bottom-heat is obtained from fermenting materials, spring-potted plants soon fill their pots with roots and require shifting on. To carry on the system of keeping small batches in advance of each other always have materials of all kinds dry and ready for use at any time, and never on any account shift a plant into a larger pot unless its roots are in a moist state, as no amount of after-watering will ever penetrate a hard, dry ball when it becomes embedded in the rough turfy soil adapted to its future growth. Keep all young stock near the glass, shade from very bright sunshine, and give plenty of air to prevent them from becoming drawn into weakly growth.

Orchard houses.—When the stoning process is complete make the final thinning, bearing in mind that a light crop of fine fruit gives more satisfaction than a heavy one. Always give the preference to Peaches and Nectarines which point to the sun or can be coaxed into doing so, otherwise the stalk instead of the apex will receive the colour so much admired, but not always attained. A general pinching of all the strong shoots will now be beneficial to the rapidly swelling fruit, but weak ones will be best left alone, as the only wood bud which they make is at the point, and stopping would render the shoot useless for another year. Good syringing and liberal feeding must have daily attention, and sharper forcing may be indulged in by day, particularly when the house can be closed with plenty of solar heat and moisture, but hard forcing is not advised, as it invariably ends in pale watery apologies for Peaches which nobody thinks of eating. It is understood that the house must be closed every afternoon for the attainment of size, but night air should be given, and the temperature should range from 56° to 58° at banking time, and 50° in the morning, with a steady rise to 65° or 70° by day.

Late houses.—If the trees in late houses were clean and in good condition, the "set" of fruit will be all that can be desired, as the days have been brilliant, and although the nights have been cold, we have seldom had occasion to light a fire. With such hopeful prospects, lose no time in giving relief by timely thinning down to within a moderate percentage of the intended crop. Disbud by degrees, use water freely, always warm if attainable; feed with weak liquid manure for the present, and aim at a firm, sturdy growth by giving plenty of air through the early part of the day, and by closing in time for the water from the last syringing to dry off the foliage before nightfall. If fires are available, be ever on the watch, as a severe frost might injure the young fruit where blossoms would escape. Where Plums or Cherries are grown with the Peaches, they will do best in the coolest and most airy part of the house, as a close, moist atmosphere often does more mischief than dry frost. Figs require the warmest end, and Pears, where space is limited, may be plunged on a warm border out-of-doors when the fruit begins to swell and there is no longer danger from spring frosts. Look well to pot Strawberries on the side shelves, and keep them well fed and syringed, as it is to their culture that we are invariably indebted for the first appearance of spider.

Cherries.—As soon as the stoning process is complete, and the fruit shows signs of colouring, discontinue wetting the trees with the syringe, and maintain a free circulation of air to prevent condensation or the presence of stagnant moisture, otherwise a large percentage of the finest fruit will crack and become useless either for present use or for hanging on the trees for a considerable time after it is ripe. If very early ripening is an object, a little more warmth may be given through the day in preference to making any alteration through the night, but unless this is really necessary the same steady mode of culture which has been hitherto followed will give the best result. Examine the borders and if sufficiently wet to finish the fruit mulch with some dry non-conducting material to keep in moisture; but if, on the other hand, they are likely to require another supply, choose a fine bright morning for giving the needful quantity at the mean temperature of the house. See that the trees are quite free from aphis, as smoking cannot be resorted to when the fruit is in daily use. Tie down leaders, stop side shoots to form spurs, and see that strong-growing late kinds which are expected to hang are regularly and evenly clothed with foliage without being in any way crowded. Follow the usual routine in late houses, always bearing in mind that a low night temperature and an abundance of air by day are the first elements of success. Give the trees plenty of water, and syringe regularly up to the time of colouring. Keep grubs in check by picking and smoke for green fly.

Melons.—Early Melons now swelling fast will require liberal feeding with warm liquid until they have attained their full size and show signs of changing for ripening, when a moderate quantity of pure water to prevent flagging will keep them going and improve their flavour. If the plants are well cropped lateral growths will no longer be troublesome, and as the size and quality of the fruit will depend upon the health of the old foliage, this must be kept clean and free from insects by copious syringing every afternoon at closing time. Morning syringing in light, bright houses must now be given up, otherwise the foliage will scald; but all paths, walls, and surfaces may be well damped with warm water as soon as the morning heat begins to rise. Ventilate early to allow moisture to dry off the foliage, then gradually raise the heat to 85° or 90° with sun; close at these figures, and descend to 70° for the night. Grow on successions with plenty of heat, air, and water, but carefully avoid producing a gross habit by feeding until after the fruit is set and swelling. Keep the glass clean, never shade after the plants get established, thin out and train the young growths, also remove male blossoms, and allow a wild, abandoned style of growth during the time the fruit is setting. The end of this month is a good time to make up manure beds in the frame ground for the growth of a summer crop of Melons, and as a steady heat is of the greatest importance, let the manure and leaves be well worked and fermented before they are put together. Build the bed just large enough to receive the frame, make it very firm, and protect from the weather. When the heat begins to decline and approaches 90°, prepare the hills in the usual way, always bearing in mind that the strong roots should be prevented from going down into the manure by the use of large sods of fresh turf laid Grass-side downwards along the centre of the bed. To economise compost and to facilitate feeding, place two broad planks on their edges and 2 feet apart longitudinally on the sods; fill loosely with compost, beat firmly when warmed through, and turn out the young plants 12 inches apart.

KITCHEN GARDEN.

Vegetable Marrows, ridge Cucumbers, and Gherkins should just now claim attention. We make trenches 8 feet wide and 1 foot deep, building up the soil at the edges of the trench and filling it up with old material used for Sea-kale and Rhubarb forcing in the spring. Mixing with this a few loads of fresh manure from the stable soon gives the whole mass a nice gentle heat. We then earth it over from each side of the trench, and it is ready for hand-lights placed in the centre. We always sow the seed about the first week in May, taking the nurserymen's advice to sow thickly and thin early. Early Potatoes now showing above ground should be earthed over to keep them safe from frost; when caught and blackened they never turn out so good a crop. The frost seems to paralyse, and does them much injury. Turnips, Spinach, Parsley, Brussels Sprouts, and a pinch of Cabbage seed may now be sown, the Brussels Sprouts being for late use, but all spring Broccoli keep in the seed store until the beginning of May. Beet should now be sown; also make successional sowings of Peas. Broad Beans should be sown according to the demand. The ground lately occupied with Broccoli should now be made ready for Celery by taking out the trenches. Lettuces may be planted on the ridges. Well manure the trenches and dig them up a good depth if the soil admits of it, and by the time the plants are ready the soil will be well pulverised through the action of the weather. Mustard and Cress, Radishes, &c., sow in accordance with the demand.

Forcing department.—The present cold weather shows us the imporiance of cold pits, frames, and hand-glasses for forwarding a good supply of early succulent salads and vegetables. At the present time they will be full of Potatoes, Carrots, Turnips, crisp Lettuces, and a host of spring-sown plants of Cauliflower (including Veitch's Autumn Giant and Dickson's Eclipse, two of the best varieties in cultivation), Brussels Sprouts, and Cos Lettuce. The great point in the management of these inexpensive structures is ventilation through the early part of the day to secure stout, stocky growth, followed by early closing with solar heat on fine afternoons. The drying winds and bright sun will have prevented full exposure of the tender plants, but a healthy growing atmosphere may be maintained by tilting the lights on the south side. See that Potatoes and Carrots are copiously supplied with tepid water, choosing the early part of the day, as it is important that the foliage becomes dry before night. In the warmest section look well to Tomatoes, Capsicums, Vegetable Marrows, and Cucumbers intended for planting on ridges of half-exhausted manure from the Seakale and Rhubarb. Pot on the plants as they require it, and guard against having them drawn by keeping them too close through the early part of the day. French

Beans enjoy plenty of heat and moisture in a pit which can be well ventilated on the ground line to prevent a stagnant atmosphere. Make successional sowings in pots or otherwise for preceding the first crop in the open air. A good batch sown in small pots for planting in frames after Potatoes or on early borders where they can have temporary protection will do good service. A good Mushroom bed should be made up in a dry shed facing the north. Almost any kind of short fermenting manure with an admixture of turf will do for the body of the bed, and this may be faced with horse droppings and stiff loam for the reception of the spawn.

HERBS.—In many gardens herb beds are often neglected or left to take care of themselves, the same subjects being allowed to occupy the same spot from year to year until eventually they die out and disappear. A warm convenient corner is generally selected, and being strong, exhaustive growers, such things as Mint, Tarragon, Sorrel, Camomile, and Pennyroyal should be broken up and replanted either on fresh ground or with a good addition of new soil annually. We sometimes hear gardeners say Tarragon positively refuses to grow and live through a winter, but if replanted in fresh soil every spring and allowed to carry all its old stems until new growth starts, this useful herb, like many hollow-stemmed, herbaceous flowering plants, will pass unharmed through the wettest winters. Just now the old flower-stems on our bed are 3 feet high, and young growths like quills will soon be ready for use. Chervil also likes change, and in order to allow it to accommodate itself we hang a few seed-bearing stems about in pyramidal fruit trees, and always find an abundance of healthy plants. Thyme, one of the most useful herbs grown, very often falls off before the end of a severe winter, but if sown annually and planted out in new stony soil at the foot of a west wall it will thrive and set the frost of most winters at defiance. It is the constant cropping and picking which injures Thyme, and to avoid this the young plants should have a year's grace before they are interfered with.

THE "NORTH" GALLERY AT KEW.

SCARCELY have we had time to make ourselves acquainted with the riches of the fine collection of paintings with which the nation has become possessed through the munificence of Miss North, before new additions have been made to it in the shape of a large collection of pictures of the natural beauties of South Africa and the Mascarine Islands, for which the gallery has been enlarged, and which we had the privilege of seeing before their arrangement was completed. Previous to the arrival of these, the principal regions of whose vegetation Miss North has given us such vivid and accurate impressions were Teneriffe, Brazil, Jamaica, United States, California, India, Ceylon, Singapore, Borneo, Java, Japan, Australia, and New Zealand. The year before last Miss North visited South Africa, where she painted a large number of beautiful and highly interesting subjects, and again this year her indomitable love for her work carried her to Madagascar and the Seychelle Islands. This last visit must have been surrounded with difficulties and even personal danger sufficient to have stifled the desire of most people to venture upon it, and especially when the object of such visit was for so disinterested a purpose as was that of Miss North. Nothing daunted, however, this lady traveller departed last autumn on her errand of picture-making, and in spite of the cholera, which was then raging in the Seychelles, and the inertness of those to whom she was often compelled to look for assistance, she has succeeded in transferring to canvas many striking scenes and representations of the vegetable wonders peculiar to that part of the world.

At present we are unable to do more than mention a few of the more striking of these new additions, many of the plants in which, owing to the excellence of the drawing and accuracy of colouring for which Miss North's pictures are remarkable, we are able to recognise without the aid of the catalogue.

Commencing with South Africa, one of the first subjects to attract attention is a series of pictures of the Silver Tree (Leucodendron argenteum), showing its effect on the landscape, its habit, and a study of the flowers and foliage of this magnificent Cape tree. The difficulty always experienced in any attempts to establish this tree in this country appears to be similar to what occurs in its native country, where, we are told, all endeavours to introduce it into parts of the country other than those in which it is found wild have ended in failure. Near these beautifully executed pictures are fine representations of some of the grandest of the Proteas, Banksias, and other Proteaceous plants. A picture of Protea cynaroides shows what a beautiful shrub this is, its flowers being large and brilliant, resembling both in size and colour those of the handsome Nelumbium speciosum. We understand that living plants of this species are at Kew, raised from seeds sent home by Miss North. Strelitzia Augusta and S. Regina are shown in all the magnificence of wild luxuriance, as are also many species of Aloe, including a giant A. dichotoma, a singular branching species, small specimens of which are growing in the Kew collection. The Euphorbias, of which South Africa possesses many of the largest stature, are prominent objects in many of the pictures, and one perceives how important a part these plants play in the appearance of the landscape. The Kaffir Plum, with its scarlet plum-like fruits and bunches of large lilac flowers, has a picture devoted to it, as have also the flowers and fruits of the Ordeal Bean (Tanghinia venenifera).

Of the smaller plants to many of which Miss North has applied her magic pencil, we find a host of such things as Ixias, Sparaxis, Babianas, and Watsonias, some of which are new to us, whilst all are beautiful. Nestling at the foot of a tall mountain, with their roots in the waters of a shallow lake, is an immense patch, acres in extent, of the Arum Lily, which in the thousands of its large flowers and the deep green of its fine healthy foliage must be a grand sight when seen as is here shown. By the side of these Arums is a large group of Bulrushes, upon the spikes of which are what appear to be the curious nests of the little sociable finches so common in South Africa. Disa grandiflora has for its companions the rare and beautiful D. Herschelli, a large-flowered species whose blossoms are blue in colour, and what looks like Todea africana. The association of these three plants is rather surprising, as we were not aware that the blue-flowered Disa was found where D. grandiflora grows, much less that it would thrive under conditions suitable to the Todea. In another picture a very remarkable Disa is represented, viz., D. spathulata, which is also blue-flowered, and possesses a very remarkable lip. Lissochilus, Bonnetias, Satyriums, and other Cape Orchids are shown growing under the conditions provided for them by Nature, and the value of such information as is here conveyed to the cultivator of these and similar plants cannot well be over-estimated. It may strike some as remarkable that such plants as the common Arum and Watsonia rosea should be seen growing side by side with their toes in water, conditions such as are suitable for the Arum, but which most bulb growers would have thought fatal to the Watsonia. To the observant a host of useful hints of this character may be reaped from a study of these pictures. Ipomæa Pes-Capri has a picture to itself, and the sand-loving nature of this handsome Woodbine, with its goat's-foot-like foliage and pretty rosy purple flowers, is here shown to excellent advantage. Crinum Moorei, a splendid plant with two large heads of bloom; a fine inflorescence of Brunsvigia Josephinæ, with a great number of plants of it scattered over the open plains: a head of flowers of Agapanthus, upon which is a large swallow-tailed butterfly; a group of the beautiful parasitic Harveyas; and many other strikingly handsome subjects have been treated by Miss North in a strikingly artistic manner. A richly coloured Orobanche-like plant, whose tall spike is composed of flowers of the most brilliant scarlet, is a conspicuous object in one of the pictures. The views of Table Mountain, of forest scenery, of the sea, and of landscapes are as attractive as the best of such subjects are when painted by Miss North; while the various birds, reptiles, butterflies, &c., are so faithfully depicted as to look like life.

The pictures from the Seychelles are at least as instructive and interesting as those from South Africa, a series of representations of the Coco de Mer, or double Cocoa-nut (Lodoicea seychellarum), being especially so. This splendid Palm is found only in the Seychelle Islands, where it grows to a height of 100 feet, with a straight thick-based stem crowned with an immense head of large entire leaves about 18 feet long by 6 feet wide. The fruit is about 18 inches long, and from its curiously lobed form it looks not unlike two Marrow-shaped fruits fastened together. These double Cocoa-nuts are borne all along the stem at the bases of the leaves, as is well shown in several of Miss North's pictures. Both a full-sized nut and the male inflorescence are shown in one of the paintings. A picture of one of these trees, as seen in the clear bright moonlight, with the still sea and hazy atmosphere, through which the moon shows with a soft bluish colour, is one of the most beautiful in the whole collection. The stately Stevensonia grandifolia and other Palms, gigantic trees of the Screw Pines, Wormias with richly coloured foliage, and many other trees of remarkable beauty and stateliness are represented either as important features in a landscape or with a picture all to themselves. Pancratiums, Hymenocallis, Crinums, Tabernæmontanas, Angræcum eburneum, the beautiful Vanilla Phalænopsis, whose creeping, succulent, leafless stems bear large white Chysis-like flowers; a pretty Nepenthes, apparently quite different from N. Wardi, the only species hitherto known to exist in the Seychelles. These are but a few of the subjects of interest to which our attention was attracted. With the aid of the catalogue, which we trust will shortly contain a descriptive account of these new additions, no doubt a much larger number of interesting plants will be found represented in them. Would not a series of pictures of our own native flora placed by the side of these paintings of exotics from almost all parts of the world be an interesting addition? Such a series would do much to dispel the opinion entertained by many that beauty of the first degree is not to be found in our native vegetation. On this point we have the opinion of one of the greatest naturalists of this century, whose words we quote. He says, "During twelve years spent amid the grandest tropical vegetation I have seen nothing comparable to the effect produced on our landscape by Gorse, Broom, Heather, wild Hyacinth, Hawthorn, Chestnuts, Primroses, and Buttercups. The bright colours of flowers have a much greater influence on the general aspect of nature in temperate than in tropical climates."

SWEET-SMELLING WHITE FLOWERS.

THE names of the following sweet smelling white flowers are simply jotted down as they occur to me while writing. I shall begin with hardy subjects first, and will place the Magnolias at the top of the list. Of these, the only varieties with white flowers with which I am acquainted are M. grandiflora, a well-known evergreen climber suitable for covering walls, but in warm positions in Devonshire and Cornwall it may be grown in the form of a bush or standard and M. conspicua, a deciduous variety, producing its flowers in early spring before the leaves appear; except that the flowers are sometimes injured by frost, it is quite hardy. It is a capital wall plant. White Jasmine.—This is too well known to require further notice. Abelia rupestris.—This is a neat growing, evergreen shrub, rather tender, but very suitable for covering low walls. Pittosporum Tobira.—Hardy in warm corners in Devonshire, but in other districts requiring some protection in winter. Other hardy shrubs include the white Lilac and Philadelphus, or Mock Orange. Amongst white Roses there are not many very fragrant. Amongst the Hybrid Per-

petuals, probably Mme. Alfred de Rougemont is the best; in the Noisette section, Aimée Vibert is as sweet-smelling as any; amongst Tea Roses, Devoniensis is unequalled. Amongst hardy herbaceous and perennial plants, there are not many with sweet-smelling white flowers. The list includes Carnations, but these vary a good deal as regards scent in different varieties. The common white Pink and a new double variety named Mrs. Sinkins are very fragrant. The white Rocket is held in high esteem on account of its perfume. Of white Stocks there are several varieties, the best smelling kinds being the white Brompton and the East Lothian. I must not omit from this list Hyacinths, Lily of the Valley, and Narcissi. White Sweet Peas are always admired, and the annual fragrant Candytuft is useful in the summer season. The common white Lilium candidum is well known as a most fragrant flower. There is a fairly good list of fragrant white flowers amongst plants cultivated under glass. The always welcome Stephanotis deserves to be placed first, but some will perhaps give that place to the Gardenia. The best variety of this genus is undoubtedly intermedia. The lovely Eucharis amazonica and the charming Tabernæmontana are both white flowers of much value. The last four named plants require a stove temperature, as do also the Dove Plant (Peristeria elata), which is remarkable for its delightful odour. Nicotiana affinis opens its flowers and diffuses its fragrance at night. Tuberoses and Freesias must not be forgotten. Heliotrope White Lady is sufficiently white when grown under glass to justify the name, and is very sweet-scented. Brugmansia Knighti bears large trumpet-shaped flowers, and is valuable as a greenhouse plant. Add to these Rhynchospermum jasminoides, which makes a nice specimen plant when well trained, and I think I have exhausted my list. If any of your readers can add a few more names, they would certainly be welcome.—J. C. C.

—— To white flowering shrubs I would add the Daphne and the white varieties of hardy Azaleas. Amongst perennials there is a handsome white Peony possessing a fragrance much resembling that of the Rose. To annuals may be added a white form of Sweet Sultan, Datura chlorantha, and the variety of Mignonette called Diamond. Amongst sweet Violets, the white Belle de Chatenay is quite an acquisition. Coming indoors, the stove furnishes Pancratium fragrans. The greenhouse yields Daphne indica alba and Azalea narcissiflora, which latter, besides possessing a beautiful fragrance, is one of the best for early forcing.—J. B.

KITCHEN GARDEN.

LATE BROCCOLI.

The mild winter that has rendered all descriptions of green crops unusually luxuriant has had the effect of bringing in all kinds of early and mid-season Broccoli before their time, leaving a long space to be filled up by the late kinds before Cauliflowers come in. This is the sort of season to test the merits of the late varieties; there are a few well known kinds that usually stand out prominently amongst the host of late sorts, and amongst these may be mentioned Carter's Champion and Cattell's Eclipse. They possess that sturdy habit of growth and abundance of incurved leaves that protect the heads and keep them white as snow until fully grown, but the value of these kinds depends mainly on the care exercised in selecting seed-bearers, and growing them in positions where they cannot get fertilised with other sorts. This is easily done on large seed farms far removed from neighbouring gardens, but not such an easy matter where seed is being saved in gardens within a short distance, for bees carry the pollen from one to the other and spoil the best selections. That different sorts can, however, be kept true and improved I have had ample proof. This year I find the latest of all to be one that has never been named or sent out, but which was for years grown by a cottage gardener, who made it a rule to save one or two of the very best and latest heads every year his garden being isolated, he was able not only to keep the stock true, but to fix its characteristic lateness and dwarf sturdy habit so firmly, that every plant in the rows were as nearly as possible the exact counterpart of each other. The culture of late Broccoli is very simple—viz., sow the seed about the end of this month or early in May, according to locality, and as soon as the seedlings are large enough to handle prick them out on any spare ground from 4 inches to 6 inches apart, so as to keep them dwarf and robust, and in July as the early Potatoes are lifted plant them out in rows 3 feet apart and 2 feet asunder in the rows. No fresh manure should be applied; they are sure to grow strong enough, and the harder the soil is the better. Beyond surface-stirring to keep down weeds, no other attention will be necessary until the days begin to lengthen, when some short manure should be spread between the rows, or liquid manure copiously applied, treatment that will soon show a very marked increase in the size and substance of the leaf growth and head. Plants thus managed will be dwarf and hardy, and will rarely suffer from frost even in the coldest localities; in fact, it is surprising how great an amount of frost such plants will endure When lanky drawn-up crops in walled-in gardens are rotting from its effects, the same kinds in open fields will be found to be but rarely injured. It is the extra distances apart in fields that makes all the difference. This season promises to make late kinds exceptionally valuable, though early sorts have been a drug in the market. All sorts of green crops, from their low value, are being rapidly cleared off to make room for other crops; those, therefore, who have really good sorts of late Broccoli fit for use in May will find them of more value than they usually are in that month, early Cabbage crops having generally run upprematurely to seed.

James Groom.

Gosport.

SUMMER LETTUCES.

Good Lettuces are generally appreciated whenever they can be had, but it is during the hot summer months that they are most acceptable, and when all should strive to have them in perfection. True, owners of most suburban gardens can buy them cheaply either in the markets or shops, but it is equally true that these, when brought home, have lost much of the freshness and crispness for which Lettuces are so much prized. Everybody, therefore, should grow their own Lettuces if possible, and, as I shall endeavour to show, they are by no means difficult to manage. With these, as with other quick-growing crops of short duration, it is necessary to sow often and in small quantities, thereby avoiding an undesirable clut, followed by a break in the supply, which is certain to occur if larger quantities of seed are sown at wide intervals of time. No crop better repays for liberal treatment, and, according to my experience, no crop more often receives the reverse of this. Very frequently the seed is sown thickly on a poor piece of ground, and the plants eventually dibbled out among the fruit trees or in some other seldom manured spot. Those who are satisfied with them grown in this fashion scarcely know what really good Lettuces are.

We usually winter a number of plants in cold frames, and these are transplanted early in April to sheltered borders, including some of those at the foot of the warmest walls. To succeed these more seed is sown on a slight hotbed about the middle of March, and the plants resulting are early in May dibbled out where they are to heart in. The seed for the next crop is sown on a warm border about the first week in April, and these are the last to be transplanted. Subsequently about two long rows or four shorter ones are sown at intervals of about three weeks where the plants are to heart in. It is impossible for all to devote a good open piece of ground to these crops, but they can be had good from the spaces between early planted Brussels Sprouts, or the rows of autumn and spring planted Strawberry rows, as well as the spaces between the Celery trenches. They are not particularly deep rooting, and we find the finest Lettuces result when the half-decayed manure is forked into the surface of previously dug ground.

The latest sowing, which sometimes results in a serviceable number of fairly good Lettuces, is made about the first week in August on warm borders previously occupied with early Potatoes. Drills about 3 inches deep and 1 foot apart should be drawn for both the plants and the seeds rather than to plant or sow on the surface. These drills admit of the plants receiving one or more good soakings of water, or, better still, of liquid manure, and when well established, and after rain or a watering given, the soil should be drawn up to the plants, this steadying them as well as enclosing the moisture. In dry weather the drills for the seed should be well soaked a few hours prior to sowing, a little of the dry soil being drawn or distributed over the seed, this being far more effective than watering after the seed is covered. The seedlings should be thinned out gradually, eventually leaving them about 6 inches apart, any blanks being made good by transplanting with a trowel. If extra fine Lettuces are required, more space may be allowed between the plants, but as a rule they receive more room than is necessary, as they grow to a great size even when pressing against each other. If it is necessary to transplant from the seed beds during hot weather, it should be done with a trowel, and after the soil about them has been thoroughly moistened. In showery weather they may be dibbled out, but in this case are more liable to be spoilt by slugs before they have recovered from the check. The surest way of getting rid of the slugs is to lay fresh green Lettuce or Cauliflower leaves in little heaps along the rows of Lettuce or other young plants, and under these they will collect, being then easily collected or cut to pieces.

For summer crops I recommend Cos varieties only, being under the impression they are greatly superior to Cabbage Lettuces. The latter, of which the best are Early Paris Market, All the Year Round, and the Hardy Green Hammersmith, are good for the earliest and latest crops, but are much too flabby during hot weather. The best Cos variety for all crops is the Bath or Black Seeded and with this may be grown during the summer the Paris White Cos, or one of the many superb giant or monstrous forms of it. The Bath I have long found to be the last to run to seed during dry hot weather, and it is better in quality as well as colour than any other sort known to me. It is true it requires to be tied up, but this is not at all laborious, and many of the other Cos varieties blanch all the better for tying.

W. I. M.

COLD WATER V. FROSTED POTATOES.

Situated as we are on low-lying ground close to water, we rarely escape late spring frosts, and therefore, as a rule, we plant Potatoes late. For the earliest out-door crop we selected the most favoured and best protected spot in the garden; we planted well-prepared sets in February, and gave them every encouragement to grow quickly, protecting them throughout with the slender side boughs of Spruce Fir obtained from a crowded plantation. These form very handy protections. They are laid in a heap by the side of the bed or border; their ends are pointed like those of Pea stakes, and whenever it is cold they are stuck into the ground upright between the rows, letting their heads droop over the Potatoes on the windward side. These never get frozen. Time and means, however, do not allow us to protect any considerable part of the crop in this way, nor does late planting give any security, when, as too frequently happens, a month's genial growing weather is followed by a morning or two of keen frost towards the end of May Our refuge and rescuer, then, is cold water, the power of which over frozen plants is wonderful, but surely not generally known, or else greater and more extended advantage would be taken of so simple a means of saving at least a portion of one's crop from being cut down by late frosts. Of course, if the frost has been so severe as to kill the stems and leaves, they cannot be brought to

life again, but from the average white frosts of May, even if the leaves are quite stiff, my experience, gained in a most unfavourable locality, is that a timely application of the coldest water to be had will save them. The proper time to apply cold water is in the morning, just as the temperature is on the turn upwards, so that the frost may be gradually withdrawn from the leaves before there is any possibility of the sun reaching them. The water may be applied in any way most convenient—from a garden engine, or from a bucket by means of a bunch of twigs or a wisp of straw—any way provided the leaves are thoroughly wetted, without needlessly wetting the ground, which would aggravate the evil if there was a repetition of frost the following morning. Five degrees of frost on two successive mornings—the 19th and 20th—have pinched some things rather sharply, but Potatoes several inches high and unprotected are, thanks to cold water, but very lightly touched. A. Moore.

Cranmore.

NOTES.

Galanthus Elwesi major and G. virescens.—Of all the early blossoms of the opening year Snowdrops must of very necessity claim our first regard. Many a thirsty traveller in sunny lands, none the more enjoyable because they are winterless, has forgotten the imperial beauty of the Orchids around him, and, unheeding the rustle of Palm leaf above, has let his heart run riot and allowed his thoughts to wander back to the Snowdrop in the house garden, and to the sweet Violets which nestle fair and fragrant beside the hedge bank or near the Moss-covered stones. Of all hardy bulbs, the snow-piercer is the bravest—it scorns the efforts of the gardener who tries to coax it early into bloom: reversing the usual order of things caloric, it laughs at its relatives which love hothouse shelter, and triumphs unscathed over snow and frost alike in the open air.

We have at least a dozen distinct kinds of Snowdrops in our gardens at the present time. Whether these are species or varieties does not so much matter, the main point being their use and beauty as grown in the garden, and the two kinds we now illustrate are alike as rare as they are distinct and beautiful. G. Elwesi when seen at its best is a welome visitor, and the form we now allude to came some time ago from that paradise at Newry where so many good things in the hardy plant way find a home. The flowers are larger and more globular than in the type, each petal being so broad that it is only when they spread themselves horizontally like a butterfly's wing in the warm sunshine that the characteristic green blotched minor segments can be seen. Half grown bud and expanded flower are alike beautiful. Our illustration shows this noble variety exactly of the size of nature, and that very much larger than the ordinary forms of G. Elwesi ever attain. G. virescens came from Mr. Loder's collection, at Floore, Weedon, and, albeit not so boldly beautiful as the last, makes up in rarity for any mere lack of size. The slender outer segments are white, sometimes green tipped in the way of a Snowflake, but less distinctly so. The minor divisions are, as here indicated, entirely green with the exception of a narrow white border. It is a graceful, fresh-looking little plant, not readily obtainable at present, "either for love or for money," as the old saying goes.

The Poet's Narcissus.—Some varieties of Narcissus poeticus are so abundant and their flowers are now so plentiful that it will surprise many to hear that the true N. poeticus of Haworth is a rare plant to-day in our gardens generally: yet this much is true, while the plant itself, even if less showy than are its varieties ornatus, poetarum, grandiflorus, and the two or three forms of recurvus, is, nevertheless, a dainty little flower, and it possesses a fragrance peculiarly rich and satisfying. It is wild in Greece. The flowers are borne on slender scapes 18 inches in height. Each blossom is rarely more than 1¼ inches in diameter, and the perianth segments reflex more than usual. The crown is flat and spreading, yellow in colour, having a greenish eye and a narrow vermilion-tinted rim. Three anthers only may be seen protruding from the greenish eye or tube, the other three being hidden lower down within the tube itself. It is such a sweet and shapely little plant, that its rarity is a matter of regret.

TWO RARE SNOWDROPS.

Galanthus virescens. *Galanthus Elwesi major.*

Crocus Boryi.—Amongst the whole race of silver Crocuses none can very well be fairer than this little species. Its flowers are beautiful in all stages;

Crocus Boryi.

the purple-streaked buds and the half-opened cup-shaped blossoms alike are to my mind as lovely as the pure white starry flowers themselves, and all are garnished by the slenderest and most elegant of leafage. Some Crocuses are very sensitive to sunshine and shadow; this is one of them. A gleam of sun comes, and its largest buds speedily become open blossoms, but a cloud, shadow, or a few drops of cool rain are sufficient to cause the flowers to fold their pearly segments over the precious pollen, to shroud their sweetness up, and keep the powered anthers from the threatened shower. A friend, who has quite recently been on Mount Hor with the Palestine Exploration Expedition, tells me the Croci there are quite marvellous in size and colour. Some kinds he especially mentions as being almost as large as ordinary tumbler glasses and very lovely in vivid colouring. Perhaps Mr. Maw can tell us what kinds these are likely to be. At any rate it is pleasant to hear of natural species of Crocus which rival the great seedling forms which the Dutch florists send us year after year, but which so soon deteriorate in our gardens. Big and beautiful as are these Dutch kinds, it is pleasant to know that there are some tiny species exquisitely beautiful, as is this dainty little plant which we now illustrate.

"'A May-day Idyl' (A.D. 1610).—Writ by one Ralph Cunnynghame in letters to his consin, Sir Robert Stapleton, in London" (*Harper's Magazine* for May): "Yestermorn I was abroad while the dewe still laye upon the Grasse, for it was sweete and bright. I knowe not what it is that bringeth at such tymes of spring a fullness of joye to the heart, but so it is, and certes was with me especiallie on this sweet daye, for alle thinges were budding tenderlie, and the whole worlde seemed full of pure delighte. And soe I walked through the meadowes, and alle the grounde beneathe my feet was carpeted with the daintie beauties of manie flowers, and over my heade the larke his songe fell like a sweet shower of praise from the golden skye, so that, what with alle the dearefull-

ness of spring, my hearte did fairlie ake with keen blissfullnesse."

"With Daffodils bedight."—"And soe at last I came to a certaine spott I wotted of where alle around the bankes of a tiny lakelet stood a whole hoste of Daffodillies growne talle and statelie and fayre; neither coulde there haue been lesse than thousandes of them, so that the whole earthe coadjacent seemed strewn thick with bright yellow flakes of golde; and whenever a smalle wynde came they bowed in greate rowes lyke a sea of golden starrs. I know not why it was, Amadis, but certes my hearte was so flooded with a bliss and strong love longinge that big teares of tender joye did fill mine eyes, and soe I lay me downe upon a greene banke of Grasse and sweete herbes, and gazed at those fayre blossoms with gentle joyance. Thus lying, suddenlie I saw the sweetest mayde that e'er mine eyes beheld come walkynge through this platt of flowers, and meantyme, moving not, I laye and gazed like one enchanted, and scarce dare breathe lest I should frighte the fayre vision, and dissolve alle into nothingnesse."

The flower gatherer.—"And oh, Amadis, never saw I so sweete a mayde in all my life before, nor likewise one with eyes so brighte, and countenance so gentle and yett withal soe arch; and I saw that her arms were alle overladen with Daffodillies, like a greate cluster of beauteous starrs; and soe she walked amid the flowers that reached nigh to her knees, and came, and was gone, leaving me lying as tho' entranced with what I had beholden. And alle the rest of the daye ever and anon woulde come greate waves of happinesse that flooded my hearte full even in the midst of grosser thoughtes whene'er somewhat touched the chord that awakened the memorie music of that scene. Trulie, my friende, tho' towne is merrie I do love the countrie, its joyous beauties of meadowe and meade, and coulde dwelle blissefullie here for ever. Again to-daye I went with tender hopes to the same platt of Daffodillies, and there remained a longe tyme, but my mayde of the flowers came not againe."

Old Irish gardens.—Well-stocked gardens of old-fashioned flowers are far more common here than in England. A bed of Narcissus cernuus or of N. tortuosus bearing a thousand open silvery bells is a sight not often seen, and once seen can never be forgotten. Here is a sketch of such a sight by a friend: "When exploring a very old garden not a hundred miles from here a few days ago, I came suddenly face to face with an oblong bed on a sunny slope some 3 yards to 4 yards long. Its centre consisted of a belt about 2 feet wide of white Daffodils—a solid mass of flowers. There could not have been fewer than a thousand open at the same time, besides buds in all stages. This was bordered on each side with blue Grape Hyacinth, about 18 inches wide, a solid mass of beautiful blue—a contrast positively enchanting. I never before saw either one or the other in such profusion. That bed I heard had not been disturbed in the memory of the oldest inhabitant. White Daffodils abound in that garden here, there, and everywhere—in the Grass, amongst the shrubs, in the borders, &c. I noticed, however, that they were stronger in every case where the ground had been bare in the summer, and where, of course, their bulbs would be better ripened."

Narcissus montanus—Quite recently in the Birmingham Botanic Garden I saw a fine mass of this rare old plant in full flower. It is very interesting It is figured and described by Parkinson in 1629. It has never been found wild, and is very seldom to be met with in the gardens of to-day, and yet, like many other organisms, modest and unobtrusive, it has left its mark on some of the favourites of to-day. It has bequeathed much of its aristocratic beauty to all the new varieties of Narcissus called N. Leedsi by Mr. Barr; has been, in fact, a main factor in the production of what are popularly known as "dog-eared" flowers. Its pollen is most potent, but it rarely if ever seeds. It is rare to find a perfect or six-petalled flower of it, although Parkinson figures one, so also Burbidge in his "Narcissus," but as a rule the flowers are semi-double or malformed. The clump flowering at Birmingham pleased me much. It had many blossoms, but no two were precisely alike.

Vanda cœrulescens.—All the Vandas are beautiful; this one is particularly so, and its colour is an additional recommendation. Quite small plants, each with ten or twelve leaves only, are now flowering, and as a neat and effective basket plant for a warm house it deserves more extended culture. It is not so showy as Odontoglossum vexillarium, which is now glowing as fresh and as rosy as Almond blossoms, nor is it so large in blossom as is its relative V. cœrulea, but it is nevertheless an Orchid with blue flowers; the blue is delicate and distinct in shade also, and blue-flowered Orchids are by no means so plentiful that we can afford to despise this dainty little species.

Fertilising Moss.—Common wood Moss may be utilised for Moss culture in several ways. By using a few nodules of bone instead of crocks for drainage, and potting any quick-growing decorative plants in chopped wood Moss, good results are obtainable. The great essential to success is to ram in the Moss quite tightly; otherwise it holds too much water, for flowering plants especially. Nearly all dwarf-growing foliage plants, Ferns, and Lycopods grow luxuriantly in common wood Moss, and for more robust and hungry-rooted things it may be fertilised by a sprinkling only of guano, fine bone dust, and soot, all carefully mixed up together, or by the merest pinch of Clay's fertiliser or any other good and handy stimulant. I would back common Hypnum or wood Moss so treated against any fertilising Moss whatever.

VERONICA.

GARDEN DESTROYERS.

VAPORISED TOBACCO JUICE V. FUMIGATION.

I HAVE never noticed any allusion in THE GARDEN to the use of vaporised tobacco juice for destroying insects in plant houses. In France, the results obtained from it have been so satisfactory, that I think I shall do my fellow horticulturists in England a service in directing their attention to it. About two years ago M. Boizard, gardener to Baron Rothschild, communicated his discovery to the Horticultural Society of Paris, and experiments were at once made, the result of which left no doubt as to its value. Ever since I adopted it myself it has been absolutely impossible to find a thrips in my houses, and other insects have likewise disappeared. My mode of proceeding is this: every week, whether there are any insects or not, I have a number of braziers containing burning charcoal distributed through my houses. On each brazier is placed an old saucepan containing about a pint of tobacco juice of the strength of 14°. This is quickly vaporised, and the atmosphere of the houses is saturated with the nicotine-laden vapour, which becomes condensed on everything with which it comes in contact—leaves, bulbs, flowers, shelves, &c. When the contents of the saucepans are reduced to the consistency of thick soup, about a pint of water is added to each, and the vaporisation goes on as before. I consider a pint of tobacco juice sufficient for a house of about 2000 cubic feet. The smell is not so unpleasant as that from fumigation, and the tobacco juice can be used more conveniently than the leaves. Plants, no matter of what kind, do not suffer in the least, and the most delicate flowers are not in the slightest degree affected, but continue in bloom for their full period without any alteration in their appearance. I have a Phalænopsis Stuartiana with twenty flowers in bloom since the 14th of January, and these are now as fresh as they were the first day they opened. When the operation is completed, if the tongue is applied to a leaf, one can easily understand what has taken place from its very perceptible taste of tobacco.

The process requires to be repeated in proportion to the extent to which a house is infested. It is not to be imagined that these troublesome guests are to be quite got rid of by a single operation. A new brood may be hatched on the following day, or some may not have been reached on the first day, so that the vaporisation should be frequently carried on until the insects have entirely disappeared, and after that it should be repeated every week, in order to prevent a fresh invasion. In England it might be difficult to obtain the juice, which our tobacco factories supply at the rate of 6d. a litre (nearly a quart) to anyone who presents a certificate stating that it is required for insect killing. The expense, therefore, is very trifling, being about a shilling a week for a house 50 feet long, 16 feet broad, and 10 feet high. If, on the other hand, we take into account the time spent in washing the plants and the accidents which inevitably result from washing and moving them, and when we consider that these last-named operations do not preclude the practice of fumigation, we shall find that a great saving is affected by the use of vaporised tobacco juice.

In France, all the establishments that know anything of the process use it, and have given up fumigating, which is expensive, leaves an unpleasant smell behind it, and too often injures the plants. I may add, without, however, being sure of it, that slugs ought also to feel the destructive effects of the nicotine, and that it should be anything but pleasant for them to crawl over surfaces saturated with tobacco juice. I expect that when this process becomes known through THE GARDEN it will very soon come into general use, and that many of your readers will be thankful for having been made acquainted with it.

Argenteuil. GODEFROY LEBEUF.

NOTES AND COMMENTS.

Pyrus japonica—How seldom one sees this fine old deciduous spring-flowering shrub in good form, and how seldom it is seen at all, yet it is without exception one of the hardiest and most beautiful subjects of the kind which we possess. As a rule it is pinched and pruned to death, and usually presents the appearance of a scraggy bush with long ungainly spurs projecting from the wall like an old Apple or Pear tree. This is not the way in which to treat the plant. It is a true Apple in habit, and no matter how old it may be, the branches should always be as close to the wall as the neatest Ivy, if nailed in periodically. The young growths are slender and wand-like, sometimes 3 feet long, and all of these that room can be found for should be laid in their entire length in autumn, either upon the older and barer limbs or against the wall, and the remaining shoots should be cut clean out at their base. Not the least pinching or spurring is needed, for although the young shoots break freely their whole length, they produce little or no breast wood, but develop flower and leaf-buds alone, which blossom the third year like the Apple. Trained in this way, young plants soon form large specimens and flower beautifully at this season or earlier, and the dense, closely set foliage is almost as pretty as the flowers. A few years ago we planted a number of young plants against a wall, subjecting them to exactly the same treatment as young extension-trained Apples, and they are now all 12 feet high, proportionately broad and perfectly clothed in every part—living testimony of the correctness of the system as applied to shrubs as well as fruit trees. This is a plant that deserves one of the warmest and best places on a wall. The shoots may be disbudded, and if those left are nailed in in November, it will be soon enough.

Cotoneaster Simonsi.—This is a totally dissimilar subject, but an equally neat evergreen wall plant, unfailingly producing its crop of coral red berries which alternate on the shoots in such a symmetrical manner as to look as if they had been pinned on artificially. In this respect it is one of the most formal-looking subjects in the garden, and it is only on a wall that this peculiar habit is shown to advantage. The shoots may be trained in any direction, being very accommodating in that respect, and when they are so trained lovers of perfectly formed shapes in trees will find this

Cotoneaster a model in its way. Any way it is a fine wall plant, a rapid grower, hardy, and a good grower in any soil.

Permanent fertility of extension trained Vines.—About four years ago, when it was suggested by the writer to fill vineries more quickly than usual by growing strong canes at the outset and leaving as much young wood as could be matured, a correspondent replied that he had tried the plan (I think it was forty years ago) and failed with it, predicting that the same fate awaited our experiment, which prediction caused us to preserve at least 50 feet of our two-year-old cane to see if it would corroborate the statement. Well, this Vine has borne four just as heavy and excellent crops of Grapes as any other Vine on the place, and the last crop weighed between 60 pounds and 70 pounds. It now grows stronger than ever, and after disbudding shows for the fifth crop 100 large bunches just coming into flower. I take it, therefore, that the prophets are wrong, and I shall be pleased at any time to show them that they are. The old practice of cutting off fine, young, well-ripened canes, as adopted generally up till a short time since, was a purely suicidal one based wholly on "rule of thumb." Every Vine grower should strive to get and leave the longest canes possible, and need never fear exhausting their energies thereby—provided the crops judiciously, but therein lies the secret of success.

Testimony on Vine roots. — Talking lately with gardeners on the subject of Vine roots, among others with Mr. Henderson, of Thoresby, and Mr. Lyon, of Ossington, the general conviction seemed to be that if we all lived long enough to discover a Vine which had voluntarily taken to an inside border under the conditions discussed lately, we should reach patriarchal ages; and Mr. Clayton, of Grimston, writing the other day, incidentally remarks that he had always been under the impression that "it was one of the established truths of garden practice that Vine roots would go outside if at all possible, and the thing was so absolutely certain on his mind that he could not see how anyone could think otherwise who had much experience in the matter." I mention Mr. Clayton particularly because apart from my own knowledge of his excellent culture, as testified at the northern shows, it has also been recorded in a contemporary by Mr. Baines, so that his Vine roots going outside will not be attributed to mismanagement.

Pearson's Golden Queen Grape.—Opinions differ greatly about this Grape. Mr. Batley, of Wentworth Castle, is a firm believer in it, and declares that in spring it is almost as good as a Muscat of Alexandria. He gave us berries of it to taste on April 19 last; also Muscat of Alexandria, and it was extremely difficult to tell one from the other. Although Mr. Batley does not "demonstrate" everything he does on the exhibition table or at South Kensington, he is, I think, the most successful preserver of bottled Grapes in England; and the fact that he had Muscats on April 19 might, I think, satisfy even conscientious Mr. Wildsmith that the Muscat *is* a late Grape. Along with these Mr. Batley showed us a complete bunch of Alicante that had been cut from the Vine in August last, or nearly nine months since, but he prefers to ripen his main crops of late Grapes in October.

Theory and practice.—There is not much to find fault with in the practice chronicled by writers in the gardening papers assuming that all that is written is true. A conscientious record of anything done and what followed, whether attributable to the practice pursued or not, is always valuable, because anyone can draw their own conclusions. It is needful that the record should be strictly true, for in ninety-nine cases in a hundred the inferences drawn from the facts are erroneous. If it were not so, we should not be so often at sixes and sevens on matters of garden practice, which, as it stands, cannot be called an exact science. Nothing hardly appears to be settled or sure except the purely botanical nomenclature of plants, and we do admit that for exactness in thinking and working the botanist excels the gardener. He is pedantic and may be conceited, but he is correct as a rule and sure of his ground—except when he wanders in the mazes of garden varieties and hybrids, which are to the botanist what the mulattos, mestizos, quinteros, and chiuos and their off-spring are to the ethnologist.

A "new and revised theory and practice" is the next horticultural book needed. Lindley's "Theory and Practice" was one of the biggest boons ever conferred on gardeners, and is still a mine of suggestion and information, notwithstanding the fashion in some quarters to pooh-pooh it not only among physiologists, but even among gardeners who happen to find themselves in opposition to its tenets. We are better informed on many things now, but the reasons which prompted Lindley to write his "Theory and Practice" still exist. "It is surprising to me," wrote Lindley, "that the real nature of the vital actions of plants and of the external forces by which they are regulated should be so frequently misapprehended even among writers upon horticulture; and that ideas relating to such matters so very incorrect, as we frequently find them to be, should obtain among intelligent men in the present state of what I may call horticultural physiology." Reflections like these pressed Lindley to write his "Theory and Practice" "in the hope of providing the intellegent gardener, and the scientific amateur correctly with the rationalia of the more important operations of horticulture, in the full persuasion that if the physiological principles on which such operations of necessity depend were correctly appreciated by the great mass of active-minded persons now engaged in gardening in this country, the bounds of their practice would be settled upon a more satisfactory foundation than can at present be said to exist." It is over forty years since these words were written, and they are still true to-day as they were then, much as we have learned. It is because we have no rationalia of many of the most important operations of gardening that there is such a diversity of opinion on almost all cultural subjects—like "composts for Orchids," for example, soils for plants, pruning, &c. The see-saw system of proceeding to work is fraught with incalculable loss to those concerned, and as cost is the factor which determines most gardening operations of any scale, the advantage of having a theory, which is just another word for a plan, for everything, so as to enable us to set to work in the right way at the outset, must be apparent to everyone.

Ghent and English Azaleas.—How is it so few varieties of these are found in gardens? The common yellow kind is common enough in Rhododendron plantations, but where are the others—white, deep orange, red, and other colours—all superior and all fragrant? There are no shrubs to surpass them for effect at this season, except Azalea mollissima, but it is scentless. There are many named varieties and seedlings now of the Ghent forms, and all are first-rate and well adapted for furnishing low borders of dwarf shrubs and herbaceous borders, &c. J. S. W.

Erica propendens.—This is one of the Heaths which years ago were favourites both in the conservatory and exhibition tent, but which are now relegated to the comparative obscurity of botanical collections. E. propendens belongs to the small gracilis section, and is therefore what is known as soft-wooded. It is compact and bushy in habit, stout enough to support itself without the aid of stakes, and bears its rather large bell-shaped rosy flowers thickly crowded along the slender twiggy shoots which clothe the main branches. Unlike such kinds as E. gracilis, E. hyemalis, E. caffra, and others, which flower when only an inch high, E. propendens does not flower freely until it has attained the size of a little bush. Then in the spring of each year it becomes loaded with rosy bells, and remains attractive for several weeks. After flowering the strongest shoots should be cut back, and when growth has recommenced the condition of the soil should be attended to, and a shift into a larger pot should be given if necessary. At Kew, where many of our rarest Heaths still find a home, this pretty species is now in flower in the Cape house.

Indoor Garden.

THE EUCHARIS FAILURE.

Much has been said and written lately respecting a disease to which this plant is supposed to be liable, and which, in numerous instances, has, it is said, proved so virulent as to render its successful cultivation very difficult, if not impracticable. The oft-repeated complaint is that although a few years ago it both grew and flowered freely, yet it now refuses to do either satisfactorily. Why is this? Can it be the result of innate disease? or is it the constitution of the plant simply weakened and disorganised by maltreatment? If the former be the case, our difficulties may not easily be overcome; on the other hand, if it be the result of improper treatment, of which in many instances at least there cannot be a doubt, then the best remedy would appear to be simple and more natural cultivation. How frequently do we see this plant forced into growth by extreme means, and as frequently rested, or attempted to be rested, and ripened by means equally extreme and unnatural. Bottom heat is given to an extent to which the plant in its native habitat is quite unaccustomed; and with the object of producing exuberant growth, the air temperature is also kept extremely high, while at the same time the atmospheric moisture is kept as nearly as possible at the point of saturation. Under these conditions the plant grows rampantly, but it is not such growth as can be easily consolidated, nor such as will result in abundance of flowers. The Wheat plant will grow luxuriantly in a semi-tropical climate, but it fails entirely to produce heads of corn or even flower-stems in such a climate.

The results of such treatment not being deemed satisfactory, the Eucharis, with the object of resting it, is often suddenly transferred from a hotbed and steaming atmosphere to the stage of a cool, dry, airy greenhouse, where, as might be reasonably anticipated, the soft fleshy roots quickly die, the leaves become flaccid and yellow, and gradually die off. To avert this water is given, but only to increase the evil, as the bulbs absorb the moisture, which from the debilitated state of the leaves cannot be evaporated, and disease commences, first in the older bulbs, and if the same treatment be continued the younger bulbs also succumb. Nor are these the only causes of failure; there is another often inadvertently employed which is equally calculated to produce bad results and engender disease. In order to obtain free growth the plant is frequently potted into light, rich soil, largely composed of vegetable manure, in which it will undoubtedly grow grossly for a time, especially if placed under conditions so conducive to leaf-development as those already mentioned. But the soft roots formed in such a soil, although they will undoubtedly grow freely and remain healthy for a time, will also quickly decay when the wholesome mechanical condition of the compost is destroyed. In such a compost the roots never gain that firm grip or hold so necessary not only to ensure free firm growth, but also to enable them to continue healthy, and to properly perform their functions during the season of comparative dryness and rest to which the plant should periodically be subjected if continuous health and plentiful flowers are desired.

The compost best suited to this plant should neither be very rich nor very light; a sandy loam with the slightest addition of well-decayed leaf-mould suits it admirably, and when the bulbs are firmly potted in such a compost they will quickly establish themselves in such a manner as to defy any reasonable amount of ill treatment, and at the same time be perfectly free from disease. A moderate amount of bottom-heat they will endure, but it is by no means essential to successful cultivation. When growing they luxuriate in a temperature ranging from 70° to 85°, with moderate supplies of weak liquid manure, free ventilation, partial shade from the sun, and a moderately moist

atmosphere. When their growth is completed the necessary rest will be ensured by subjecting them to a temperature 10° lower than that already given where the atmosphere as well as the soil in which they grow should be kept comparatively dry, but by no means to such an extent as to dessicate or even discolour the foliage. With such treatment this lovely and deservedly esteemed Amaryllidaceous plant will not only be free from disease, but it will never fail to produce annually abundance of flowers; and as it is so accommodating in its habits, it may, by successional treatment and by having a sufficiency of plants, be had in bloom at any or all seasons of the year.

C. W. C. T.

STEPHANOTIS FLORIBUNDA.

This intermediate house climber is one of the most popular in cultivation, its waxy white flowers and fragrance being exceedingly attractive for decorative purposes of all descriptions. The Stephanotis is a plant which grows and flowers with the greatest freedom, and yet it is rare to find a good and floriferous specimen of it in private gardens. The main cause of this is that the plant is generally grown in a hot stove, and that in such quarters it does not bloom freely, and is much infested by mealy bug, which is its great enemy. The culture of the plant is, however, simple in the extreme, and its flowering certain under proper conditions. We have made some experiments with the plant here, and we think we have hit upon the right plan of growing it. The Stephanotis should, under proper conditions, bloom freely from almost every point of both the young and old wood, and it will do this, for we have seen fine examples of it, though is quite a rare thing to see it bloomed so well. It is all a question of temperature and ripening of the wood. There may be, and possibly are, varieties of the plant more floriferous than others, but the secret of flowering any of them freely is a matter of culture. Being desirous to find out the conditions most suitable for the Stephanotis, we have tried it in the stove, the intermediate house, and the cool greenhouse, and in each case the plants experimented upon were large, covering a great amount of space, and of considerable age. One covered a broad space nearly 40 feet long in a warm stove, where it annually grew a great deal and flowered sparingly, the joints between the leaves averaging nearly 6 inches in length. This plant was transferred to a favourable position in a cool greenhouse, where it did not begin to grow till after midsummer, and the growth was of a very different character from that produced in the stove; for whereas in the latter six joints made up a yard of growth and flowered sparingly, in the greenhouse there were as many as six and seven joints in as many inches, and over the whole plant these short-jointed shoots were most profusely floriferous; only in the cooler temperature the flowers did not expand so freely, and were sometimes affected by spot. On the other hand, a large plant, tried under exactly similar conditions in an intermediate house, seemed just to be in its proper place, making nice growth, and flowering on both the young and old wood. We therefore recommend a temperature between the greenhouse and stove for this fine climber, and nearer to the greenhouse than the stove if anything.

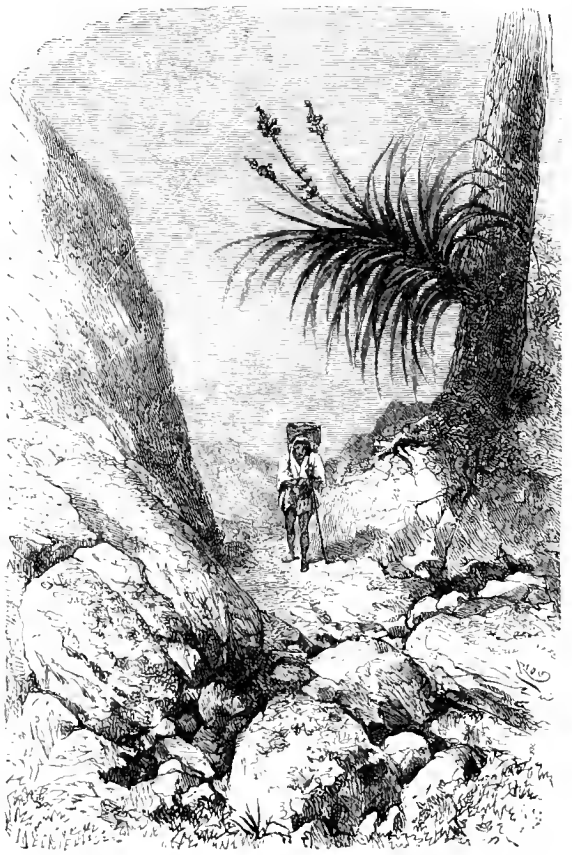
S.

Impatiens Sultani.—I saw this Balsam in a London nursery last July, and was told it was constantly in bloom, a statement which induced me to buy a few plants of it, and I must say they have quite exceeded my expectations in this respect. They have never ceased flowering since the day they came here, and now they are going on more briskly than ever. Cuttings of this Balsam root as freely as those of a Coleus. It has a free branching habit, and its flowers, which are produced in profusion, are of the prettiest carmine colour imaginable. It succeeds admirably in a stove or intermediate house in winter and in a conservatory in summer.—J. Muir.

BROMELIADS "AT HOME."

The theory that a close imitation of Nature is the surest way to success as regards the management of exotic plants in this country may be right as a theory, but in practice one often finds many obstacles in the way of its adoption. In the Tropics not only is the atmosphere heavily laden with moisture, but it also contains, in a gaseous state, a large amount of plant food difficult to supply by artificial means. Natural positions, too, cannot always be secured; for instance, it would be impracticable to grow on a block the giant Bromeliad represented in the annexed illustration as growing against the bare trunk of a forest tree, where the only food it gets is the moisture of the atmosphere and the water which, in rainy weather, would run down the tree trunk to which it clings. In the tropical forests of South America there exist hosts of large, strong-growing plants of epiphytic habit — such as Aroids, Orchids, and Bromeliads — which there thrive only on trees or trailing over rocks, but which, in this country, are necessarily treated in a manner totally different from what they prefer "at home." It is difficult for anyone unacquainted with the whole conditions under which plants thrive in a wild state to understand how such plants as Puyas, large Tillandsias, Pitcairnias, Brocchinias, and Æchmeas can find sufficient nourishment when growing as the Pitcairnia is here represented to be, and even were these conditions known, it would be difficult to reproduce them under glass in this country. Bromeliads are found in great abundance only in portions of Tropical South America where rains are frequent and heavy, and where even in what is known as the dry season the dews deposit nightly on the vegetation almost as much water as we would get from a heavy shower. In the warmest, driest weather I am told that Æchmeas, Tillandsias, and other Bromeliads are supplied every morning with condensed moisture from the heavy dews with which their native haunts are visited. The urn-like arrangement of their leaves can be for no other purpose than to catch the moisture required for the existence of such plants, thus teaching us that, notwithstanding the lengthy periods of drought which such plants are capable of bearing, their healthy cultivation is only possible where an abundance of moisture is provided. Of course even in the case of Bromeliads there are a few exceptions to this general rule, but even these may be said to be due rather to the absence of an abundance of moisture than to a preference on the part of the plant itself for a dry situation, for, so far as I know, none of the Bromeliads dislike moist treatment in this country; in fact, they appear to prefer it to those conditions under which by the force of circumstances they are sometimes compelled to exist in a wild state.

B.



Bromeliads as they grow "at home."

Eucharis candida.—This is said to be a shy flowering plant, but I cannot agree with those who say so. Previous to knowing the plant to which this name properly applies I had grown a Eucharis, erroneously called E. candida, a variety more like a Phædranassa than anything else with which I can compare it, colour of flower alone excepted, and this was certainly far from being a free flowerer. In foliage especially it very much resembled the true E. candida. Last May, however, I received some imported bulbs of the true plant; they were rather shrivelled, and being busy at the time I spread them out for a few days on a gravelled stage which was kept damp, and which was further shaded with Ferns. Thus situ-

ated, they swelled up. I then placed them in 8-inch pots, treating them in every respect like E. amazonica, and in November the strongest rewarded me with its charming flowers. I have also now, April 16, one plant producing several spikes, on one of which there are ten flowers and buds in different stages of development—the most I ever saw on a spike. This Eucharis, therefore, cannot, I think, be considered to be a shy flowerer. Its white blossoms are very suitable for buttonhole and other bouquets where those of E. amazonica would be out of place, but for vases or epergnes for dinner table or drawing-room decoration it is, in my opinion, inferior to the larger flowered E. amazonica.—E. D.

Calla æthiopica planted out.—This has been aptly named Lent Lily by some, as it blooms during Lent and at Easter. Plants of it in pots produce fairly good blooms and a goodly number of them, but nothing like the results obtained from plants planted out in the bed of a greenhouse or conservatory. Here the large handsome leaves of plants thus treated are most effective at all times, and the blooms, which are very large, are of great substance and are thrown up in the utmost profusion. A rich soil and abundance of moisture at the root are main points in its culture.—Cambrian.

The Camellias at the Exeter Nurseries fill a span-roofed house 200 feet long, 25 feet wide, and the same in height. They are planted out; they reach nearly to the top of the house, and many of them being yards in circumference, the effect which they produce is better imagined than described. This house is at all times worthy of a visit, but when the plants are in flower it is worth going a long way to see. In mild winters December and January are the months in which there is most bloom, as the plants are assisted by a little fire-heat to bring them into flower early. I saw them early in March last, when hundreds of flowers were open, and there were large numbers still ready to expand. A bed in the centre is occupied by standards, some of which are more like trees than shrubs. A walk runs all round the house, and at the sides there is a border between the walk and the wall. All the inside walls are covered with Camellias, and the trained plants are equally vigorous as the standards, and well furnished with foliage of the darkest tint of green. Striped flowered varieties are being weeded out, there being a much better sale for those with red and white flowers. The beautiful Lucnlia gratissima finds an agreeable home at one end of this house. It is planted out and trained to the wall where it grows and flowers in the most satisfactory manner imaginable.—J. C. C.

5189.—**Propagating Rhynchospermum** jasminoides.—In answer to questions recently asked relative to the propagation of this plant, allow me to say that there is no better time than the present for taking the cuttings. They should consist entirely of the young growth, not exactly in its most succulent stage, but just as the shoot commences to acquire a certain amount of firmness. A mixture of equal parts of peat, loam, and silver sand, all sifted through a sieve with a quarter-inch mesh, is a good compost in which to insert the cuttings. Bottom-heat is not essential to their striking, yet if plunged in a temperature of from 70° to 75° they produce roots in a shorter time than if not so treated. We strike cuttings of this Rhynchospermum readily enough along with Crotons, Stephanotis, Gardenias, and similar subjects. Each cutting is left about 4 inches in length, and when the bottom leaves are removed it is fit for insertion. For this purpose we use 4-inch pots, and fill them moderately firm with the compost just named, placing a thin layer of sand on the top. Six or seven cuttings are put in each pot, and after being thoroughly watered, they are placed in a close propagating case in the stove, where they root in a month or six weeks. It is essential that the cuttings be put in as soon as possible after being separated from the parent plant, for if allowed to flag, the rooting process is thereby much retarded. Where there are no close propagating cases at command, the cuttings may be put under a bell-glass, or a still more homely protection may be afforded them by sinking the pot into one considerably larger and laying a square of glass on the top. As the Rhynchospermum will thrive in the stove, greenhouse, or even outside on a wall, it is apparent that cuttings grown under these different conditions as to temperature will not all require the same amount of heat. Thus those from the outside do best in a greenhouse temperature for a time, when, if not rooted, they may be kept a little warmer, while those grown in the greenhouse are best suited when kept at an intermediate temperature, and the stove ones in the stove. Cuttings from outdoors or from a very cool house take much longer to strike than those grown in heat.—T.

Ceanothuses under glass.—Great numbers of hardy shrubs are used for greenhouse and conservatory decoration in spring, but among them few Ceanothuses, though some specimens so treated that came under my observation the other day show that they are well adapted for that purpose. The sorts represented were C. rigidus, dentatus, and azureus, all of which, both in the form of small bushes in 6-inch pots and in that of larger specimens, were profusely laden with bloom. The different shades of blue certainly supplied a tint but little represented among shrubs of any class, and especially among those amenable to forcing. The plants under notice had been grown in pots for some time; they were plunged out of doors in summer and moved under cover in winter. By this means the foliage is retained in a perfect state throughout the season, and if the plants are taken into a gentle heat about the beginning of March they rapidly come into flower and yield a succession of blooms for some time; indeed this habit of prolonged blooms is often well shown in the case of plants trained on walls outside, as if sheltered they will commence to open their blooms by April and will continue in flower for months. The specimens in question were all raised from cuttings which would to some extent account for their great floriferousness even in the shape of small plants.—H. P.

Seedling Anthuriums.—The progeny of A. Scherzerianum raised from seed is very variable, and, therefore, seed must not be relied upon to produce the best types. Out of a great number of seedlings raised from one of the fine broad spathed and brilliantly coloured varieties there is not one equal to its parent, though care was taken when in flower to prevent its being fertilised by any other pollen except its own. Though none are so fine as the parent, there is, however, a wide difference in the merits of the seedlings, some being small and pale, while others of the lesser flowers are of a bright hue. Again, they differ greatly in the freedom with which flowers are produced, some in 4-inch pots having already several expanded blossoms on each, while others at present appear likely to flower but sparingly. Seed of this Anthurium germinates readily if gathered when ripe and rubbed in a little dry sand to separate the pulpy substance which surrounds it. It should be sown in well-drained pans filled with a compost consisting of peat, chopped Sphagnum, and silver sand; on this the seed should be sown and then covered with some of the same material sifted rather fine. Our pans were placed in a close case used for propagating stove plants, where the young plants soon appeared above ground, and when large enough to handle they were potted off into small pots, using the same material as for the seed. The plants were returned to the case when potted off, and allowed to remain there till established in their pots, and thus situated in a close confined atmosphere they made rapid progress.—H. P.

Cement for mounting plants.—Take of bisulphide of carbon any quantity desired, and dissolve therein a sufficient quantity of crude india-rubber to make a cement of the proper consistency. This is the best compound that can be made for the purpose of mounting plants, as well as for use where a strong cement is desired. It is always ready for use.

NOMENCLATURE OF NARCISSI.

At the Narcissus Congress of the Royal Horticultural Society, held on April 1, the following resolution, proposed by Mr. H. J. Elwes and seconded by Mr. J. G. Baker, was adopted, and a committee was appointed to revise the names now in use, in order to adapt them, as far as possible, thereto:—

Resolved—"That, in the opinion of this Conference, uniformity of nomenclature is most desirable, and that garden varieties of Narcissi whether known hybrids or natural seedlings, should be named or numbered in the manner adopted by florists, and not in the manner adopted by botanists."

The revising committee met on the morning of the following day, when the names of the flowers then present underwent revision and correction in the sense of the resolution. Mr. Elwes presided. Mr. J. G. Baker kindly undertook to frame a table showing the botanical relationship between the several plants, while to Mr. T. Moore and Mr. P. Barr was deputed the further task of filling in the names of other garden forms and monstrosities. The following list is the result of their joint labours; the first portion showing Mr. Baker's grouping of the botanical forms, and the second portion the garden varieties arranged according to their botanical affinities.

CONGRESS CATALOGUE OF NARCISSI.

Series I.—Genuine Species and their Varieties.

[Note.—The names printed in the first left hand column represent the subgenera, those in the second indicate the admitted species, the third column contains the subspecies, and the fourth the varieties as understood botanically. The contents of a fifth column (garden forms) and a sixth (monstrosities) will be printed at the end, our page not being wide enough to take them in their proper position.]

Magnicoronati.

I. Corbularia—
1. *Bulbocodium*
- conspicuus
- citrinus
- nivalis
- Graelsi
- monophyllus

II. Ajax—
2. *Pseudo-narcissus*
- Pseudo-narcissus proper — the wild Daffodil of England
- abscissus (muticus)
- cambricus — connecting links between Pseudo-narcissus and major
- lobularis — connecting links between Pseudo-narcissus and major
- Telamonius [P.B.] — connecting links between Pseudo-narcissus and major
- princeps [P.B.] — connecting links between Pseudo-narcissus and major
- major
  - maximus
  - obvallaris [P.B.]
- minor
  - pumilus
  - nanus
  - minimus
- bicolor
- lorifolius — a connecting link between Pseudo-narcissus and bicolor
- moschatus
  - albicans [P.B.]
  - cernuus
  - tortuosus

Medicoronati.

III. Ganymedes—
3. *calathinus*
4. *triandrus*
- pulchellus
- cernuus
- concolor
- nutans

IV. Queltia—
5. *incomparabilis*
aurantius
albidus
6. *odorus* (calathinus, Hort.)
lætus
7. *juncifolius*
apodanthus
rupicolus

Parvicoronati.

V. Hermoine—
8. *Jonquilla*
9. *Tazetta*
dubius
intermedius
bifrons
primulinus
bicrenatus
radiatus
pachybulbus
orientalis
canariensis
mediterraneus
ganymedoides
polyanthos
ochroleucus
papyraceus (unicolor, niveus)
Luna
Barlæ
Parizzianus
italicus
chrysanthus
Bertolonii
aureus
10. *viridiflorus*
11. *serotinus*
elegans
obsoletus
} autumn flowerers

VI. Eunarcissus—
12. *poeticus*
stellaris
recurvus
poetarum
radiiflorus (angustifolius, *Ait.*)
verbanensis

VII. Aurelia—
13. *Broussonetti*

[Five of the preceding 13 species are, practically speaking, out of court as garden plants.]

Series II.—Hybrids, known or presumed.

[Note.—Of these the first column of names represents what are regarded as primary types; those in the second are regarded as secondary types.]

Mediicoronati.

1. *Humei* (Hume's hybrid): incomparabilis × Pseudo-narcissus
albidus
concolor
2. *Backhousei* (Backhouse's hybrid);
3. *Macleai* (Macleay's hybrid): Pseudo-narcissus × Tazetta
Nelsoni
Bernardi [P. B.]
Sabini
tridymus
4. *Leedsi* (Leeds' hybrid): montanus · Pseudo-narcissus
Vincenti
5. *Barri* (Barr's hybrid): poeticus × Pseudo-narcissus
6. *poculiformis* = montanus (Salisbury's hybrid): ?
papyraceus × moschatus
galanthifolius
Dr. Masters

Parvicoronati.

7. *gracilis*: juncifolius × Tazetta
tenuior
8. *Burbidgei* (Burbidge's hybrid): superpoeticus × Pseudo-narcissus
9. *biflorus*: ? poeticus × Tazetta
albus

[Nos. 3, 6, 7, 9 are old, the others recent.] J. G. B.

Garden Varieties of Species (Series I).

2. *Pseudo-narcissus*—
albus—luteus—pallidus—Nelson—scoticus—serratus
sub-group: F. D. C. Godman—Nell Barry—Stansfield—variformis—Wolley Dod.
2*a*. nobilis of Redouté.
2*b*. lobularis—
amplicorona.
2*c*. major—
Beaconsfield — Backhouse's Queen — Captain Nelson—Corporal Trim—Cleopatra—Chinese Gordon—Eliza Turck — Evening Star—Greenback—Gertrude Jekyll—Gladstone—Golden Prince—Her Majesty—Hudibras — Havelock—John Nelson — J. G. Baker (volutus) — John Vincent — John Bright—Joseph Chamberlain — Khedive—Little Princess — Lady Doneraile — Lord Mayor—Mr. Eggleheart—Mrs. H. J. Elwes—Mrs. Gladstone — Mrs Shirley Hibberd—Mrs. Nelson—maximus—M. J. Perkeley—Marie Louise — major luteus — major superbus—Morning Star (stellatus)—Peri—propinquus — Prince George — President Arthur—President Lincoln—spurius—spurius coronatus—Sir Charles Dilke—Sir W. Harcourt—St. Brigid—Shirley Hibberd—Sharman Crawford — Seraph — Thomas Moore (Mooreanus)—Thomas Spanswick—Townshend Boscawen—Tottenham Yellow.
2*d* bicolor—
Alfred Parsons — Archbishop Haynauld—breviflos (bicolor *Bot. Mag.*)—Dean Herbert (primulinus)—Duke of Edinburgh—Duchess of Edinburgh—Empress—George H. Barr—grandis (maximus)—Horsfieldi — Harrison Weir—James Walker (albidus)—J. B. M. Camm—Jeannette—Mrs. J. B. M. Camm—Mrs. Harrison Weir—Michael Foster (sulphurescens)—Mrs M Foster—Murrell Dobell—President Garfield—Prince of Wales—Peabody—Sir R. Peel—T. S. Dorrien-Smith—William Robinson.
2*e*. lorifolius—
A. F. Barron—anceps — Emperor — Edith Barber—J. W. H. Barr—Lady Dorothy—Mrs W. Goldring—Lord Derby—P. R. Barr—rugilobus.
2*f*. moschatus—
cernuus pulcher—Mr. Cowan (Cowani)—Cecilia de Graaf—Dr. Hogg—Duchess of Connaught—Exquisite—F. W. Burbidge—G. F. Loder—Lady Grosvenor—Mr. Milner (Milneri) — Mrs. F. W. Burbidge — Marchioness of Lorne—pallidus præcox—Rebecca Syme—Sir Stafford Northcote—Sarah Tisdale—William Goldring (longipetalus).
5. *incomparabilis*—
concolor—
Autocrat (expansus)—Bella (minor)—Blucher — Chaug — Edward Hart — Eclipse (grandiflorus) Hector — Jenny Lind—Provost—Sunray (stellatus)—Sycorax—Wellington.
Leedsi—
C. J. Backhouse—Figaro (expansus) · Fairy (marginatus minor)—gloria mundi—Glow (marginatus)—Mrs. A. F. Barron—Sunlight (stellatus)—Titan (grandiflorus).
sulphureus
Astræa (aureo-tinctus)—Beauty—C. H. Dee—Darling (marginatus)—Gil Blas (stellatus)—Hogarth—John Bull (expansus) — Johnny Sands — Magog (grandiflorus)—J. F. Meston—J. T. D Llewelyn—King of the Netherlands—Longshanks—Mrs. Meston—Nabob—Queen Sophia—Queen Mab (marginatus minor)—Sir Christopher Wren.
albidus—
Annie Baden—Adonis—Albert Victor—Bianca (expansus)—Bride—Cupid (stellatus)—Cynosure (albidus Leedsi)—Fitzjames—Gog (grandiflorus)—Jane Kolle—Lorenzo—Vesta.
pallidus—
Princess Mary of Cambridge—Prince Teck—semipartitus.
albus—
Consul Crawford—Charles Hooper—Claribel—Dove—Dr. Gorman—Duke of Buccleuch—Fair Helen (elongatus)—formosus—G. F. Wilson—Harpur-Crewe—H. C. Smith—James Bateman—Marmion (aurantius)—Montrose—Mrs. C. J. Backhouse—Mrs. G. F. Wilson—Poiteau—Queen Bess (albus magnificus)—Roland (expansus)—Rosa Bonheur—Stella—Surprise—William Bull.
giganteus—
James Dickson (Sir Watkin).
6, *odorus*—
Campernelli—trilobus—interjectus—regulosus—minor (pseudo-juncifolius)—heminalis.
8. *Jonquilla*—
major (large Jonquil)—medius (lesser Jonquil)—minor (least Jonquil).
9. *Tazetta*—
White with yellow cup: Bazelman major—Florence Nightingale—General Wyndham—gloriosus—Grand Monarque—Grand Primo Citronnier—Grootvoorst—Her Majesty—orientalis—Queen of the Netherlands—Sir Walter Scott—Staten General.
Yellow with yellow cup: Apollo—Bathurst—Jaune Supreme—Lord Canning—Sir Isaac Newton—Soliel d'Or—Sulphurine.
White with white or whitish cup: lacticolor—Louis le Grand—Luna—Paper White—præcox.
12. *poeticus*—
March or April flowering varieties—
ornatus—poetarum—radiflorus (angustifolius)—tripodalis. [It is no unusual thing for these to throw two or sometimes three flowers on a scape, but this peculiarity is not permanent.—P. B.]
April or May flowering varieties—
poeticus verus—recurvus—patellaris.

Garden Varieties of Hybrids (Series II.).

1. *Humei*—nodding flowers with straight cup, nearly as long as dog-eared floppy perianth, tube variable in length; it connects the section Ajax with Queltia.
Hume's White—Hume's Sulphur—Hume's concolor—Hume's Giant.
2. *Backhousei*—bold habit; flowers horizontal, with distinct basal tube, and long cup nearly equalling the spreading perianth; a connecting link with Ajax.
Cupid—Daisy—H. J. Elwes.
3. *Macleai*—sturdy habit, 1–2-flowered; flowers small, horizontal, with short tube, spreading perianth, and cylindrical cup.
major (Sabini)—Parkinsoni.
3*a*. Nelsoni—1-flowered; flowers horizontal, with short tube below the broad spreading perianth, the cup cylindrical, rarely expanded at the mouth.
aurantius—expansus—Margaret Jones—major—minor—pulchellus.
3*c*. tridymus—near Nelsoni, but with somewhat more obconical tube, 1 to 3 usually 2-flowered; flowers varying much in size from that of Macleai upwards.
A. Rawson—Duke of Albany—Duchess of Albany—Grand Duke of Hesse—Innocence—Princess Alice—S. A. de Graaf.
4. *Leedsi*—flowers horizontal or drooping with a long slender tube, spreading or dog-eared pallid perianth, and pale yellow cup varying from canary-yellow to whitish, generally dying off white; differing from incomparabilis in the paler hue of its cup.
amabilis—Acis—Aglaia—Alexis—Albion—Ariadne—Arsinöe (gloriosus minor)—Beatrice—Céres—Circe (gloriosus)—Cybele—Duchess of Westminster—elegans—Fanny Mason (Vincenti gloriosus)—Favourite—Fides—Flora McDonald—Flora—Gem—grandis—Grand Duchess—Grand Duke—Hon. Mrs. Barton—Horner—Ianthe—Io (stellatus)—Juno (galanthiflorus major)—Katherine Spurrell—Leda—Madge Matthew—Mrs. Langtry—Mignonne—Maude—Minnie Hume—Maria M. de Graaf—Mrs. Barclay—Madame Patti—Oddity—Purity—

Princess of Wales—Palmerston—Queen of England—superbus—Venus (galanthiflorus minor).

5. *Barri*—usually dwarf and slender in habit; flowers horizontal, with long slender neck or tube, and spreading segments twice or more the length of the short expanded cup. (See *Burbidge's Narcissi*, t. 22, as illustrating the main features of the group.)

Bullion—conspicuus—conspicuus minor—Lass o' Gowrie—Golden Mary—major—Model.

sulphureus—

Amy—Herbert von Bismarck—Milton—Prince Bismarck.

albidus—

Ada—Beatrice Murray—Cinderella—Eclipse—elegans—Gazelle—General Murray—Jewell—John Stevenson—Lucy—Mrs. Darwin—Mrs. Murray—Maurice Vilmorin—Miriam Barton—Piccio—Romeo—Sylvia—Vivian.

albus—

Betsy—Climax—Diana—Dirk de Graaf—Exquisite—Golden Star—Heroine—Jewess—Lilliput—Lady Gray—Sensation—Silver Star—William Ingram.

6. *poeuliformis*—1—2-flowered; flowers nodding, white, with a long slender cylindrical tube, and a straight-sided cup, about half as long as the spreading, twisted, somewhat floppy perianth.

7. *gracilis*—rush-leaved, 1—3-flowered; flowers yellow, horizontal, with long slender tubes, spreading perianth, and shallow cup; late flowering.

8. *Burbidgei*—habit of poeticus; flowers horizontal, mostly white, with long slender tube, and usually with a shallow spreading cup, which is frequently stained on the rim more or less distinctly with orange-red.

Arabella Ariel (albidus) Alice Barr—Agnes Barr (delicatus)—Amoret—Baroness Heath—Beatrice Heseltine—Boz (luteus) Blanche conspicuus—Cowslip Crown Prince Crown Princess—Dandy (stellatus) Edith Bell—Ellen Barr Empress Eugénie—elegans—Ethel—Golden Gem—gracilis—Guinever—Johanna—John Bain (grandiflorus)—J. Golden Read Jenny Deans—Joe—Little Dirk Lottie Simmons—Little John—Mary (expansus)—May—Marvel—Model—Ossian Pearl—Primrose Star—Princess Louise Robin Hood—Sulphur Star—Thomas Moore Absolon (grandiflorus expansus)—Vanessa.

MONSTROSITIES.

2. *Pseudo-narcissus*—

plenus—Telamonius plenus—lobularis plenus—lobularis grandiplenus—nanus plenus [said by Dr. Brown, of Hull, to have been raised by him from seed, one bulb only, and sent by him to the Conference; one bulb also received amongst bulbs of nanus from Lincolnshire, by Mr. T. S. Ware; supposed to be the only double Narcissus raised since the time of Parkinson.—P. B.]—cernuus plenus—cernuus bicinctus—capax plenus (eystettensis, Queen Anne's Double Sulphur Daffodil) [no person has yet satisfactorily determined which is the single form of this plant.—P. B.]

5. *incomparabilis*—

aurantius plenus (Butter and Eggs)—albus plenus aurantius (Eggs and Bacon, Orange Phœnix)—albus plenus sulphureus (Codlins and Cream, Sulphur Phœnix) [the supposed single form of this is semipartitus.—P. B.]

6. *odorus*—

minor plenus (Queen Anne's Double Jonquil).

8. *Jonquilla*—

plenus (Double Jonquil).

9. *Tazetta*—

romanus (Double Roman)—nobilissimus.

12. *poeticus*—

plenus (Gardenia-flowered).

It should perhaps be explained in justice to the real workers in this field, that of the foregoing hybrids, No. 1, Hume's hybrid; No. 5, Barr's hybrid; and No. 8, Burbidge's hybrid; bear names which are merely complimentary, the individuals thus complimented having had nothing whatever to do with the raising of the plants. The merit which attaches to the several productions belongs almost wholly to the late Mr. Leeds, of Manchester, and the late Mr. Backhouse, of Weardale, to whose efforts we are indebted for so large and valuable an accession to the forms of these beautiful flowers. The exceptions are very few indeed, consisting mainly of the varieties named Gertrude Jekyll and Dr. Masters, which were raised by the late Rev. J. G. Nelson, and some three or four forms due to the labours of M. Max Leichtlin, of Baden-Baden.—T. M.; P. B.

ROYAL HORTICULTURAL SOCIETY.

THE following is the Rev. Mr. Henslow's lecture in connection with the plants exhibited at South Kensington on the 22nd inst., and for which we had no room last week:—

Mr. Henslow first directed attention to the many kinds of Primula exhibited, including a most interesting series of species exhibited by Mr. Llewelyn. He remarked on the wide geographical range, there being some from Japan, Siberia, Himalayas, Alps, and Great Britain. The alpine Auricula was exhibited in its original wild form of small yellow flowers, which showed the immense contrast between that stage and the innumerable varieties of the garden forms. These, however, are probably due to some cross with the true P. Auricula (L.). Our own P. farinosa, wild in Yorkshire, very closely resembled P. Magellanica of the extreme end of South America. He then called attention to their "dimorphic" character, how many, probably the majority of species, are "thrum-eyed" and "pin-eyed," or, in scientific terms, have the stamens and pistil of different lengths, experiments having shown that when pollen is transferred from stamen to pistil of same height, more and better seed is procured. A similar phenomenon exists in Flax, some species, such as Linum perenne, being dimorphic (but L. usitatissimum is not so), though under certain circumstances—but what they are is not known—it may become self-fertilising by the pistils equalising the stamens. Normally, such flowers set little or no seed without insect agency. Mr. Meehan, of Philadelphia, records an instance in which a plant of L. perenne 14 years old, and which had never borne seed, as the corresponding sort was not grown, had one branch only covered with pods. In this particular instance the flowers had become "homomorphic," and thus were self-fertilised. He next called attention to several species of the Ranunculus family, Trollius, Anemone, Ranunculus, and Adonis, remarking upon the general character of the family, and how the calyx is often coloured in the absence of a corolla, as in Trollius, Anemone, and Clematis. The many stamens and carpels so characteristic of this family rendered them particularly liable to become double, as in the double Ranunculus exhibited. The old Batchelor's Buttons was a double form of R. acris, the tall field Buttercup, but a double form was raised last year from R. bulbosus for the first time. Some remarkable hybrid Sarraceuias by Mr. Williams called for attention, as the anatomical structure of the interior of the pitcher of different species was very different—viz., of S. flava and S. purpurea. The lecturer hoped through the kindness of Mr. Williams to have an opportunity of examining the microscopical structure. He next described the fertilisation of Orchis Morio and Ophrys from specimens exhibited by Mr. Ware, and the peculiar adaptation in Phalænopsis of shortening the pedicel of the pollinium in order to enable it to hit the stigma accurately. A plant of Grevillea formed the basis of remarks upon the former distribution of the order Proteaceæ, several members having been indigenous in Europe in the "Eocene" times, but are all now extinct there, but characterise New Holland. How that wide distribution was to be accounted for, he left it to geologists to solve the problem.

Scientific committee.—Mr. Mangles exhibited a large basketful of beautiful Rhododendrons, including the following remarkable hybrids: Anderson-Henry, a triple hybrid, raised by Mr. Anderson-Henry from R. formosum crossed by R. Dalhousiæ, crossed by R. Nuttalli, and with very large white funnel-shaped flowers with yellow throat; the foliage is dark green. R. Veitchi, crossed by R. Edgeworthi, with large crimped petals and wide mouth, highly scented; it is called Otto Forster, a hybrid between R. Thomsoni and R. Fortunei, of crimson flower and dark foliage; its stamens have "contabescent," or imperfect, anthers, not unfrequently seen in hybrids. Another, called the Countess of Haddington, is the offspring of R. Dalhousiæ, crossed by R. ciliatum and Princess Alice, raised from R. Edgeworthi crossed by R. ciliatum. He also showed the following species: R. virgatum, a species with small pink axillary flowers interspersed amongst the leaves, not unlike a Weigela; R. pendulum, a rare species, described as an epiphyte upon Oaks, and remarkable for the closely tomentose under surface of the leaves; it refuses to hybridise.

Calceolarias.—Mr. Henslow reported on the monstrous Calceolarias brought by Mr. Smee at last meeting. They both consisted of two flowers combined, but while in one case the two "slippers" were distinct, in the other the two adjacent sides of the two slippers were coiled up into a spiral, and thrust into the common interior of the two petals.

Ferns grown in the dark.—Mr. Henslow showed several petioles of fronds (the lamina not being developed) grown in total darkness in a temperature varying from 60° to 90°. They were of a pale green colour, while Peas germinated with them were void of chlorophyl.

Whip made of Seaweed.—He also showed a whip made by twisted fronds of a Fucaceous Seaweed, probably a Laminaria, and a pipe made in the Hartz Mountains; the stem of a branch of Pinus, a head carved formed the bowl, with a head composed of Usnea barbata, and tassels of fruit of Alder.

Ornithogalum sp.—Hon. and Rev. J. T. Boscawen sent a spray of handsome species with large white scented flowers. It was referred to Mr. Baker for determination.

APRIL ROSES.

I SEND you a few examples of Roses which we have been cutting since March 1. They consist of Cheshunt Hybrid, Gloire de Dijon, and Reine Marie Henriette. Of the two last I have cut over 200 blooms from each since the above date, and could cut at the present time a hundred or more perfect blooms and buds—the latter well suited for button-hole bouquets. In fact, the drawing-room and library here are in full beauty with cut blooms, much the same as you would expect to find them in June and July. Of the Cheshunt Hybrid we have only cut a few blooms, but I am hopeful of seeing it quite as prolific as the Gloire de Dijon and Marie Henriette. I consider the last named to be a most valuable Rose. J. FULLEGAR.

Eastbury Manor, Guildford.

*** Exceedingly fine blooms for the middle of April, all the sorts named being highly coloured and handsomely shaped. The old Gloire de Dijon is still a beautiful Rose, delicious in perfume, a most productive bloomer, and a robust grower. A most remarkable sort is Marie Henriette. It has large and finely formed blooms of a bright carmine-rose, and particularly beautiful in the bud state. It is, we consider, one of the best

Roses for early flowering. The Cheshunt Hybrid blooms are likewise fine, but the colour is not so bright as that of Marie Henriette.—Ed.

ARUM LILIES.

The Trumpet Lily, under whatever name one may call it—Richardia æthiopica, Calla æthiopica, or the Arum Lily—is a most useful and accommodating plant. I agree with all "J. C. C." says (p. 313) regarding the effect of noble specimens of it, and as his treatment of it differs somewhat from my own, I am induced to add an account of my mode of managing it. In the beginning of June part of our stock is turned out of the pots and divided, laying the largest and strongest growths together, the second size in another heap, and the smallest by themselves. A piece of ground is selected, if possible, not too much exposed to the sun, such as an east or west aspect of a kitchen garden border. The ground is then marked out for the strongest 30 inches or 3 feet plant from plant. The holes for their reception are then got out, and into each is placed a good shovelful of rotten manure, which is well mixed up with the soil to a good depth. The plants are then placed in position and the soil filled in around them and made moderately firm. This is followed up until the whole are planted. After planting is completed the whole should have stakes placed close to their side, to which their leaves should be fastened, for if allowed to be blown about it would prevent them from taking fresh root, which they should do before losing their leaves, and when properly supported they should have a good soaking of water, so as to thoroughly settle the soil about their roots. The dividing system is not always practised, but, from experience of both methods, I prefer it to planting in clumps. The latter should be planted out in every way similar to the foregoing, except that the distance apart might be greater; but by all means do not forget the supports to their leaves, for although they will eventually lose them, it is necessary that they be preserved for as long a period as possible. The after-treatment consists in keeping them occasionally supplied with water, according to the dryness of the season, but they will not require near the attention that they do when grown in pots during the whole of the summer months.

About the beginning of September the whole must be lifted, and then is the time to decide what kind of plants are to be had; those planted in clumps will have made considerable progress, and if not large enough for your requirements two or even three may be placed together in one pot. The larger plants that were planted out singly also make excellent specimens when placed three, four, or five in a large pot. If they have done well, three of the largest single plants will be found as much as can be got into a 12-inch pot, a size which we find ample for our purpose, as one can conveniently move them about. For ordinary decorative purposes plants in pots ranging from 6 inches to 10 inches will probably be found the most useful, and among the single specimens numbers will be found suitable for those sizes. If they have done well, everyone of them will produce spathes. The pots should contain a good amount of drainage and a little partially decayed manure should be placed over it. The plants should have no more room in the pots than they require, and when potted they should be placed in a shady position out of doors, and should receive a good watering to thoroughly settle the soil about their roots; after that they should be kept on the side of dryness, but should never be allowed to suffer from want of water, and they should be syringed overhead two or three times a day for a few days. In a week or a little more they will have taken to the soil in the pots, when they must be gradually inured to light. Under this treatment we have known them to scarcely lose a single leaf.

They should be housed before the approach of frost in any light frost-proof structure if not required to flower before, say, Easter, but if required to flower before Christmas or thereabout they must be treated to a little warmth soon after housing in the autumn. For this purpose large clumps should not be chosen, but the strong single crowns. As "J. C. C." justly says, they are gross-feeding subjects, and the best results are obtained when the plants are liberally supplied with liquid manure—that is when they have got proper hold of the soil or are at all pot-bound. C. W. C.

NOTES OF THE WEEK.

Ficus repens in fruit.—I send you a fruiting branch of Ficus repens, one of many which festoon a now unheated house in the gardens of the late Mr. Thomas Bewley, Rockville, Blackrock, County Dublin. The house was formerly used as a Palm house, with numerous Palms, Tree Ferns, &c., planted out, and the walls were clothed with this Ficus, which, as soon as it leaves the wall to clamber along the cross-bars, like Ivy, under similar circumstances, changes its character completely. The stems become stronger and the leaves much larger and firmer in texture, but not much altered in shape. Two or three fruits are produced on each branch; they resemble somewhat in shape and size a small Lemon, but are more acutely pointed. The colour is dull greyish green, slightly downy, and crowned with apparently the withered calyx teeth The envelope of the fruit is rather leathery and fibrous, and not tempting to try as food, while the minute seeds are borne on long pedicels. It is, I believe, almost an unknown occurrence for Ficus repens to fruit in this country, but it has produced fruit for several years past at Mr. Bewley's. Although the greater portion of the magnificent collection which existed some years ago at Rockville has been dispersed, there are yet some things of interest still remaining. Amongst these may be mentioned a yellow-berried Aucuba, one of a last batch of seedlings raised soon after the introduction of the male plant, all of which but one have the normal red berries. This plant bears creamy-yellow fruit, and is a very distinct form, but not nearly so showy as the common kind. The great fernery retains nearly all its pristine beauty, while a remarkably nice specimen of Dendrobium densiflorum, bearing thirty spikes, may be seen here in a 10-inch pot. A double yellow Hibiscus is just coming into bloom.—Greenwood Pim, M.A.

*** An illustration of Ficus repens in fruit was given in The Garden, Vol. XXII., p. 441. It was made from a plant which fruited annually in Mr. Rigden's garden, Eynham Lodge, Shepherd's Bush.—Ed.

David Jackson, of Middleton.—During the last fifty years there has been no better known or more remarkable florist amongst the working men of Lancashire than David Jackson. When Mr. Douglas published his book on florist flowers, he singled out David Jackson for special notice, and stated that in many points he had anticipated Charles Darwin in his knowledge of the fertilisation and the methods to be adopted for improving plants. In his hands the Tulip, the Auricula, and the Polyanthus were successfully cultivated, and so exact was his knowledge and so sound his judgment, that no one was more frequently chosen to act as judge in floral matters. David Jackson is respected by everyone who knows him as a sterling, honest, and upright working man and a first-rate florist. He has been a weaver by trade, his wife also plying the shuttle by his side in their humble cottage. Hand-loom weaving is now slack; trade is bad, and the aged couple cannot further pursue their calling. Their hardly-earned and carefully-saved store is nearly exhausted, and the time has arrived which throws a duty upon those who have the means and are willing to help so deserving a couple in their old age. The following gentlemen, viz., Mr. Samuel Barlow, Stakehill, Castleton, near Manchester; the Rev. F. D. Horner, Lowfields, Burton-in-Lonsdale; Mr. Richard Gorton, Gilda Brook, Eccles; and Mr. William Brockbank, Brockhurst, Didsbury secretary), have formed themselves into a committee for the purpose of raising a small sum, to be applied towards the support of "Old David," and they solicit contributions in order that a good sum may thus be raised for the help of this worthy couple in their old age.

Elæagnus longipes.—This species is very floriferous, and though the blooms are not showy individually, they are produced in such profusion as to render the plant attractive; they are tube-shaped and about an inch in length, pale cream-coloured, and very sweet-scented—so much so as to be attractive to bees at this early season. It is a very distinct shrub, even when out of bloom, inasmuch as its silvery foliage is conspicuous, besides which in early autumn its orange-coloured fruits are very pretty. There is a plant of it now in full bloom on a wall at Kew, but wall protection is unnecessary, as in the open ground it is equally thriving.

OBITUARY.

We have to announce the death of M. Jean Verschaffelt, which took place at Ledeberg, near Ghent, on the 20th ult., at the age of seventy-three. M. Verschaffelt was widely known in connection with his nurseries at Ghent—the largest even in that city of nurseries. He was a municipal councillor of Ledeberg, a Chevalier of the Order of Leopold, and a man greatly respected by all who knew him.

On March 14, at Campbelltown, New South Wales of consumption, age 29, Alexander Moore, superintendent of the State nursery, and late of Dublin, Chelsea, and the Botanic Gardens, Kew. The deceased was a most estimable young man, and much respected by all with whom he had been associated. He was the first superintendent of the Government or State nursery established some four years ago, partly as an experimental garden, but principally for providing young stock of the best kinds of trees for the purpose of re-afforesting the country. He was a nephew of Mr. Charles Moore, director of the Botanic Gardens, Sydney, and cousin of Mr. F. W. Moore, curator of the Botanic Gardens, Glasnevin.

Pelargoniums (*Tiverton*).—They seem checked by cold; they will probably improve when the weather gets warmer.

Haricot Beans (*Stores*).—These are the ripe seeds of Phaseolus vulgaris and other Kidney Beans, including the Scarlet Runner.

White thrushes.—In reply to Mr. Walker Johnstone's enquiry, allow me to say that I have in my collection four white thrushes quite answering the description which he gives of his bird. I had five, but one died.—John Marshall, *Belmont, Taunton.*

Diseased leaves (*Pittenween*).—We have never seen leaves attacked in the way yours are before. The injury, as far as we can see, is not caused either by insects or fungi, but possibly the pustules may be the result of some obscure growth of the latter. Can you send us a few more for examination?—G. S. S.

Vegetation has suffered terribly with us from the frost of last week. Pterocarya caucasica, the leaves of which had attained a considerable size, is a total wreck: even the tiny leaflets are quite black. The young growth of Laurus Sassafras was frozen through, and many other tender shrubs have also sustained damage.—E. Burrell, *Claremont, Esher, Surrey.*

Dahlia Yuarezi single or double?—Would you kindly inform me if Dahlia Yuarezi would be termed a single or double variety? I have several schedules in hand offering prizes for double, Pompone, and single Dahlias, and I am anxious to know if I should be right in exhibiting it in the former class.—E. H.

*** Double, certainly; but you could not exhibit it as a show variety or as a Pompone.—Ed.

Names of fruits.—*E. S.*—Your Apple is the new Rock Pippin.

Names of plants.—*C. M. O.*—The Rhododendron sent is R. triflorum, a rare and very pretty species; it is figured in Hooker's "Rhododendrons of Sikkim Himalaya." ——*W. Spencer*—1, Iris germanica; 2, Adiantum farleyense; 3, Maurandya Barclayana; 4, Phyllocactus floribundus (variety).——*T. D.*—Appears to be Epidendrum fragrans. ——*J. W. T.*—1, Cryptomeria japonica; 2, Ilex Aquifolium platyphyllum.——*G. C.*—1, Fritillaria Meleagris and white variety; 2, Saxifraga ligulata; 3, Spermannia africana; 4, Anemone nemorosa.——*J. W. S.*—Oncidium Marshallianum. ——*Y. O. & Co.*—Scilla campanulata (pale form).

No. 651. SATURDAY, May 10, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

APPLES AS ORNAMENTAL TREES.

SELECTING Apple trees whose flowers are the most beautiful, as we have been asked to do (p. 351) by "W. R. R.," is like selecting the fairest of the fair, all Apple trees being beautiful when in bloom. Some have delicate pink blossoms; others flowers nearly white, while in a third class the blooms are bright rosy pink, approaching crimson. Some, too, have very much larger flowers than others, but on trained trees, such as espaliers, pyramids, &c., the variation is not so marked as that of large naturally grown specimens, such as are plentiful in the Grass orchards in Kent. There they are usually planted in rows of distinct sorts, and therefore anyone can tell at a glance each kind by its distinct habit, whether in flower or fruit, or even when leafless in winter. From my own observation I can recommend the following sorts as sure to satisfy "W. R. R." or anyone wishing to grow Apple trees for ornament. Plant tall-stemmed standards if amongst shrubs or on the lawn, where it is desirable to walk under them, and then allow them to grow at will. Apple trees do not require pruning; in good deep soil they attain the proportions of large forest trees, and when in bloom are a sight to behold. There are very few gardens in which fruit is so plentiful that any addition from the lawn and pleasure ground trees would not be acceptable and some of the hardest and sourest Apples grown are the very best for culinary purposes. In the Kentish orchards the most beautiful trees belong to the common sorts that are profitable, owing to the great quantity of fruit which they produce. First on the list is the Orange Goff Apple, a hard, sour fruit, yellow, prettily streaked with red; trees of this kind attain very large proportions, and the shoots in spring are perfect garlands of flowers, while in autumn they yield from 25 bushels to 30 bushels of fruit per tree. This is one of the sorts specially suited for ornamental purposes. Then there is Hambledon Deux Ans, or Pyle Russet, a variety that grows into great trees and bears very large blossoms; trees of this kind in Kentish orchards require the longest ladders to reach their tops, and the fruits are large and good keepers. The Blenheim Orange, one of the best Apples in cultivation, makes a very large tree, and has also large showy blossoms; utility and ornament are in this variety combined, and it is equally good for table and for culinary purposes. Court Pendu Plat is another kind which ought to be grown for the sake of extending the flowering season, as it comes into bloom after all others are over—say about the beginning of June; therefore, by planting some of the early sorts, such as Keswick and other Codlins, that flower and mature their fruit early, a long season of rosy pink blossoms may be secured. "W. R. R.," or anyone else who may choose to give this Apple a trial as an ornamental tree, will be amply repaid, for whether in flower or fruit it is worthy of the best place that can be accorded it. Cider Apple trees are more remarkable for the beauty of their fruit than that of their flowers; but the latter, in some cases, as in that of the Foxley Apple, are also very pretty. This Apple was raised at Wormsley Grange from a seed of the Siberian Crab, fertilised by the Golden Pippin, and few situations can be found in which it will not succeed. It is therefore a kind that might be planted freely in shrubberies or in outlying portions of pleasure grounds.

Gosport. JAMES GROOM.

POLYANTHUS PRIMROSES.

How is it possible to class a plant either as a Primrose or a Polyanthus when it is a hybrid between the two, and exhibits the peculiar features of both? There is the same difficulty with these plants now as with Violas and Pansies, many of the hybrid varieties of which are so exactly intermediate between the two parents as to defy classification, although for trade purposes they are termed either the one or the other I think it was once proposed to call these intermediate forms bunch Primroses—not at all a bad name, and one which would fairly well describe them; but there are other hybrid forms of Primroses for which we want a name. There is in this neighbourhood an old gardener, who began many years ago crossing the Primrose and Cowslip, and now he has a race of plants, which betray their origin very exactly, for they have the large flowers of the common Primrose with the rich yellow of the Cowslip, and they mostly throw up stout, erect flower-stems. Those who know Polyanthus Golden Plover may form some idea of the prevailing feature of this strain. Now, what are we to call these? They are not Primroses, neither are they Cowslips; what, then, are they?—J. C. B.

—— There can be very little doubt that the Primrose, Cowslip, Oxlip, and Polyanthus are varieties of the same plant, the true or normal form of which is the common Primrose. The German Polyanthus Primroses produce their first flowers in a single-stemmed form, but as the season advances a truss form appears, the undivided stem being at first short, but the last trusses have tall stems and short separate footstalks like the florist's Polyanthus. Some years ago I had some seed from Mr. R. Dean of his highly coloured hybrid Primroses. The plants produced were true Primroses, but a good number raised from seed saved from these developed the same habit as the German truss-flowered kind, the only difference being that the separate footstalks were never so short. A Polyanthus form on a very short common stem is not at all unusual in our native Primrose, although a truss-flowered form with the common stem tall enough to be conspicuous above the leaves is rather rare. I have looked over hundreds of plants this spring in the hope of finding one. A friend has been more fortunate, and found a plant producing truss flowers on a tall stem. Curiously, the flowers show a slight leaning to the broader and overlapping petals of the German Polyanthus Primrose, but it is the true wild Primrose picked from the woods.

The woods here are full of Primroses, and in the trodden turf at the edges of the paths the seedling Primroses are diminutive starved things 3 inches high, with flowers scarcely larger than Cowslips. Amongst these occur equally diminutive Cowslips—singly or in little colonies of from two to six. There are no Cowslip meadows near, and if there were there is quite an eighth of a mile of thick coppice between the nearest field and the paths where these Cowslips occur. Only one here and there of these plants have more than a single crown. Is it not a fair presumption to suppose it possible that these Cowslips have been produced from Primrose seed which, in the struggle to germinate under adverse conditions, assumed a modified form more adapted to these conditions? In the meadows on the London clay every Oak tree has its circle of Primroses underneath, but these become diminutive as shade and leaf mould become scarce, and minute Cowslips take their place and occur sparsely all over the meadows.

Everyone who has raised Primroses from seed knows how essential it is that the seed shall not be allowed to get dry, and self-sown seedlings in borders occur close to the parent plant, under its leaves generally. A half shady copse is just the place where Primula seed would germinate freely, and yet in no instance has a seed of the colonies of Cowslips before mentioned germinated where it happens to have been blown back into the woods. Any which may have germinated have reverted to Primroses. Yet the Cowslip spreads freely by seed if conditions are favourable. I have seen great colonies of them spreading down the sides of clay cuttings on the Great Northern Railway. A powerful piece of evidence in favour of the Cowslip being a modified Primrose is furnished by a part of the woods here. In a sunny woodland path on the chalk there are a few dozens of Cowslips in the turf edges, with here and there an Oxlip; the woods themselves are full of Primroses. On one bank facing south-west the wood was cut down last spring, so that there is only one year's growth of young shoots; on that bank there is not a single Primrose, but only a few scattered Cowslips. This spring another division of the wood has been cut down in parts in which the Primroses are very thick. It will be interesting to note if the Primroses are replaced by Cowslips there also next spring. The differences between Primrose and Cowslip are really very slight. There is a difference in the shape and colour of the leaf, the Cowslip leaf remaining narrow until about the middle, when it suddenly expands to nearly its full width, and again narrows towards the point, while the Primrose leaf widens gradually to near the tip. The Cowslip leaf is bluer and less deeply indented at the veins. The stems of the Cowslip are covered with much shorter and stiffer hairs than those of the Primrose, and the calyx is also much larger and wider. In these characters and in the size of the corolla the Oxlip is intermediate and may be either a hybrid or a partial reversion to the Primrose.—J. D., *Salisbury.*

GRAPES AND FLOWERS TOGETHER.

I HAVE been much interested in the communications of "Subscriber" in reference to this subject. If he has achieved the results stated, and I see no reason to doubt it, a large number of amateurs must feel that he has accomplished more than generally results from the labours of such cultivators. It is evident that "Subscriber" has brought to bear on his garden not only enthusiasm, but some amount of actual experience, and not only that, he seems to have taken a common-sense view of the situation by only attempting to grow such things as are suitable to the conditions under which he is placed. This is the rock on which so many find their hopes shipwrecked; they attempt too much; they think they ought to be able to grow heat-loving and sun-loving plants in the same house as Vines; up to a certain point this is possible, but there is a limit to the endurance of all plants. "Subscriber" says (p. 333) daylight and sunshine must come in, and in the next line, air plants must have and plenty of it. Everyone interested in this subject should well consider these words. Every practical man knows that nearly everything in the way of plant cultivation hinges on these conditions being fulfilled, but unfortunately they are ignored. In the first place, the hothouse builder eschews the one and cares very little about the other, provided he can make a handsome house externally, while the cultivator plants Vines and trains them under the roof to shut out the sunshine, and neglects to give as much fresh air as the plants require. That Grapes and flowers cannot be satisfactorily grown under such conditions ought not, therefore, to surprise anyone; yet when matters are properly adjusted—when the builder and the cultivator work harmoniously together, "Subscriber" has shown that a reasonable amount of success has been secured.

AMATEURS' HOUSES.—To me it has often been a matter of surprise that the horticultural builder has not endeavoured to meet the wants of amateur cultivators by building more suitable houses for their use. What is wanted is more light diffused through the body of the house by means

of high side or front lights. A lean-to amateur's house, according to my idea, should have the front lights 6 feet high, *i.e.*, above the ground-line; there should be 2 feet of brickwork, and on that lights 4 feet high. At the ends I would have 3 feet of brickwork and the remaining space of glass. In such a house the light from the sides and front would enable the cultivator to grow a number of plants in a successful manner, even if the roof was covered with Vines. The back wall of such a house ought not to be less than 14 feet high. This height would give a suitable angle to the roof and make the ends sufficiently deep to let in a good amount of light.

THREE-QUARTER SPAN-ROOFED HOUSES have not been utilised by amateurs so much as their merits entitle them them to be. There are not always high walls against which lean-to houses can be placed, and it is not at all times convenient to make them of that height, but by adopting the three-quarter span the difficulty is overcome. This form of roof, in conjunction with high front lights and glass ends, is almost equal to any other form with no Vines growing under the roof; but to reap a full measure of success from such a house the front part of the roof only should be devoted to Vines; the light from the back lights should be uninterrupted, and then beneath them almost any kind of plants may be grown. I am also fully persuaded that the ordinary span-roofed house has not been adopted so often as it advantageously might be; a house of this form 14 feet wide will give a walk 4 feet wide through its centre, with a shelving space on each side of 5 feet for plants; and if Vines are trained under the centre of the roof they can be arranged in such a way that they need not shade any part of the house to any serious extent, while the lower part of the lights over the shelves remain free from any obstruction of either light or shade. The same quantity of Grapes cannot, of course, be had as if the whole of the roof space was devoted to Vines; but by this plan both Grapes and flowers can be had from the same house in reasonable quantities.

J. C. C.

PLANTS IN FLOWER.

The Italian Poet's Narcissus.—Flowers of what Messrs. Collins & Gabriel call the true Poet's Narcissus have been sent to us by them, who have received the flowers from Italy. They are much smaller than the ornatus variety which has yielded the main supply of the Poet's Narcissus for some time past. The cup of the flower is small with an orange-yellow rim.

Eurybia Gunniana.—I send you specimen of this Eurybia which has stood for the past ten years on my rockery without the slightest protection whatever.—T. S. WARE, *Hale Farm Nursery, Tottenham.*

*** A striking proof of the hardiness of this Australian shrub, inasmuch as the Tottenham soil is cold and heavy and the situation not the most sheltered.—ED.

Hose-in-hose Primroses.—About a month ago Mr. Dean brought under the notice of the floral committee, at South Kensington, a Hose-in-hose Primrose which was considered to be a variety. I enclose two or three blooms of a seedling of this year—a true Primrose; it has not the least sign of becoming a Polyanthus, as he said it would later on in the season. It has now been in bloom six weeks.—A.

*** A very showy flower, perfectly hose-in-hose, and of a bright crimson-lake colour.—ED.

Aristolochia gigas.—Lady Theodora Guest informs us that she has this wonderful plant now in flower in a stove in her garden at Inwood, Henstridge, Blandford. It bears no fewer than six huge flowers of strange form and colour. It is one of the largest of all tropical flowers yet introduced to cultivation, and whenever seen invariably excites astonishment. It first flowered in this country about forty years ago in the Royal Horticultural Society's gardens at Chiswick, seeds of it having been sent there from Guatemala by Hartweg. It flowers, however, but seldom; indeed, the plant is so rare as to exist only in a few gardens. The late Prof. Lindley, who named and first described it, aptly likened the flower to an elephant's ear turned inside out. Its odour is disagreeable, though not so bad as that of some other species of Aristolochia.

Camassia esculenta alba, or C. Leichtlini, as it is also called, is quite a distinct plant from the Quamash, the common C. esculenta, though the two plants somewhat resemble each other in habit of growth. The flowers of the alba variety are not really white, but greenish or creamy white, but produced in the same long, spicate manner. Mr. Kingsmill sends us a spike of it from Eastcote, Pinner, where in his garden he has a plant bearing half a dozen spikes 3 feet high.

A fine Anthurium Scherzerianum.—There are now several forms of this brilliantly flowered Aroid in cultivation, Ward's variety being considered the finest, but one which has been sent to us by Mr. Thomson, of Clovenfords, Galashiels, is, we consider, quite as fine, as the spathes measure over 6 inches in length by nearly 4 inches in breadth, the colour being peculiarly brilliant and the surface of the spathe very glossy. What a wide difference between such a spathe as this and that produced on what is considered to be the typical form, which does not measure much over an inch in length!

Lilium elegans guttatum.—This extremely handsome new variety we saw for the second time in flower the other day at Mr. Bull's nursery, Chelsea. The flowers are in no way different as regards size and form from those of the other numerous forms of this variable Lily, but the colour renders it very distinct. The ground colour is a rich orange-red, and this is copiously and heavily spotted with black. This is indeed a real addition to the already long list of Lilies of this description, and it will undoubtedly become a favourite.

Tabernæmontanas at Lythe Hill.—There are just now some plants of this here, 5 feet through, one mass of bloom and buds. Last season they lasted in flower more or less for eight months. The double-flowered variety is as great a favourite with many as the Gardenia. Indeed, one-half of the span-roofed house in which Gardenias were grown is now devoted to the Tabernæmontanas. Their blooms are pearly-white, with a delicate scent, and they can be used in numbers for decoration where those of the Gardenia can only be used sparingly. There is also one other advantage, and that is the flowers do not discolour so soon as those of the Gardenia.—H. R.

New hybrid Azaleas.—We send herewith trusses of two hardy Azaleas of our own raising—A. hybrida odorata, raised from an early white Azalea crossed with Rhododendron ciliatum, and A. Avalanche, raised from Azalea sinensis crossed with a hardy white Azalea. Both are perfectly hardy, bushy-growing, and free-blooming plants, deliciously scented, and therefore very desirable for forcing. They may be easily brought into flower in mid-winter. ISAAC DAVIES AND SONS, *Brook Lane Nursery, Ormskirk.*

*** Two charming varieties, both with pure white flowers, produced in dense trusses. A. hybrida odorata is deliciously scented, and altogether a most distinct variety. The other more nearly resembles some of the varieties of the Ghent Azaleas. The hybridity of the first-named is unmistakable, bearing, as it does, the features of both parents so markedly.—ED.

Rare bulbous plants.—Amongst other interesting flowers sent to us by Mr. T. S. Ware from his nurseries at Tottenham are the following: Muscari Maweanum, a new Grape Hyacinth in the way of M. Szovitzianum, but denser and of a bright turquoise-blue; its foliage is stiff and grows erect. It is also later than the rest. Fritillaria recurva, the small red Fritillary from California, seems to thrive well at Tottenham; and another Fritillary, a new one named oranensis, has bold, cup like, drooping flowers of a curious mixture of colours—yellow, green, and vinous purple. There are also three little Cyclobothras C. Benthami, of a bright citron-yellow; C. cœrulea Maweana, with white flowers stained with purple at the base; and C. elegans, likewise an extremely pretty plant.

Camassia esculenta.—The flower-spike herewith sent is one of an early blooming Camassia. It is a very ornamental plant, and the flowers expand gradually up the spike. Tulipa Greigi is also blooming well, and Dodecatheon Jaffrayi.—H. STUART WORTLEY (Colonel).

*** A fine spike of the Quamash, as the Camassia is called. It is seemingly an early flowering form, as the spike sent has evidently been in flower for some time. We wish Colonel Stuart Wortley would tell us how to grow Tulipa Greigi successfully, that is how to keep it in a good flowering condition year after year. The Dodecatheon (American Cowslip) is one of the finest.—ED.

Camellia C. M. Hovey.—I enclose a bloom of this Camellia. I find that not only this, but also Mr. Hovey's other American Camellias maintain the high character which they received when first introduced, and when better established they will produce even larger blooms. Mrs. Anne Marie Hovey was described as apt to sport, and so they all are more or less. I have had C. H. Hovey blotched and lined with grey, but this sportive character only increases their value for purposes of decoration. I find also that they are a little later in coming into bloom than my established plants—a great advantage.—A. EVANS, *Lythe Hill.*

*** A large and very fine bloom.—ED.

Habitat of Narcissus cernuus (p. 362).—Mr. Barr and also Mr. Wolley Dod both inform me that N. cernuus, commonly known as the white Daffodil, was found last season high upon the Spanish side of the Pyrenees. This, then, proves for us that both Parkinson and Redouté were right in calling this a Spanish or Pyrenean Daffodil. I am glad to say that I know the actual re-discoverer of this plant, and have received fresh flowers, but am not at liberty to use his name at present.—F. W. B.

Clematis montana.—This, in my opinion, is one of the most pleasing of all open-air Clematises; its blooms are puny compared with those of many others, and the colour not strikingly attractive, but then it blooms in April and May, when showy flowers are not so numerous as later in the season, and many who would pass gayer kinds without remark in July or August stop at montana and exclaim, "How sweetly pretty!" It is a plant, too, that will grow anywhere—scramble over walls and trees, and produce a profusion of clusters of lovely pinkish white flowers. J. MUIR.

Yellow Crown Imperials.—My experience with the yellow variety of the Crown Imperial has been precisely similar to that of "J. C. C." I have had it for a dozen years or more, and it has never once done anything with me. I thought that from some perversity of its nature the climate of the Isle of Wight did not agree with it. A short time ago, however, I was paying a visit to a gentleman who lives within a stone's throw of my house, and who has lately come from Huntingdonshire, and I saw this yellow Crown Imperial growing to perfection in his garden. It was then in full blossom. He told me that he had brought the bulbs with him from Huntingdonshire, and he never had any difficulty with them at all. What can account for such a strange caprice as this?—H. EWBANK, *St. John's, Ryde.*

Gum Cistuses.—My son, who has just returned from a naturalist's tour in Portugal and Algarve, having had the advantage of being attached to a Cambridge authority, was greatly struck with the beauty of the Cistuses, especially in the south—Gum Cistus (C. ladaniferus) and a pure white form of this, almost more beautiful than the type, C. crispus and others having smaller flowers. I shall be obliged if any of your readers can inform me where there is a good collection of Cistuses in this country, either trade or amateur, as I am desirous of knowing what species and varieties are now in cultivation.—GEORGE F WILSON, *Heatherbank, Weybridge Heath.*

FLOWER GARDEN.

THE DAFFODIL CONFERENCE.

MR. ELWES (p. 315) has not met Mr. Engleheart's argument against renaming the Daffodils in a very effective way; indeed, the main and very tangible objections brought forward by Mr. Engleheart are ignored by Mr. Elwes altogether. Some of us, while agreeing with the principle of renaming which Mr. Elwes brought forward at the conference on April 1, are by no means certain that the results will be either so convenient or so practical as the nomenclature already in use. Of course, if the good to be obtained by a new nomenclature is likely to be a lasting one, we must adopt it even at the expense of a little inconvenience at first. But we must start carefully, seeing that the principle now brought into use will not be simply confined to Narcissi, but must perforce be extended to all other genera, to all hybrids and varieties whatever of known origin. This means a great deal, perhaps more than Mr. Elwes himself anticipated when he brought forward the resolution on what a cynical friend of mine called such "an auspicious date" (April 1) This is why I and others wish to start cautiously in this matter, seeing that the potentialities of the proposed change loom up so largely in the misty horizon of popular nomenclature. My own opinion is that all real objections, such as those Mr. Engleheart has so ably brought forward (p. 289), must be fully considered and answered. To ignore them is simply skating over very thin ice indeed, for, after all, "you may take a horse to the water, but you cannot make him drink;" and so even if a new system of nomenclature is prepared, it does not follow that it will be followed unanimously, in which case eventually matters would become more confused than ever. Much of the confusion now existent arose from the use of a mixed nomenclature—Parkinson, Gerard, Haworth, Herbert, and many others. The insinuations against Mr. Barr can do him no harm whatever. All Narcissus lovers and growers owe to Mr. Barr thanks rather than blame, since, apart from trade questions altogether, no other man, gardener or botanist, has given the garden forms more thought or study. As to varieties being too much alike, is not the same true of Roses, Auriculas, Azaleas, Tulips, Pansies, and half a hundred other groups of popular garden flowers? Why is all the intelligence to be upon the side of the trade grower? or, to put the case in another way, why should not the amateur grower and purchaser use his own eyes and study the flowers he wishes to purchase? If a man tries to purchase diamonds or pictures, he either studies them himself or employs an expert agent in the matter, but if he in his ignorance will dabble in gardening, it is, forsooth, the nurseryman that is blamed. If people would but give a little thought and study to the flowers they cultivate, we should hear far less of the parrot cry, "too much alike," now so common. Only a few weeks ago a gentleman, who lives near Manchester, wrote asking me to protest against the nurserymen selling the Empress Daffodil, which, as my correspondent thought, was nothing more than the Lancashire or Horsfield's Daffodil There are even yet many who persist in saying that there is but little if any difference between these two kinds, but this fact of course proves nothing. There are some people who cannot tell a German lithograph from a steel engraving, a Corot from an oleograph, or a carefully cut rock crystal from a diamond. It is so with many who grow Narcissi. I should never think of saying so much as this if Tulips or Lilies were in question On these genera I should sit a willing listener at Mr. Elwes' feet, but if he had really given thought and study to the newer kinds of Narcissi he could not have said or even hinted that those sent out by Mr. Barr are "too much alike."

It is quite a pleasure to some of us to see Mr. Elwes pose as a champion of English or popular nomenclature, and to hear that "notwithstanding all that has been written to the contrary, some people seem to have a strong dislike to Latin names even for natural plants." There is no doubt whatever that both Latin (first) and English (afterwards) names have their own proper and fit uses, each helping and assisting the other when rightly used. I still reiterate the fact that the temperate and logical argument brought forward by Mr. Engleheart must be met and answered by Mr. Elwes, although personally I am in this case in favour of popular names for all popular garden flowers. F. W. BURBIDGE.

THE BROOM-RAPES.

ALL the plants belonging to the order Orobanchaceæ are characterised by their parasitical habit and the absence of other than mere scale-like leaves. Perhaps the prevailing colours are various shades of brown, but even among the British species yellow, red, and purplish blue are represented. Some of the exotic members of the family far surpass our native ones both in size and beauty, but some of these latter are bright enough in colour and strange enough in general aspect to secure for themselves a place in the gardens of the curious. It is, however, by no means easy to cultivate the majority of the species; perhaps the best plan is to secure fresh seed, and sow it together with seeds of the host plant in the open border. With O. minor, which grows principally on various kinds of Clovers, such a course of proceeding is nearly certain to be successful; when the stem of the parasite appears above ground, it and the Clover on which it is growing may be carefully placed in a pot and removed wherever desirable. I have cultivated this and some other species as window plants, and very strange and interesting objects they are. In the rockery at the Edinburgh Botanic Garden O. rubra, a year or two ago, seemed perfectly at home on our native species of Thyme, the red stem and flowers being rendered still more conspicuous by the carpet of deep green formed by the plants on which it was parasitic. O. cærulea principally affects the Yarrow (Achillea Millefolium), and O. Hederæ the Ivy. Many kinds—for instance, the Clove-scented O. caryophyllacea from South Kent grow freely on plants belonging to widely different natural orders. The last-named species was noticed by me a year or two ago on Galiums, Rubia, various Composites, &c. Paintings of some of the large, highly-coloured foreign members of the Broom-rape family may be seen in the "North" gallery at Kew. G.

The Red Broom-rape (Orobanche rubra) parasitic on Wild Thyme.

EXTERMINATING BRITISH PLANTS.

THE very interesting article on Welsh Ferns, by Mr. A. D. Webster, in THE GARDEN of April 26, arouses many delightful, if somewhat melancholy, recollections of my annual rambles in North Wales—delightful, because they recall many of my happiest days; melancholy, because I cannot but reflect upon the ruthless process of extinction at the hands of the tourist, the botanical guide, and the professional plant gatherer, by which, during the last twenty years, the rarest of our British plants, and especially of our British Ferns, have been almost exterminated. My companion in those days was vol. i. of Hooker's "British Flora," and on the margin of its pages I find such notes as these: "Grammitis Ceterach—abundant on an old wall near Llanrwst, walls near Pentre Voelas; Polypodium Dryopteris—abundant near waterfalls in North Wales; P. calcareum—near Tremadoc and elsewhere; Woodsia ilvensis—Cwm-y-llyn, Cwm Glas, Clogwyn-y-Garnedd; Aspidium Lonchitis—Cwm Glas, Clogwyn-y-Garnedd, and elsewhere; Asplenium septentrionale—rocks near Bettws," and so forth. Revisiting these same spots two or three years ago, I found several of these habitats absolutely stripped of their treasures, and even the Oak Fern, formerly so common, had almost disappeared. I find, too, that the same ruthless course of vandalism is rapidly extending to even our commoner Ferns and most lovely wild flowers, till one cannot help fearing that, before many years are past, our lanes, and even our woodlands and bogs, will be denuded of their chief ornaments. I see, for instance, that for a sovereign I can strip the banks and rocks of Devonshire of more than thirteen dozen of their smaller or of ten dozen of their larger Ferns; while for the same sum I can attack the beautiful valley of the Wye, and despoil it of nearly twenty-five dozen of those exquisite Ferns which constitute one of its chief charms. And, again, if I choose to turn my predatory instincts to Cheshire, I can rob its woods and waysides of over eighty-three dozen of Primroses for an amount, varying, I suppose, according to their size, from five to fifteen shillings; its fields of eight dozen Orchis mascula for the lesser sum; or of Orchis maculata or of Saxifraga granulata for half the money; or, finally, its boggy moorlands of that true gem among our native flowers, the Bog Asphodel, at the rate of a dozen for two shillings. If, as I suppose, the lords of the manor or other landowners in these several counties are indifferent to this spoliation or unable to prevent it, there seems to be no possible means of stopping or limiting it other than that of rousing those who, thoughtlessly or wilfully, contribute to it by purchasing

the cheap results of these robberies to a sense of the vandalism of such acts by an agitation on the subject through the press. A stop being put to such practices will, I feel sure, be hailed with gratitude by thousands of other lovers of Nature as well as by myself. A. W. Wills.

Claregate, Wylde Green, Erdington, Birmingham.

PANSIES ALL THE YEAR ROUND.

Amongst flowers that bloomed out of season during the past winter, few were more beautiful or interesting than the Pansy. The old plants were left in the beds were they flowered during the summer and autumn, and during the winter they continued to grow and produce flowers. Indeed, the continuous blooming character of the Pansy is much in its favour. Seedling Pansies are hardy enough, and beds of them planted out in the autumn seldom fail to do well; but when we come to deal with propagated plants of the best-named varieties, we find that they do not always come safely through uncertain winters. The largest proportion of them form good sturdy plants and stand fairly well; others are of weak, straggling growth, and these often succumb. What we want to do is to get them established before winter sets in with undue severity. To this end the plants should be planted out at the same time as the Pinks—that is, early in October. In six weeks or so they will be firmly established, and are not likely to be thrown out of the ground, even with sharp frosts. Early autumn planting gives us large plants which flower early the following season. During April and May the flowers are most esteemed. They are usually of better quality in May and June out of doors than they are in any other month. The temptation to leave the same plants in the beds to bloom again during next season is very great, but they will not produce nearly such good blooms the second season, even if the beds are, as they ought to be, well dressed with rich manure. The plants speedily exhaust the ground in their immediate vicinity; they form quite a mat of fibrous roots, which not only spread out near the surface, but descend to a considerable depth in the ground. They are much benefited by the soil being well enriched to a depth of about 18 inches with good rotten cow manure; and in heavy soils a plentiful dressing of leaf mould should be laid on the surface, and be dug into the ground. In addition to the manure, river sand is also an excellent substance to use in equal proportion with the leaf mould. In order to obtain a grand and interesting display of Pansies with little trouble seedlings are the best, and they also bloom most continuously. Sow the seeds in June, and place out the young plants in rich deep ground in September. They should stand a foot from each other.

Cuttings should be put in about the end of July. The best are the small offsets which branch out from the base of the plants. These can usually be pulled out with a small portion of roots attached, and if they are dibbled out 2 inches or 3 inches apart in a shady part of the garden, they will do as well there as coddled up under glass. In hot seasons the plants are usually infested with a small reddish insect of the aphis tribe. This can easily be destroyed by dipping the cuttings in rather strong soft soapy water; they should be laid aside for half-an-hour or so, and then be washed in clean rain water. The largest proportion of the plants may be put out in the open ground, but if there is a cold frame to spare, it is best to pot up a single plant of each variety and make sure of saving it under glass; in fact, independent of this, it may be as well to flower a collection in frames. If the plants are of large size in the autumn, they may, if weather permits, be potted in 6-inch pots by Christmas, which is as good a time as any other for this purpose, and 6-inch pots are the best to flower the plants in. It is easy enough to destroy any aphis by fumigating when the plants are under glass; another thing they must have plenty of fresh air. In the first place the plants should be raised up on a trellis-work near the glass, and whenever the weather is fine, it is best to remove the lights. A gentle shower will do no harm, but they should be protected from heavy rains, and also from frosts. As the plants increase in growth, the stems ought to be pegged close down to the surface of the soil, until the whole of it is covered with stems and foliage, closely hugging the pots. Some ten years ago the Royal Horticultural Society offered prizes for Pansies in pots, which did not bring out a very large competition, although Mr. James, who was then gardener at Isleworth, exhibited some fine pots of them. In some country districts, where attention is given to their culture, and gardeners or amateurs vie with each other to produce the best productions, the results are highly satisfactory. The varieties are so numerous, and many of them so fanciful, that selection is all a matter of taste. Some people like self-coloured varieties; others admire the white and yellow beltings of the show section; but the best effect in the garden is produced by the fancy or Belgian kinds. J. D.

NEW AURICULAS.

While the late Auricula exhibition is still fresh in our memories it may be desirable to make a few remarks on the new varieties exhibited, in order to show what progress, if any, has been made during the current year. The raisers of seedlings are numerous, and many good varieties have been obtained in the south and many more in the north.

The green-edged class of Auriculas has always been and is still a weak one, but some good flowers are now coming to the front. The best was a seedling of Mr. Simonite's, raised at Sheffield and exhibited in Mr. Horner's collection. It was named, in honour of the exhibitor, Rev. F. D. Horner. I exhibited the same variety at the Regent's Park exhibition on the 26th of March, and the same plant was in flower at the Auricula show on the 22nd of April. It has a perfect green edge quite free from spot, black ground colour, but a slightly angular paste, which prevented its taking a first-class certificate, although it gained the first prize in its class. Kestrel, raised and exhibited by Mr. Horner, is a promising flower with a really good green edge; the black ground colour is rather irregular, and the paste is white and dense, but the tube is not so rich in colour as in Mr. Simonite's variety. Monarch (Horner) still maintains its first promise of good all-round quality, and was shown in two classes. A few others was exhibited, but they can stand over until shown in better condition.

The grey-edged class was represented by a considerable number of really good flowers. The standard, a high one, is represented by George Lightbody (Headley). We may not be able to raise many seedlings to surpass this, but there are some distinct from it, and, in their way, first-class varieties. The Rev. F. D. Horner was again successful in gaining the first prize in this class with Merlin (Simonite); it is a flower in the way of Mr. Horner's Ajax, but an improvement on it. The edge is greenish grey, ground black, paste good, and tube pale. Marmion, exhibited by myself, gained the second prize; it is a well formed flower and very constant; the tube and paste are both good, but it lacks sufficient breadth of ground-colour. Silvia was well shown. This promises to be a very constant flower. I have a dozen plants of it now in bloom, and all of them are exactly alike. Mabel promised well, but the cold weather caused the pips to cup a little. Mrs. Moore bids fair to be a distinct and substantial grey edge. It is free in growth, and has obtained three first-class certificates from different societies. It is a robust, free-growing plant, but our best blooms were past before the show took place. I also exhibited a good plant in the class for six of Mr. Horner's Ajax; it was a trifle rough on the edge, and with rather too much ground colour—a fault which may not be apparent in a more favourable season.

The white-edged class has now four recognised sterling varieties, viz., the never-to-be-forgotten Smiling Beauty (Heap), a kind not to be confounded, as some do, with Beauty (Trail); John Simonite (Walker), Acme (Reid), and Conservative (Douglas). The last named is now being sent out in sufficient quantity to test its qualities in different districts. Mr. Horner adds to these Magpie, which obtained a first prize. It is a symmetrical flower with a good yellow tube, pure white paste, black ground, and good, white edge; the different parts of this flower are arranged in fair proportion. Miranda is not so promising, but it gained the second prize in this class, and in a more favourable season it may be a first-class flower; at present it is rather irregular in outline.

The self-edged class was well represented with new varieties. Two years ago Mr. Horner introduced to it Heroine and Ringdove, two excellent varieties; he has now had quite a flight of violet selfs, a section that required improvement fully as much as the dark or maroon type. Until Mr. Simonite raised Mrs. Douglas there was no flower so good as Charles J. Perry (Turner). These are both good. Metropolitan (Spalding), an old flower often rough; Meteor Flag (Lightbody), and the neat, but pale Formosa of Smith must all be put aside when the new ones come into circulation. Sapphire (Horner) has already been exhibited; it is a flower which everyone must like, its pale violet-blue colour being quite distinct. Mrs. Horner (Horner), a violet self, has better formed pips than those of any of the old varieties; it gained the first prize in its class, and received the award of a first-class certificate. Enchantress was awarded the second prize in this class. It is pale violet, and lacks density of paste. It would also be improved by having a brighter coloured tube. Heroine was again well shown by Mr. Horner, and Duke of Albany, one of the darkest flowers yet raised, was exhibited in my own collection.

Crimson-edged selfs were not represented by any new varieties. Marquis of Lorne was there, but it has had its day, and is out of place in a collection of twelve, although it gives variety to a group of fifty. A good crimson-edged variety is much wanted. When I visited Mr. Campbell at Falkirk some years ago, he was trying to raise a crimson self with green foliage. Lord Lorne and Duke of Argyle have both mealed foliage, but he has evidently not been successful; he selected a green-edged variety as seed-bearer, not having a self that suited his purpose. Mrs. Sturrock ought to be used either as a pollen or seed-bearer; old as it is, it has more refinement in it than the Marquis of Lorne. Another flower, Lord Clyde, raised by Mr. Lightbody, is distinct in colour, being reddish maroon, but it is coarse, and should be improved by crossing it with something else. I saw a plant in flower of an improved form of it named William Lightbody: it was, I think, in the old garden at Kirkby Malzeard. I have never been able to obtain a plant of it, and Mr. Horner has never exhibited it. There is now much greater variety in colour than hitherto, and since the southern exhibitions have been held the violet selfs and violet ground edged flowers have become generally appreciated. J. Douglas.

Planting Gladioli.—My experience of these quite coincides with that of "J. C. C." (p. 337), and I am convinced that many get their plants seriously weakened and often lost through leaving them too long out of the ground or keeping them in a dry place, which causes the corms to shrivel and lose weight, and when they suffer in this way they can only start feebly and send up an indifferent spike. Early lifting is as bad or worse than late planting, as every day they remain out in the autumn is of importance to them while the tops keep green, for as long as they continue in that state the corms are swelling and gradually maturing, and, when lifted, are then in a more fit condition for standing the storing in winter. Many, when they dig them up, at once lay them on shelves, which is a great mistake, as they are far better buried in moderately dry, finely sifted earth or sand, which keeps the air from them and prevents changes from damp or the other extreme

according to weather, and maintains the corms in a sound, plump condition. When planting, I always like to throw a little sand or very sharp road scrapings over each root, as I find it keeps them clean and healthy by draining away any excess of water which they sometimes suffer from if the soil comes in contact with them —S. D.

NOTES FROM SHIRLEY VICARAGE.

LILIES AND THE LATE FROSTS.—Lilium Hansoni is the only one which has suffered at all severely with me, and I have never noticed it at all touched before. Longiflorum is a little blanched, but I do not fancy it is much the worse. Humboldti, Krameri, auratum, Szovitzianum, speciosum, tigrinum Fortunei show no sign of damage. A few weeks ago I read in a contemporary that L. Fortunei fl.-pl. was shy of increase. My experience is exactly opposite. In 1880 I bought one bulb. In the summer of 1883 I had thirty-seven flowering bulbs, bearing literally hundreds of magnificent blossoms, the flowers varying from five to twenty-eight per bulb. I consider this the very best of all the Lilies for herbaceous borders, and candidum comes next. The single Fortune's Lily is prolific, but not so much so as its double form, nor is it so fine a flower, this Lily being, in my opinion, one of the very few blossoms that distinctly gain by doubling.

DAFFODILS.—As an enthusiastic worshipper of the Daffodil long before the tide of fashion turned that way, I venture a very humble protest against the new names proposed for many of our favourites. The Latin names did tell us something—*e.g.*, a schoolboy could gather "tinged with gold" from aureo-tinctus, but the proposed Astræa does not even convey a hint of a hint. Nor does it appear that we shall gain much in brevity; Narcissus incomparabilis sulphureus Astræa is not so wonderfully shorter than Narcissus incomparabilis sulphureus aureo-tinctus. I appeal to Mr. Elwes, Mr. Baker, and the whole committee to hesitate ere they impose the new *régime* upon us all, and I appeal to all true lovers of Daffodils and Narcissi to stand by Mr. Barr and refuse to have their cherished favourites rechristened even with such exalted cognomens from Jupiter and Juno down to Joseph Chamberlain and Tottenham Yellow! Not even to Dean Herbert would I give up primulinus.

GALANTHUS ELWESI MAJOR.—I thought I had a new Snowdrop to surpass any yet known, and this week you figure it under the above appropriate name. It is a superb flower. It came to me three years ago amongst some Chionodoxa, and I am increasing it not only by separating the bulbs, but also by raising seedlings. You cannot too highly praise it. It is perfectly distinct, and in form and habit everything that could, I think, be desired. Where did it originate? W. WILKS.

Anemone Robinsoniana.—Being responsible for a statement made three or four weeks ago in THE GARDEN that A. nemorosa var. cœrulea is not identical with A. Robinsoniana, I write to explain what I then said. Since that time I have received from gardens the major variety of A. nemorosa, which perhaps is only a garden development of the ordinary form. I am inclined to think that the same may be said of A. Robinsoniana, and that no line can be drawn which separates it from A. n. var. cœrulea. The latter variety is found sparingly in woods in several parts of Carnarvonshire, which I have broached during the last week, but I have never found it except amongst trees. It is found mixed up with the common form, sometimes only one flower in a large clump being blue. In fact, it is difficult to define the beginning of cœrulea, the shade in some being very pale and just distinguishable. Where the blue variety is prevalent I always observe that the smaller the flower the deeper the shade is liable to become. I sent some light coloured specimens gathered wild in Carnarvonshire to Mr. Robinson for his opinion, and he acknowledged them as belonging to the variety called by his name, so perhaps it is superfluous to try to keep up any distinction between A. Robinsoniana and A. n. cœrulea.—C. WOLLEY DOD, *Llandudno.*

ANEMONOPSIS MACROPHYLLA.

THIS is known in gardens as A. japonica, probably from its being a native of Japan. It is the only species belonging to the genus, which until recently was almost unknown to cultivators. It is said to have been first discovered in the northern parts of China by Siebold, by whom it was distributed, and since lost to cultivation. It is most remarkable from its near affinity to Cimicifuga and Coptis, and seems to link them closely to the Anemone and Crowfoot, having the leaf character of the former and the large petaloid flowers of the latter. It is an upright-growing perennial herbaceous plant, varying from 1 foot to 2½ feet in height, and having peculiar glabrous shining stems and large flowers of a dull and rare purple colour. The leaves, which are on very long foot-stalks, are over half a foot broad, and take the form of a triangle. The leaflets are deeply serrated, even, and of a beautiful light green. The flowers, which, but for their

Anemonopsis macrophylla.

smaller size, are not unlike those of the beautiful pink variety of Anemone japonica, are produced in loose racemes in June and July. In growing this plant a shady corner should be chosen where it will be free from all but the morning sun, and where a bed should be prepared for it consisting of equal parts of loam and peat. Plenty of root room should be given for its successful development, as when cramped it impairs its flowering. It may be propagated by division of the root or from seed. D. K.

Akebia quinata.—The whole aspect of this plant is so unlike that of any other climber, and so pretty withal, that a few words concerning it may not be out of place at this its flowering season. It is a plant of quick growth, producing long, slender shoots clothed with pretty, bright green divided leaves. Its claret-coloured flowers are individually small, but they are borne in sufficient profusion to be attractive. It is a native of China, and survives our winters about London if afforded the protection of a wall, on which, should it face the south, the wood gets well ripened and ensures good displays of bloom in spring. Fortune states that in many parts of China it festoons the trees and hedges. Besides being treated as an outdoor plant it makes a useful climber for a greenhouse or conservatory. Wherever it is grown, plenty of space should be allowed for development, as if greatly curtailed no flowers need be expected. The Akebia associated with the white-flowered New Zealand Clematis indivisa, and allowed plenty of room, makes a pleasing combination; they both flower about the same time, and the white blooms of the Clematis contrast in a marked manner with the flowers of the Akebia. This latter can be readily increased by means of cuttings taken at any time during the growing season and kept close till rooted. The best cuttings are those made of the small side shoots that are often pushed out from various parts of the plant; they root more quickly and are less liable to decay than those made of stouter branches.—ALPHA.

Single Daffodils becoming double (p. 270).—Mr. Wolley Dod is quite right, and in proof thereof I send you two bunches, one of Narcissus Telamonius, with single, semi-double, and double forms, taken from the same bunch to-day in Mr. Gough's lawn, where they are growing wild. The other bunch contains the single, semi-double, and double forms of N. incomparabilis. You will observe in the case of the semi-double that the stamens are in the actual process of changing into petals. These have propagated themselves, so to speak, and have not been disturbed for years.—W. J. MURPHY.

Narcissi and aspect.—I was interested in "J. S. W.'s" remarks last week about Narcissi and climate. In my wood I find that the common double Daffodil flowers much better than the single one. Poeticus is coming up for the second year and has a few flower buds, and I think it will flourish in carefully chosen places. The Jonquil Campernelle flowers well one year and then makes very feeble growth. Biflorus was the prettiest thing I had last year, as it flowered at the same time as the Bluebells, and was planted among them in the wood, but I am informed that I must not expect it to flower again. The foliage has come up strong this year, but at present there are no buds; still it is not too late yet here. It would be interesting and I should be very grateful if any of your readers would point out what Narcissi are worthy of trial in a thin wood with light soil.—G. H. C.

The home of white Daffodils.—Mr. Burbidge, writing in THE GARDEN (p. 362), says that he has failed to obtain evidence of white Trumpet Daffodils having been found wild since the days of Parkinson. Last year I made the same complaint, and had begun to think that these were accidental albinos of the common N. Pseudo-narcissus, multiplied by cultivation in gardens; for, distinct as some of these whites may seem, I can match most of them in the normal colours of the common wild Daffodil, and conversely. I have some with white flowers which in shape and size exactly correspond to normal N. Pseudo-narcissus. This spring, however, I have been successful in obtaining much new information about Daffodils, and have had flowers of N. cernuus sent gathered from bulbs which were brought from the Pyrenees last year. They are found abundantly on some of the slopes of the higher mountains on the Spanish side only, between 6000 feet and 7000 feet above the sea level, flowering at the end of May. I am told that Luchon is a good headquarters for their habitat. From the same district I have had fresh flowers of what I take to be the original N. bicolor, closely allied to N. abscissus (locally called N. muticus), which undoubtedly belongs to the bicolor section, and abounds on the French side of the High Pyrenees. Also I have bulbs of N. lorifolius, another large allied form of the bicolor class. I now begin to believe Parkinson when he calls these Trumpet Daffodils Spanish.—C. WOLLEY DOD, *Llandudno.*

SHORT NOTES.—FLOWER.

Honesty, both purple and white, is very common. I saw the other day a single plant as regularly and evenly barred with white on a light purple ground as the best striped Petunia. Not having seen before such a departure in this plant, I think it worth recording.—J. C. C.

Myosotis dissitiflora alba.—This proves to be a very desirable variety. It flowers quite as early as the blue sort and the flowers are quite as large. My stock was obtained from cuttings. How it will behave when raised from seed I have yet to prove, but plants are so readily obtained from cuttings, that seed need scarcely be resorted to.—J. C. C.

Salvia Greggi.—As Mr. Smith, of Newry, states in a recent issue of THE GARDEN that this plant has succumbed during the past winter with him, allow me to reply with this counter statement, that in two gardens of mine here of totally different character—the one being light soil, the other heavy, moist land—it has not only survived, but retained most of its foliage. Possibly in severe winters it might be killed to the ground, but would push from the root in spring, as many other species often do. I am told, on good authority, that it is quite hardy in New Jersey. The question of height is a trivial one, but it is, nevertheless, a fact that with me it has always grown about 3 feet high. I may also add that the species is recognised as distinct by the best botanical authorities.—W. THOMPSON, *Ipswich*.

THE BROXBOURNE ALPS.

NEVER heard of them! Where are they? Well, if you are a lover of the alpine flora, you will hear of them, and, I have no doubt, ascend their giddy heights and explore their hills and valleys, for within about twelve miles from London, in the midst of the flat and (shall I as a man of Kent say it?) somewhat unpicturesque county of Essex, Messrs. Paul & Son have made what I have very little doubt will in a year or two be one of the most charming and instructive rockeries in the neighbourhood of London, while in the grounds surrounding it they are gathering together what will be a most complete collection of herbaceous plants, thus affording another instance of the wonderful change that has taken place in gardening. Here, for instance, is a firm which has been distinguished for a long series of years as a grower of the Rose, to which its chief energies were devoted, but I am very much mistaken if we shall not in future years be as ready to speak of it in connection with alpine and herbaceous plants as with the flower for which it has so long been famous, and everyone who knows Mr. Geo Paul's taste may be satisfied that there will be no cockneyism about it, and that while it must be artificial, it will be also artistic.

The pretty church of Broxbourne is situated about a quarter of a mile from the station, and it is close to this that the herbaceous grounds and rockery of Messrs. Paul & Son are situated; indeed, the main walk of the herbaceous garden extends from the entrance of their nursery up to the gate of the churchyard; it is 250 yards in length. The borders are separated from the rest of the ground by a Yew hedge, and are also divided into twenty-one bays. On each side of the walk there is room for five rows of plants, giving room altogether for about 400 of the best herbaceous plants. These would, no doubt, in former days have been filled with scarlet Geraniums, Calceolarias, Ageratums, &c., but a "change has come o'er the spirit of our dream," and this space is occupied by various kinds of the best known herbaceous plants, which do not flower all at the same time, but some of which are always in bloom, and where foliage in many cases, as in Ajuga reptans purpurascens, is always pleasing. Here Aubrietias were full in bloom, as well as Doronicum austriacum, with its brilliant yellow flowers, while Phlox setacea was just beginning to show its colour. In a small bed close by was a fine batch of the old, but pretty and useful, Ornithogalum nutans, reminding one very much of an Anthericum. It would be useless to enumerate the various kinds of herbaceous plants which are to be found here, but nothing that is valuable and little that is rare are wanting from the collection.

The rockery is situated to the left of the walk, at the end near the church and adjoining the road, and is of considerable extent. Of course at present it has an appearance of newness, but this will soon wear off when Moss begins to grow on the stones and the plants increase in size. In the construction of it Mr. George Paul has endeavoured to combine naturalness with the requirements of the plants; thus he has a chalk down, on which some of our native Orchids and other chalk-loving plants are at home; then he has a large piece of limestone region. Some idea of its size may be obtained when I say he obtained 150 tons of Kentish rag, which is admirably adapted for all limestone-loving plants. Then he has a large piece of granite, and another of red sandstone; so that there is hardly a requirement that cannot be met when once the wants of the plants are ascertained. At the summit of the rockwork there is a small reservoir, and from this it is arranged that a small quantity of water shall trickle down a sort of miniature ravine, along which plants to be found in such situations can obtain their wants. Then there is at the bottom a small bog, well situated, and where bog plants are and may well be expected to thrive, although Mr. Paul informed me that he has a much larger and more prosperous bog at High Beech. And now comes the question, how are the plants thriving? Of course it is early days with some of them; but there were many which were well established and giving promise of great beauty. I have just mentioned the bog. Well, here Primula rosea and P. Munroi, the double-flowered Caltha palustris, and Sarracenia purpurea were quite at home, but I am told that at High Beech I shall see all such things much better, as they have been longer established and a larger space is devoted to them. Then there were the Androsaces, to some extent test plants of culture; of these A. carnea, sarmentosa, and lanuginosa were well established and flourishing. I may here mention that in writing on them last year I said that sarmentosa seemed shy in flowering. I must retract this. My plant is now flowering most profusely from every crown, and exceedingly pretty it is, so that I conclude, like a good many other things, it requires to be established before displaying all its beauties. Then there are the Gentians; verna, one with which even so experienced a grower as Mr. G Wilson confesses failure, looked as if it was going to do well. I have one plant of it which seems as if it would flourish, while I have a pan of it in the house a perfect picture of health with thirty or forty flowers on it. The remarkably pretty plant Arnebia echioides was doing well in various positions on the rockwork and in the garden, and looked as if it was an accommodating plant, and certainly very pretty and curious, the small spots on the yellow petals disappearing as the flower ages. Amongst Anemones, Pulsatilla patens, nemorosa fl.-pl, Robinsoniana, stellata and fulgens were fine. The Cyclamens were over, but had been doing well; Atkinsi, vernum, repandum, and Coum were all flourishing. Is the former a true hybrid? It was said to have been raised from vernum crossed with persicum, but surely there is no trace of the latter in it? and it seems to be rather a seed variety of vernum without any trace of the other parent. Soldanellas, another test plant of culture, were also doing well. Amongst striking foliaged plants Ajuga reptans purpurascens and Megasea cordifolia purpurea made a good effect, the latter, too, being remarkable for its fine spike of rosy purple flowers; but it were needless to enumerate the various good things I saw here. Mr. George Paul is determined he will not be behindhand in the race, and I am quite sure that he will spare neither pains nor expense to make this herbaceous and alpine garden worthy of the high character which the Cheshunt Nurseries have so long maintained. Of these nurseries I could say much—of the experiments being made in Rose culture; of the numerous species that are being collected together; of the manner in which the old favourites of our gardens are being culled from all sorts of places to meet the revived taste for them; but my object has rather been to record what I saw of the alpine garden.

DELTA.

An explosive scarecrow.—Our friends whose crops are injured by the depredations of birds, both small and large, may be interested in a new device for the protection of eatable productions, which is claimed by the inventor to be the only effectual scarecrow ever invented. It is well known that nothing will alarm birds equal to the report of a gun and the smell of powder. That is sure when all other devices fail. The device in question is known as Eaton's automatic alarm signal, and by its mechanism a series of guns are discharged, automatically, one after another, at regular intervals of an hour or less, as desired. Each makes a report as loud as a shot-gun. No crow or other bird has the courage to linger within sound of the machine, and it will consequently protect a considerable area. The machine is operated by clockwork. It is simple in construction, and does not easily get out of order; it will work just as well when it rains and blows as in a fair day; it is easily managed, and will last a lifetime. It is only necessary to load and set it in the evening, and it will discharge the first gun at as early an hour the next morning as may be desired, and the other at regular intervals afterwards during the day. There are various other uses to which this machine may be applied. It may be made of any desired size, strength, and power, with any number of guns, and may be used as a fog-signal or for any other purpose requiring the use of such an invention. It has already been thoroughly tested in Maine.—*Pacific Rural Press*.

PROPAGATING.

5183.—**Propagating Carnations and** Picotees.—If "W. H. D." is desirous of raising Carnations and Picotees from seed to flower next year, he must lose no time in procuring his seed and sowing it. If the seed sowing is delayed until later, there is but little prospect of the plants becoming sufficiently strong to flower and show their true character next year. Many of the great Carnation growers will by this time have their seedling plants nearly ready for pricking off into cold frames, but it is not too late yet to sow provided it is done at once. The seed should be sown thinly in well-drained pots in a compost consisting of one part of good sweet loam, one part leaf loam, and one part sand well mixed together and passed through a quarter-inch riddle; cover the seed with a quarter of an inch of the compost and water with a fine rose. The best place for them is on a shelf in a greenhouse or a warm frame as close to the glass as is convenient. Care must be taken not to give them too much water, but the soil must on no account be allowed to get dry. When the plants are large enough to handle they should be pricked off into a cold frame 2 inches apart in the same compost as that recommended for sowing the seed in, with the addition of one part of good rotten manure. Keep them close for a few days, and shade from bright sunshine until they get hold of the new soil, and water with care. When they have filled the space allotted to them, they should be planted out of doors in a well-prepared bed on a south border. Let them have plenty of water in hot, dry weather, and by the end of October they will be strong plants. Then give them a good mulching of half rotten manure, which will protect them from frost during the winter months and greatly benefit them in the spring. The Carnation may also be propagated by cuttings and layers. Many do not, however, approve of raising them from cuttings, because they have an impression that cuttings do not make such strong plants as layers. If properly treated, however, I think that they are quite as good as layers. And there is this advantage, that one can often get cuttings when the plants are in flower, and, therefore, they must be true to name. The best way in which to root the cuttings is to insert them singly in 2½-inch pots in the same compost as that recommended for sowing in; plunge them in a bed of coal-ashes, put hand-lights or an ordinary garden frame over them, and keep them rather close for two or three weeks, by which time most of them will be rooted. After that give them plenty of air on all favourable occasions during the autumn and winter, and protect them from severe frosts. They will be fine plants to plant out in spring. If raised by layers, the best time to layer them is from the first week to the third week in August. All that is required is to cut a few leaves from the pipings; cut a slit half way through the wood in a slanting direction and peg it on the ground, putting a handful of fine soil over it for the roots to run

in. When well rooted, sever them from the old plants and pot them, using good rich soil, and treat them the same as recommended for the cuttings.—H. Parker.

OBITUARY.

M. ALPHONSE LAVALLEE.

It is with deep regret that I have to inform you of the sudden and untimely death on Saturday last, at the Château de Segrez, of my very highly esteemed and valued friend, Alphonse Lavallée, President of the National and Central Horticultural Society of France, Treasurer of the National Society of Agriculture, Chevalier of the Legion of Honour, &c. I had heard from him only a week ago from Cannes, where he had been spending the winter, to say that his health was, he hoped, almost completely restored, and that he intended returning immediately to Paris, when he hoped to see me. I was accordingly dreadfully shocked and grieved when, on calling on Sunday afternoon at his Paris house to ascertain if he had returned, I was informed that he had returned on Friday last, had at once gone down to Segrez, and died there quite suddenly on Saturday. In him the Horticultural Society have indeed lost a most active and enlightened president, and the cause of horticulture in France a most enthusiastic supporter, promoter, and friend, whom they will find it most difficult, if not impossible, adequately to replace. His great services to horticulture and arboriculture are exemplified by his beautiful work, "Icones Segreziensis," which will now, I fear, never be finished, but remain as a fragment, only five out of the twenty parts which he intended to publish having as yet appeared, though in his last letter he told me the sixth was almost ready, and would be published shortly; also his interesting "Monograph of the Clematis and of the Cratægus Family," which it is to be hoped he has left sufficiently near completion to allow his friend, M. Herinck, or some other botanist to complete and publish as a tribute to his memory. W. E. Gumbleton.

Hôtel d'Orient, Rue Daunon 8, Paris.

*** We have to add our expressions of regret at the loss of one who had done so much for tree culture and who was so active in the cause of horticulture. He possessed the finest collection of trees and shrubs we have ever had the happiness to find grown together in a private garden—many of them being new kinds, and such as are rarely seen in cultivation. Little known in England personally, his influence in the cause of sylviculture was felt throughout Europe, and he will be a great loss to the principal horticultural and agricultural societies in France, in the management of which he took a leading part. We trust that in such gardeners France will never be poor.—Ed.

The late Alphonse Lavallée.

FRUIT GARDEN.

PLANTING GRAPE VINES.

I have previously intimated that of the two methods of planting in vogue I give the preference to young growing Vines rather than to ripened canes. I have several reasons for this, but it will suffice to repeat that the canes formed by Vines raised from eyes or cuttings early in the year, and planted when large enough—say early in May—are invariably the most short-jointed, are the hardest when ripened, and have the least pith. If fairly strong planting canes are planted during the winter months they are frequently apt to push very strong shoots, those retained eventually growing into stout, long-jointed pithy rods. Such are, perhaps, the most pleasing to many Grape growers, but according to my experience they are neither the best calculated to give satisfaction as supernumeraries, nor in the long run will they prove so serviceable as the more wiry rods resulting from the method of planting I advocate. The less pith there is in the rods the less danger of shanking and other evils resulting from the shrinking which will inevitably occur. Before commenting on the operations of planting and training I propose to offer a few remarks upon

The best methods of arrangement. At the outset it has to be determined how the Vines shall be arranged in order to secure as many Grapes annually as the house and other circumstances will admit. The majority of vineries are lean-to structures, and a considerable number are arranged with either borders wholly inside or a combination of inside and outside borders. It is also an orthodox practice to plant double the number of Vines that it is intended to retain permanently, the supernumeraries being arranged between the latter. This I consider altogether a mistake, as they not only impoverish the border, thereby greatly interfering with the desirable free root action of the permanent Vines, but they also unduly crowd and weaken their top growth. Then, again, after perhaps two seasons' heavy cropping, the supernumeraries are destroyed, but the majority of the roots are left in the border to decay and breed fungus. This will, perhaps, be considered a more fanciful than real source of danger, and I do not say it is not, but I always like to avoid possible dangers, well knowing that there are many to incur over which we have but little control. Instead, then, of arranging the supernumeraries along the front and between the permanent Vines, they should be planted nearer the middle of the house, or, at any rate, on the opposite side of the path usually arranged at no great distance from the front. They should have their separate border built up square with turves, the walk being between the two sets of Vines and similarly constructed borders. The position of the Vines would be the same, the permanent Vines going one to each rafter and the supernumeraries between being taken up by stout stakes till the trellis is reached. Supposing the border to be wholly outside and the arrangement of the house prevented the formation of a temporary inside border, I would still endeavour to fruit the supernumeraries either in tubs or pits formed with loose bricks. It is really remarkable what can be done with Vines the roots of which are much restricted. In such cases they are well under the control of the cultivator, and can and must be fed up or largely supplied with liquid manure. For two or, at the most, three seasons, commencing with that following planting, they may be cropped heavily; after that they would not repay keeping, even if those in charge were disposed to try the experiment. It is surprising how few there are who think of

Utilising the back walls for Grape culture, yet in these positions it is possible to annually grow heavy crops of serviceable bunches. The Vines in this case are best planted at the same time as the other two rows, as they then have a better chance of forming well-ripened canes and which are essential to a long and profitable life, but if those on the roof are thinly trained, they may be planted at any time. These also may have their small border between the back path and wall, or be planted with the others in the large and necessarily completed border. Where there is no inside border, it is yet possible to grow fairly heavy crops of Grapes at the back on Vines planted in a narrow raised border enclosed either with turves, bricks, or boards, always supposing they receive annual rich top-dressing and abundance of moisture and liquid manure at the roots. It is useless, however, to attempt utilising the back wall if the rods are crowded together over the roof. Instead of taking up the rods about 2 feet apart, a by no means unfrequent occurrence, they should at least be confined to one on each rafter or from 4 feet to 5 feet apart, those on the back wall being planted midway between them, thus getting a fair amount of light and sunshine. I have been fairly successful with such white Grapes as Foster's Seedling, Tokay, and Calabrian Raisin on back walls, but as a rule it will be wise to rely exclusively on Black Hamburgh and Madresfield Court for the early houses and Black Alicante, Lady Downes, Mrs. Pince and Gros Maroc for Muscat and late houses. I can answer for these colouring well, if they are not always of the best table quality. Furnishing the back walls rather interferes with the shelf-room, but in many cases such shelves are much in the way, and if filled with Strawberries, Beans, or other plants they are liable to be infested with insect pests, the latter easily spreading to the Vines. If shelves must be employed, let them be much nearer the floor of the house than is usually the case, and be removed when the Vines are breaking.

Planting and training.—The border having been formed for some time, if inside the house, will by this time have become sufficiently warmed for receiving the young Vines, and but little hardening off will be necessary. In the case of a newly formed border, which is certain to be much colder than the temperature of the house in which the Vines are being raised, it should be warmed where the holes are to be made by plunging several heated bricks at each place. Unless this is done a check will be given—especially if much cold clayey loam is mixed in the compost—from which the Vines may not recover the same season. I find that when they have experienced such a check the growth is weakly, and the leaves small and curled, presenting the appearance of being affected by mildew or some other fungus. The root action, however, in such cases is not wholly arrested, and the Vines break strongly and grow well the following season. If the young Vines are rooting in square turves, they appear to take to their fresh quarters more quickly, but do not greatly surpass those planted out from 6-inch or larger pots. In either case no attempt should be made to spread out the roots, as when the Vines are gaining strength they push out their primary roots, and these will be straight enough. Plant slightly below the level, employ a little good soil about the balls or turves, making this rather firm, and form a small basin about the stems with the soil when finishing off. Care must be taken to keep the turves or balls uniformly moist, especially at the commencement, always using tepid water; later on, when well established, the basin will be less required, and if the soil is levelled about the stems it encourages the emission of strong surface roots. When growing freely, Vines must have abundance of moisture at the roots and the border may be well mulched with strawy litter. It is not advisable to maintain a high temperature with much moisture, as this induces the growth of thin, warty leaves, and which are not of the best description either for swelling the stems, forming the buds, or for stimulating strong root action. If the night temperature is maintained at about 60° with a little top air whenever the weather admits, giving a rise in the daytime of from 5° to 10° and another 10° when air is given, closing early and damping the Vines and house at the same time, the Vines will generally grow quite fast enough and be proportionately robust. The young Vines should be carefully trained up stakes till the trellis is reached, and be encouraged to grow as straight as possible up the roof or wall as the case may be, those on the back to be stopped when near the top. All the laterals should be stopped once and then allowed to ramble or to form as many leaves as there is space for without crowding, this serving to increase the number of roots as well as being a safeguard against pithy rods. This also applies to those Vines which were planted during the winter, and on any that are growing strongly I would also preserve all the tendrils, the removal of which, though necessary in the case of weakly Vines, also tending to encourage sappy rather than woody growth. My theory with regard to pruning these young Vines may well be deferred to a more seasonable date, and I will only now remark that I would allow any extra strong permanent Vines that were planted last season to perfect one or two bunches in order to check the very coarse growth that is certain to result if they are hard pruned and not cropped. W. I. M.

Setting Peaches by the syringe.—Mr. Hinton (p. 366) is right as regards this matter. I am told by many who have been here that we have one of the heaviest and most regular crops of early Peaches, now in their last stage, they have ever seen, and we had a similar crop last year, and for years before that, on the same two trees, which have always been in flower early in January, and been thoroughly syringed when in flower—no matter what the weather was like—in order to vivify and scatter the pollen. We cannot spare time for a man to go over such an extent of flowers as we have with a camel's-hair pencil or a fox's brush, and besides, to operate on the tender stamens and pistils of Peach flowers with such weapons must be like having one's hair combed with a "cutty stool," although a fine camel's-hair pencil is a suitable instrument for Melons and the like where the male and female flowers are separate. If those who are fond of using the microscope will first syringe their flowering Peaches briskly with a moderately fine syringe when the pollen is dry in an afternoon, and afterwards apply the microscope, they will find the active pollen scattered everywhere, so that no flower is missed, while not the smallest speck of injury is visible on the most tender organ.—J. S.

SETTING AND THINNING GRAPES.

There are two Grapes in general culture that usually require special treatment in order to secure a good set. These are the invaluable Muscat of Alexandria and the comparatively new Alnwick Seedling. Those who can devote plenty of room to the former, and have their Vines in a good healthy state, have the least cause for anxiety in the matter; but where the root action is faulty, or where the rods are crowded, the case is very different, as then a good set is by no means easily accomplished. If the bunches are shaded and weakly from this or other causes the flowers are also weakly, and will not properly throw off their caps, the pollen also is scarce, and the consequence is a poor set. In either case I consider it necessary to increase the fire-heat at the flowering time, especially during the night and early in the morning, thus admitting of a chink of air being left on at night unless the outside temperature be extremely low or strong cold winds prevail. The increase of fire-heat accelerates radiation, and this keeps the air moving as well as drier. The high temperature without this movement of the air I consider injurious rather than beneficial. Our Muscats up to flowering time are kept at about 60° by night, and from 65° to 70° by day, with an increase of 10° or more with sunshine, but when commencing to flower an increase of about 10° all round is given whenever possible without making the pipes excessively hot. Cold currents of air are particularly injurious, and must be carefully guarded against. Supposing the Vines are healthy and the bunches strong, all that is necessary in the case of Muscats is to smartly tap the rods near the bunches—say about 11 a.m.—this will distribute a cloud of pollen, and the set will be effected. Where the Vines are in indifferent health or the bunches weakly it is advisable to either draw the hand over the bunches, or they may be fertilised with either a camel's-hair brush, or, better still, with a rabbit's tail. The latter, attached to a long light stake, is the readiest method, though not more sure than the brush. If the pollen from Black Hamburgh or other free-setting sorts is available, this may well be utilised for setting the Muscats. Alnwick Seedling is a notoriously bad setter. The finest examples I have yet seen were set by merely drawing the hand lightly over the bunches, and others have been successful both with the brush and syringe, but tapping the rods does not appear to be efficacious.

Watering the borders.—If the inside borders receive a thorough soaking of tepid water or diluted liquid manure where they are poor a few days prior to the flowering period, this materially strengthens the bloom. Should they be dry either at the flowering period or subsequently when the stoning process is approaching, neither a good set nor proper stoning will be effected, and as a rule the fewer the seeds the smaller the berries. More, in fact, depends upon the frequent heavy applications of water and liquid manure than the addition of certain soluble or insoluble manures to the border. Fixed times for watering the borders I hold to be a mistake. The state of the borders should regulate the waterings, and they should be frequently examined and watered whenever approaching dryness. To wait till a certain time or till they are really dry is oftentimes simply ruinous. Once a border becomes dry great difficulty would generally be experienced in properly moistening it again, and unless this is quickly accomplished red spider and badly coloured Grapes naturally follow. Further, well-established Vines carrying good crops should, unless surface-dressed with some kind of artificial manure, receive moderately strong liquid manure at each watering. This is far more effective than occasional and stronger supplies given at a time, perhaps, when too late to benefit the crops in hand.

Thinning the berries.—This is the most tedious operation connected with Grape culture, and one, too, that must not be neglected or carelessly performed. Practice alone makes perfect in the art of thinning, and the process is not easily described without illustrations. In the case of free setters, such as Black Hamburgh, Madresfield Court, Black Alicante, Lady Downes, Foster's Seedling, and Buckland Sweetwater, we commence thinning within a week after they are set, as, if delayed, the latest to be thinned may perhaps become much too large and crowded for it to be done without rubbing those reserved. The thinning of shy or doubtful setters we usually defer till the berries are nearly the size of Peas, as at that time there is a greater certainty of selecting those with nearly or quite their full complement of seeds. One thinning ought, in the case of healthy Vines of the free setters, to be sufficient, but many prefer to go over them a second time. As a rule, there are a certain number of stronger blooms followed by berries that are larger than the rest, and it is these which frequently are in the centre of triplets which ought to be retained as much as possible. All small berries and those with an inward tendency ought to be removed, together with most of those on the upper and lower side of the branches, with the exception of a few reserved on the upper side of the shoulders. If any of the shoulders are to be tied up in order to apparently increase the size of the bunch, this also should be done at the first thinning, or before the berries are much grown, otherwise there is danger of rubbing off the bloom. Raffia is the material generally employed for shouldering, but fine wire is fast being substituted for it, as being the most easily fastened to both bunch and wires. Bunches intended for packing, whether for market or private use, may well have the shoulders reduced at the thinning time, and many prefer to have all bunches medium sized and symmetrical. The number of berries to be left depends upon the size of the variety, and also whether the Grapes are to hang for a long time or not. Loose bunches are objectionable, but the late sorts have strong foot-stalks, and may be, and generally should be, more freely thinned than the looser early sorts. The berries must not press tightly against each other if long keeping is a desideratum. Use sharp-cutting Grape scissors and a pointed stick about 9 inches long is of great service for lifting the shoulders as well as steadying the bunches or bringing them to a convenient position for thinning. The rise in the temperature at setting time will also benefit the late black sorts, especially the Black Alicante, as it tends to extend the bunch to the obvious increase of its size and diminution of the thinning out required. W. I. M.

Apple Mr. Gladstone.—Amongst early dessert Apples this, says *The Florist* seems destined to hold a conspicuous place, since it possesses at least two qualities which go a long way towards securing popularity—a pleasant taste and a high tone of colour, for which latter it will be prized as an ornament to the dessert even by those—if there be any—who do not highly estimate the flavour of Apples. Though it has just now come rather suddenly into public notice, it does not appear to be a new variety, but to have been a chance seedling brought into notice by the late Mr. Jackson, of Kidderminster, in 1868, and distributed by him under the name of Jackson's Seedling. The original tree is said to be a very old one, and to be a sure bearer. It is described as being of slender bushy habit, very fruitful on the Paradise stock, and also productive on the Crab. The fruit is scarcely

medium size, roundish or oblate, furrowed, with a small, but open eye and a stalk of moderate length set in a narrow angular basin. The skin is a deep crimson on the exposed side and thickly streaked with crimson where shaded, the surface being characteristically marked irregularly here and there with short bars or stripes of clear yellow. The flesh is tender, juicy, and sweet, with an excellent flavour. Mr. Jackson states that with him it ripens in the latter half of July. A first-class certificate was awarded to Mr. Lane, of Berkhamstead, for specimens exhibited before the fruit committee at South Kensington on August 14 last year.

PEAR CULTURE IN JERSEY.

OF all the fruits grown in the Channel Islands, the Pear seems to be best adapted to their soil and climate, and while arriving at great perfection, with little attention from the cultivator, no fruit gives a better return for high culture, there being always a demand for fine samples of dessert Pears, half-pound and upwards in weight, at very remunerative prices; therefore to meet this demand the market grower in the island should strive to produce the finest possible specimens rather than great quantities of medium-sized fruit which can be produced anywhere. Fruit of Chaumontel, Doyenné du Comice, from 1 lb. each and upwards can very seldom be produced in England, but by means of high culture, young trees, and good positions their production can be relied on here with almost certainty. The following six are considered to be the best, viz.: Chaumontel, Glou Morceau, Doyenné du Comice, Marie Louise, Louise Bonne, and Beurré d'Amanlis, and these are the most suitable for market work. The first and third, when well grown, meet with a ready sale at from £2 10s. to £5 a hundred. Doyenné du Comice is rapidly rising in public estimation, and last season fetched a much higher price than the Chaumontel. Marie Louise under good culture in Jersey will reach 13 ounces or 14 ounces in weight, and then meet with a ready sale, as it is never coarse whatever its size may be. Louise Bonne of Jersey is not a large fruit, but the tree is a good bearer; Beurré Diel is also good on the same account, and its fruit is one of the finest, often reaching from 14 ounces to 16 ounces. Again, Duchesse d'Angoulême is a fine large fruit, but a rather uncertain setter; when it does set it carries good fruit as a bush in the open ground, but, like most other popular sorts, the largest are from walls. In culture the general practice is to plant dwarf bushes and grow them up with from twelve to twenty branches from 5 feet to 10 feet high, and to prune very closely, cutting clean away all the young wood of the preceding summer's growth, as well as thinning out the spurs where they have become long or over-crowded. Probably trees in pots might be found to answer very well to grow under Vines in cool houses, or they might be placed under glass, just to set their fruit, and plunged out of doors afterwards, and well fed with manure water; indeed, all trees, whether planted in the open or against walls, should have copious supplies of manure water during the time they are yielding fruit. Summer pruning is an operation of some importance; that it is beneficial to the crop is certain, if properly done, but a great quantity of foliage should never be cut off at one time, as this cannot fail to produce a check in the growth, and the crop consequently suffers more or less as a natural result. Training, except as bushes, does not receive a great amount of attention; good examples of horizontal training on walls are very rare, the fan mode being the general practice, and that badly done. Cordons may be met with in a few gardens by the sides of walks, but to no great extent, though such trees often produce very fine fruit, and the system might be much extended with advantage. As oblique cordons on walls or trellises Pears do very well, but the practice finds no favour in Jersey; all such modes, good or bad, are almost untried; the open bush and the wall fan are practically the only systems in use. Oblique cordons on walls are chiefly useful in private gardens in which variety is wanted; but for the grower for market they are not so profitable as fan-trained trees.

The ground between the trees is generally cropped with Potatoes or other roots, and heavily manured, both for the trees and the crops beneath them. The trees commence to bear at a very early age, but some of the sorts, especially the Chanmontel, do not continue many years in good condition, and when the trees begin to decline the fruit is neither so large in size nor good in quality; therefore, to keep a plantation in the best possible condition, a few young trees should be planted every year. There is undoubtedly a wide field for the extension of Pear culture in Jersey alone, and very little has been attempted in a thoroughly systematic manner. Grapes and Potatoes at present monopolise all the best ground and attention. Many of our "cotees," with little expenditure of labour, could be converted into Pear gardens, producing fruit equal to the best walls, and giving a better return with less labour than Potatoes that now annually occupy the ground, and, what is of more consequence, would probably continue to do so when Potatoes had ceased to be a profitable crop.—*Jersey Gardener.*

Pruning young Vines.—Before "J. S. W." (p. 373) credits himself with having exploded an old theory respecting the pruning of young Vines, I think he should furnish more correct data as to his practice. I should like to know how many main branches his two-year-old Vine had at the time of pruning, and how many feet in length of young wood was left on each; also the name of the variety of Grape on which he has operated. When "J. S. W." has answered these inquiries, I may have something more to say on the subject. —J. C. C.

Vine roots.—"J. S. W." instances (p. 373) conversations which he has had with several gardeners, who, he alleges, adhere to the time-worn fallacy of the roots not stopping inside if they can get out. Preconceived opinions are difficult to shake off, but however much they may be thought trustworthy they are powerless to controvert facts such as have come out in the discussion that has taken place on this subject, and concerning which Mr. Smith's plain statements of his experience (p. 319) are to the point. Few matters connected with Grape growing are of more importance than those relating to the roots, and many I know who are interested in it would like to see the point tested practically. "J. S. W." declines to show Grapes from his Vines confined to inside borders in competition with any of the growers I have named who have them inside and out. But if he requires further incentive, rather than the matter should fall through I will find a grower, not before mentioned in this discussion, whose Vines have their roots both inside and out, and who will show half-a-dozen bunches, half Hamburghs and half Muscats, against a like number from "J. S. W.'s" Vines confined inside, for £10 a side, next August or September. To show that I have no object in view beyond fairly testing the two systems, if "J. S. W." loses I will hand the £10 over to the Gardeners' Royal Benevolent Institution.—T. BAINES.

SHORT NOTES.—FRUIT.

Vine leaves (*G. E. L.*).—There is nothing on the Vine leaves sent except an abundance of the mycelium of the Vine mildew (Oidium Tuckeri) and splashes from syringing. Repeated sulphurings will keep the mildew in check. —W. S.

Vines bleeding.—This happens when the wood is not thoroughly ripened. If people paid more attention to this point than they do there would be less talk about bleeding. I never knew wood thoroughly ripened to bleed.—GEO. MURRAY, *West Ashby Manor, Horncastle.*

Musch-Musch Apricot.—We commenced thinning the fruit of this variety on the 1st of May. The tree is fan-shaped and the branches about 6 feet long; rather more than 700 fruits were picked and still there is a very large number left—too many to ripen. Every flower must have produced a fruit. I wish I could say as much for Rivers' Early and the Moorpark.—J. C. C.

BOOKS.

IS OUR CLIMATE DETERIORATING?*

IN a pamphlet of twenty-eight pages, particularly interesting to gardeners, Mr. Thomson, by way of answer to this question, has gathered together a number of facts, from which he leaves people to draw their own conclusions. The late Mr. M'Nab, of the Edinburgh Botanic Gardens, an observant and painstaking man, wrote a series of papers some twenty years ago to prove that our climate was deteriorating, founding his belief on the circumstance that fruits, such as the Golden Pippin, that ripened well in Scotland in his youth, would not do so at the date when he wrote. Mr. Thomson's opinion is, that a few severe winters or a few excessively hot days in summer prove little as to the deterioration or improvement of our climate, as it affects the produce of the earth, and that produce itself is the only sure test, all other things being equal. Some of our most experienced farmers, he says, are of opinion that, in spite of the enormous sums spent on manures of all sorts, and improved implements for every purpose, the land of Great Britain, acre for acre, does not produce anything like the crops it did forty years ago. If, therefore, this statement is well founded, it is difficult to disconnect it from climatal causes. On the side of evidence that our climate is getting worse, at least for a period, stand the following remarks from Mr. Turnbull, who has been gardener at Bothwell Castle, near Glasgow, since 1828. Mr. Turnbull is well known as a very shrewd, observant man, and he has kept notes of the weather for more than fifty years. Mr. Thomson states that he was under his tuition from 1832 till 1837. During these five years he never failed to have fine crops of Peaches, Nectarines, and Apricots on open walls. He had also great crops of Green Gage Plums, and splendid Ribston Pippin Apples, that kept till April of a golden colour and quite firm. It will be observed that the last fine crop of Peaches he had was in 1870, and the Apricot trees have been twice destroyed by the weather. Mr. Turnbull writes:—

"We have had a very variable climate for a hundred years. 1782 was a very severe winter. The winters of 1813 and 1814 were also very severe. 1836, you will remember, was a very late harvest; much Corn in Lanarkshire and elsewhere was covered by a foot of snow before it was cut, and some was never cut at all. 1838 was Murphy's season, and with us the temperature fell to 3½° below zero. 1839 was a very late spring; we had a fall of snow on the 14th of May and a severe frost on the 15th, which destroyed all our fruit. On the 24th December, 1860, the temperature fell to 11° below zero, and killed all our Laurels and many other shrubs. In 1881 we had the thermometer six times below zero. The wood of our Peach trees not being well ripened, that and the following year nearly killed the whole of them. We had good crops of Peaches in 1870. The young trees, planted after the others were killed, are looking well; and if the seasons take a favourable turn, they may be good again, and so may agricultural crops. I do not now grow Apricots, the trees having been killed by the severe frosts, and the young ones that I planted shared the same fate; they are therefore given up in the meantime. I do not think anyone grows them in this neighbourhood now. [The Apricot trees at Bothwell Castle, when I was there, were the finest and most productive I ever saw.] The finest kinds of Plums have gone as much back with us as any fruit. This I attribute to the long-continued, cold, barren east winds we get in early summer. We do not now grow the fine Ribston Apples we did at one time. As you remark, this winter, up to the present date (January 23), has been very mild, but not so much so as the winters of 1845—46. On the 26th of February, 1845, vegetation was far advanced, Currants and Gooseberries breaking into leaf, Daffodils in full bloom. On the 20th March we had severe frost, and all

* "Is Our Climate Deteriorating?" An enquiry, by William Thomson, Tweed Vineyard, Galashiels. Blackwood & Sons.

early fruit was destroyed. The weather continued cold till June, when it became excessively hot. The thermometer in the shade stood at 80°, and in the sun at 118°. On July 5 we had a heavy thunderstorm and great rains, when the Clyde rose to such a height that it swept away the seats that had stood for generations on the Castle banks. Then followed the first and most severe attack of the Potato disease we have ever experienced up to the present time."

This evidence given by Mr. Turnbull seems to prove that for some time back there has been a swing of the pendulum in the direction of less genial weather. Mr. Kinghorn, of Shene Nursery, Richmond, writes: "When I came to Orleans House, Twickenham, in 1837, and for ten years afterwards, I never covered the fruit trees on the walls when in bloom, and always had good crops; but after that date I was obliged to take to covering them. Till 1847 we invariably had good crops of Figs, both on wall trees and standards, the latter bearing abundantly; Vines also bore well on the walls, and ripened their fruit nicely. In 1847 the mildew attacked them (brought about by cold and damp), and they were no longer worth the attention they required. I have observed that for the last twenty-five or thirty years, Peach, Nectarine, and Apricot trees do not make the growths they used to do, neither in stem nor branches. Certainly we have had more severe winters since I came to England than they could have had before for many years, judging from the large evergreen Oaks, Arbutus, Laurels, and Cedars that have been killed, as well as great old Banksian Roses and Myrtles—the latter, to my knowledge, 23 feet high, with great thick stems—none of which seem likely to be replaced, unless we have a change of climate for the better, of which at present there seems little prospect."

Mr. Brown, gardener at Abercairnie, near Crieff, referring to the influence of climatic change on our fruits, writes as follows: "Looking back for 35 years, it is a fact to my mind that, though we have improved much in indoor culture of fruit, we have fallen back in outdoor. I have been a visitor to the Carse of Gowrie for the last 40 years, and the Apples, as seen there now, are not worth using as compared with what they were in my young days. Here, at Abercairnie, I am gradually, even on the south walls, doing away with all fine Pears, and putting on the common hardy sorts. Ribston Apples, such as I knew in my youth, are not now to be had. I attribute this chiefly to climatic change, and partly want of attention to outdoor fruit."

Mr. Barron, superintendent of the Royal Horticultural Society's gardens at Chiswick, writes: "I do not think that our climate has deteriorated. I may not be observant enough, 'tis true, and am aware there have been a number of cold sunless seasons lately. 1883 was an exception in this quarter, being one of the mildest, the month of July excepted. The present autumn has been one of the clearest and mildest ever experienced." In a second letter, Mr. Barron writes: "I quite agree with you that we have been passing through a period remarkably unfavourable for fruit cultivation. This I attribute partly to cold wet weather in May and to cold wet autumns, which have prevented the proper maturation of the wood." Mr. Barron, however, thinks that this unfavourable weather is only temporary. Mr. Rust, Eridge Castle, Tonbridge, is disposed to think the springs more backward and ungenial than they used to be. Many others express similar opinions. Mr. Buchan (Scottish Meteorological Society) states that the mean temperatures of the months of May, June, and July for forty years, from 1840 to 1880 inclusive, show that the twenty years from 1840 to 1860 were warmer than the twenty from 1860 to 1880 by 4·02° on the three months; and supposing the same ratio to hold good over the year, it would give 16·08° on the twenty years. This is not much when divided over twenty years; still it is on the adverse side, and we have but a small margin we can afford to lose in these latitudes.

Mr. Thomson sums up as follows: "It seems to the writer that the weather has got curiously mixed of late—such a succession of severe storms of wind in Britain as no living person can remember; this, accompanied by very mild temperatures, whilst frost and snow are stopping the trains in some of the Southern States of America where snow is seldom seen; sunsets of the most gorgeous description, and earthquakes on the most gigantic scale—all pointing to some disturbance within, at least, the atmosphere of our planet. Whether this is the result of stellar influence or not some of our scientific men may be able to determine. In the meantime, the ungenial weather we have had for some years has been in a large measure the cause of the depression of the great interest of agriculture, and through it all other interests have suffered, and will suffer still more if the average temperature sinks but a degree lower than it has been of late years. The warm nights of my boyhood and early life where are they now? Do ladies wear thin muslin dresses now, as their mothers wore nearly all the summer? As hardy as a Whin bush used to be an aphorism. It can no longer be given as such, for the Whin has been killed to the surface of the snow or soil almost annually of late years." This little pamphlet is well worth attentive consideration, and its low price (4d.) puts it within the reach of everybody.

FLORA OF NORTH AMERICA.

At a meeting of the botanical section of the Academy of Natural Science of Philadelphia, held on January 14, Dr. Asa Gray spoke of the progress of the forthcoming portion of the synoptical flora of North America, and of the occasions which had led to the publication of the middle portions in advance of the earlier. It had seemed important now to secure the results of the many years of study which he had given to the large and difficult order of Compositæ, which will form the bulk of the forthcoming part. He spoke of the perplexities attendant upon the accurate definition of generic divisions in this order, and especially of properly discriminating the species of such genera as Aster and Solidago. He had no idea that he had really solved the difficulties of this kind, or that anyone would entirely solve them, but he had done his best. He could himself name the species of Solidago, and he could name a good many Asters, but he doubted whether he had enabled other botanists to name them. Being asked whether his views respecting the limitation of species had not undergone some change in the direction of admitting more species now than formerly, he admitted that this was probably the case. He still held to what might be termed the Linnean conception of species, that they were to be taken in a broad sense and expected to comprise various forms, which might or might not be classified into varieties. But whereas, in his younger days, species were thought to be independent creations, and the real differences, if we could find them, supposed to be absolute, we now look upon allied species as having descended from a common ancient stock, of which intermediate forms have died out, and therefore do not expect that allied forms, on the whole distinct and definable, should be completely unconnected by certain links or vestiges of links. Moreover, it used to be thought that hybrids were necessarily sterile, but it is now known that some hybrids are fertile, and that their offspring, fertilised by either parent, are generally fertile; that in this way intermediate forms between two species may originate; and it is clear that the two species ought not to be reduced to one on account of such intermediate forms. Dr. Gray referred to Rosa, Rubus, and Hieracium, in the Old World, as genera in which no two botanists who had studied them could agree as to what were species—one school reducing them to very few, which they can define only by disregarding certain intermediate forms, the other multiplying them by hundreds, and characterising them by distinctions which might serve for the specimens in hand, but which failed with every new collection. This necessitated either the formation of a still finer-drawn set of species, or the falling back to the broader Linnean conception of species. The latter alternative had been generally followed in this country, and Dr. Gray hoped that the coming American botanists would incline to this view in the treatment of our critical genera.

GARDEN FLORA.

PLATE 439.

TREE OR PERPETUAL CARNATIONS.*

During the last ten or fifteen years perpetual-flowering Carnations have increased immensely in popularity, the result of which is that many new varieties have been introduced, creating, so to speak, quite a revolution in this section of the Carnation family. Carnations belonging to this class are distinguished from those of the ordinary type by their more woody stems, from which flowering growths are produced in succession. This valuable characteristic must have been apparent in the early history of the plant, but owing to the early workers going too much in the same well-trodden path, it had evidently escaped their notice, or if it was observed by them, this valuable trait was not thought worthy of development. Philip Miller in his "Gardeners' Dictionary," published in 1741, divides the Carnation or Clove Gilliflowers into four classes—viz., flakes, with two colours; bizarres, which had the flowers striped or variegated with three or four different colours; Piquettes, which had white grounds spotted or pounced with scarlet, red, purple, or other colours; Painted Ladies, which had their petals red or purple on the upper side and white underneath. This last is a type of Carnation quite unknown to me. Miller further states that the Piquettes were the most esteemed, and he gives elaborate directions for their culture which have been copied by growers downwards until a very recent date. The culture of the Carnation is of the very simplest kind, and to recommend the mixing and compounding of manures for a year or two before they are wanted is simply to discourage and perplex a young beginner. When amateurs know that such choice flowers as Tree Carnations can be grown as easily as scarlet Geraniums and flowered in the small greenhouses attached to villa residences, they ought not to remain long without a selection of these choice flowers, which they can so easily cultivate for the delectation of themselves and their friends. One amateur acquaintance told me that the reason he liked to grow Carnations was that he could present a bloom occasionally to his friends; and it is pleasant to do this with the satisfying remark, "My own growing, I assure you." It is just possible that some amateurs may expect too much. It is well to aim high, but it is unreasonable to expect the produce of one corner in a small greenhouse to compare with such flowers as Mr. Turner exhibits from his large nursery at Slough, where a whole house can be devoted to Tree Carnations, and the few exhibited is merely a selection from thousands. Even a gardener in a large place has not the means to compete on equal terms with a large trade grower.

Cuttings.—These may be put in at any time, but if a choice can be made, the earliest months of the year are the best—January, February, and March. They strike very freely in January in a forcing house where the heat is not too great, say about 50°, or not more than 55° at night. The pots containing the cuttings should be plunged in a gentle bottom-heat, and over them put a pane or

* Drawn in Sir Nathaniel Rothschild's garden, Tring Park, January 18.

two of glass, which prevents too rapid evaporation. The small side growths do better than the thicker and more succulent tops; later on they may be propagated quite freely in hotbeds. As soon as the slips have formed roots they ought to be potted. If convenience exists, the young plants should be grown on in the forcing house, and let them be near the glass. After a little while they may be placed on a shelf near the glass in a greenhouse, to be gradually inured to stand in the open air by the end of May. It is of the utmost importance that the plants while under glass early in the year should be kept near the glass roof; and also that they be kept quite free from that troublesome pest to the Carnation grower, green fly. Some time ago a grower for market asked me to look at his Carnations, which were not blooming well; and it was easy to see that the weak, spindly, flowerless growths were caused by the plants standing on the ground in a lean-to house, where they were more than 6 feet from the glass. Short-jointed, sturdy growths are caused by the plants being exposed freely to light and air. The plants propagated in January will flower in September and onwards. By that time they will be strong specimens in 8-inch pots. A succession will be kept up by the later propagated stock and by the side growths from the others. From two dozens or so of perpetual-flowering Carnations a succession of flowers can be kept up all the year round. They do not flower well during the winter months unless the temperature of the house can be kept up at night to 50° or 55°. The potting soil should be the usual staple of good turfy loam, four parts of this to one of peat, and one part of rotten stable manure, with some sea or river sand. Leaf-mould may be used instead of peat. If the latter cannot be obtained when the plants are well established in 8-inch pots they will continue to flower a long time without shifting if manure water is applied about twice a week. Even when the plants are old and apparently worn out they may be planted against a wall facing south or west, where they produce good flowers at uncertain intervals.

The selection of varieties is also an important part, and for this matters of taste come in; but, as a general rule, most people prefer self-coloured flowers—white, pink, rose, scarlet, crimson, and maroon of various shades. The three varieties represented on the plate are very distinct, and should be grown in the most select collections. Andalusia has beautifully fringed, primrose-coloured flowers, and blooms very freely. Empress of Germany I have grown for ten years more, and still grow it, because it has not yet been surpassed in its colour. Mrs. Keen is a new flower, which I saw but once, as it was exhibited before the committee at South Kensington; it was greatly admired; its rich, deep, maroon-crimson colour is quite new in this section; it is in the hands of Messrs. Veitch, of Chelsea. That firm has recently made a speciality of the Carnation, and have sent out some good new varieties. Mr. Turner's list also contains a selection of new varieties. Besides Andalusia, Mrs. George Hawtrey is a fine yellow self perpetual, and of white varieties I know none to equal The Queen, raised by Dr. Abercrombie and sent out by Mr. Turner. Its satiny white flowers are large, of good substance, and excellent form. Gloire de Nancy is supposed to be perpetual, but I do not find it is to be depended upon for winter flowering. It may be forced in the spring. Juliet is a pure white, well-formed flower, and La Belle still holds a honourable position. Of pink and rose-coloured varieties Miss Jolliffe has long been popular, but the flowers are thin and lack substance. Lady Macbeth is of the same colour and of a more vigorous habit; these two are flesh-coloured. Juliette is rich deep rose, and is one of the most beautiful varieties we have ever had. Mrs. Llewelyn is much of the same colour, and is also a superb flower. Scarlet varieties are numerous and good. For colour and quality I would give the palm to Worthington Smith; Whipper-in is also very fine. Rufus, Duke of Albany, A. Alegatière, dwarf and free, and Warrior are the best of them. Brunette and The Moor are of the crimson shades. Of flowers with two shades, flaked or tinted, Enchantress is very pretty. Coomassie, Mrs. Maclaren, Sir Evelyn Wood, and Amazon should also be grown. J. Douglas.

SEASONABLE WORK.

FLOWER GARDEN.

Flowering trees and shrubs.—Notwithstanding the late frosts, these are still very floriferous, and by way of memoranda for future planting, the present is the time to decide their merits, both as to the position for which they are best suited and the colour of the blossom. The wild Cherries, the Almonds, and Laburnums are all excellent for planting as standards in large shrubberies for distant effect; and the double and single blossomed Gorse, Broom (both white and yellow flowered), Lilacs, Syringas, and Weigelas are suitable for forming groups, either alone or in combination, but Syringas and Weigelas look best when well backed up with evergreen shrubs. Horse and Spanish Chestnuts, False Acacias, and Hawthorns seem most at home perhaps when planted singly on the turf, but this is purely a matter of taste and the character of the ground formation to be planted, which obviously can only be satisfactorily decided on the spot. Be that as it may, every place having any pretensions to gardening should have a collection of flowering trees and shrubs; and now when they are in full beauty is the time to note and decide to what extent it may be desirable to use them.

Rock garden and hardy fernery. Pick off seed vessels and decayed flowers from the earlier flowering plants, and keep the whole free from weeds. Couch Grass and Spergula are at this season very troublesome, and unless destroyed betimes quickly overrun the weaker growing plants. The dwarf Phloxes, Aubrietias, Myosotis, Omphalodes, and two or three varieties of Saxifrages are now finely in flower, but, handsome as they are, they should not be allowed to encroach on others, which, like weeds, they quickly do if permitted to grow unrestrictedly. Keep the walks free from weeds, but not too dressy; Moss-grown or heathy are the most appropriate. Formal walks or edgings do not harmonise well with the surrounding irregularities of a rock garden, but where these exist keep the edgings clipped and the walks hard and clean. Ferns from which the old fronds have not yet been removed should have that attention at once, and additional soil should be given to all that need it; transplanting, too, may yet be done. When there is not sufficient to well furnish the ground, plant at long distances, and fill the intervening spaces with the common Wood Mosses, Sedums, and Stonecrops. The common wild Hyacinths, Wood Anemones, Violets, Primroses, Snowdrops, and Daffodils are all in their season most effective as undergrowths for Ferns.

General work.—Lawns should be mown and Grass verges clipped. Apart from the untidy aspect of uncut edgings, it is desirable to cut these regularly to prevent seedling Grasses making weedy walks, and the same remark applies to Grass margins or shrubbery clumps. Continue to plant out all the hardy section of bedding plants, also thin out hardy annuals sown in the open borders, and plant out those sown in warmth. Stake Sweet Peas and make another sowing. Place in sheltered positions, easy of protection, out of doors all the hardiest kinds of bedding plants, such as Pelargoniums, Ageratums, Lobelias, Verbenas, &c., which will allow of the potting on of recently struck plants of the same kinds, and also the tender sorts, such as Coleus, Amarantus, Iresines, and seedling sub-tropicals, which, to do them justice, require plenty of space and warmth.

INDOOR PLANTS.

Shrubby Clerodendrons.—Old plants of these, such as C. fallax, C. Kæmpferi, and C. fragrans, started early, will now be pushing up their flower-stems, and should have their heads kept well up to the glass near the roof ventilators, as, although they like a brisk heat and a moist atmosphere, they do best where subjected to less shade and more under the influence of a considerable amount of air for a time daily than most things. For ordinary decoration C. fallax and C. Kæmpferi are the most useful the first year of blooming after being raised from either seeds or cuttings; these, with their large, single, erect panicles of the brightest red flowers issuing from broad, massive foliage, have a telling effect interspersed amongst Caladiums and other fine-foliaged subjects. Keep the undersides of the leaves regularly syringed to preserve them from insects, especially thrips and red spider.

Thunbergia Harrisi.—Plants of this that have been blooming throughout the winter should now be cut back; they are free rooters, soon exhausting the soil. If planted out, as much of the top soil as can be got away without too great a disturbance of the roots should be removed and replaced with new material; if in pots, they ought to be partially shaken out and repotted, giving them more room. This Thunbergia does not require the warmest stove treatment, as if kept too close and hot it is apt to run over much into growth at the expense of flower, and it is not suitable for training as a specimen; it both does and looks much better when trained to the roof. Its pale lilac or mauve flowers, in form and size not unlike those of the major variety of Achimenes patens, produced freely during winter and spring, do much to embellish any house in which they may be grown, but they are not the best for cutting, as they soon flag when severed from the plant.

Aphelandras.—Large plants of the useful autumn-blooming A. cristata kept cool through the winter and started some time back should, if not already done, be now partially shaken out, replacing the old effete soil with good loam to which has been added a moderate quantity of rotten manure and sand. Large plants require large pots, or the bloom will be comparatively meagre. A moderate heat is sufficient with plenty of air and a liberal supply of water when growth has fairly started. A. elegans is a handsome free-flowering kind that needs comparatively little room, and should be found wherever stove plants are cultivated. Small plants of it should now be pushed on by giving them larger pots and encouraging free growth. Like most of the genus, it is an erect grower naturally, and can only be induced to branch out sparely by stopping, yet the points should be once at least nipped out. A. Roezli is a small-habited species, and will bloom freely in little pots. Than this few more effective plants have been introduced of late years, its brilliant orange-scarlet spikes being often produced by examples in 4-inch or 5-inch pots. It is most useful for standing on the side stages of an ordinary stove.

Shading.—Position and other local circumstances go to determine how soon in the year it becomes necessary to shade stove plants. A hip-roofed or lean-to house facing the south naturally requires the use of shade sooner than a span-roofed structure standing with its ends north and south, a position in which the bars and rafters do much to break the sun's rays when most powerful

no more shade should on any account ever be used than is absolutely necessary to prevent the foliage of the plants from being injured. Soft foliage, the result of indifferent cultivation, is much more susceptible of injury from direct exposure to the sun than that of the same plants would be if well managed. All sorts of makeshifts are often used for shading, from the colouring laid on the glass down to flour-paste and whitewash; all these are objectionable, and the further the obscuring material is from white the more is it undesirable. Where a high standard of cultivation is aimed at, nothing but blinds on rollers will suffice, the material used being no thicker than will break the sun's rays without excluding them.

PROPAGATING.

All soft-wooded subjects, such as Bouvardias, Fuchsias, and Heliotropes, kept during winter in a semi-dormant condition should now have increased heat and moisture. In repotting, remove as much of the old soil as can be done without injury, and use only pots large enough to hold the roots without inconvenience. Soil of a moderately light texture tends to encourage quick root growth. Avoid using any stimulating manure for plants that are required for propagating, as although fine-looking cuttings may be the result, they will turn black and absolutely refuse to root, that is if strong manure be used. Another point needing attention is to make the cuttings wholly of young growth; on no account leave a base or heel of old wood; indeed, where every cutting is an object the better way is, in taking them, to cut them off above the bottom joint, thereby leaving one eye of the new growth on the plant. As the base of the cutting need not be a joint, it may be cut off immediately above the bottom joint, and the bare portion of stem below the bottom leaves will serve as the part to be buried in the ground without removing any more of the foliage. Soft succulent cuttings, such as are produced in spring, should never be put firmly in the soil; on the contrary, the cutting pots must be lightly prepared, indeed so lightly that the cuttings can be stuck in without a dibber. This remark applies only to places in which they can be kept close, as if cuttings have to stand in a house and take their chance with ordinary subjects they require to be put in more firmly. Any light soil makes a good rooting medium; even pure sand or Cocoa-nut refuse may be used, but in these it is necessary to pot off the cuttings as soon as rooted. In raising Cannas from seed it is at best a risky practice to cut or file the seeds to hasten germination; if soaked in warm water for a few days the same end is attained without any fear of damaging the germ, unless the water is allowed to evaporate and leave the seeds dry just as they are starting. This may easily happen, as if placed in pans and set on hot-water pipes evaporation is very rapid. New varieties of Chrysanthemums, Phloxes, and Pentstemons obtained in the spring in the form of small plants will, if placed in gentle heat, grow away at once, when the young growths may be taken off and treated as soft-wooded cuttings. Tuberous Begonias required for stock, if started now in the same way as Dahlias are done, will yield a good many cuttings, and where seedlings are raised no time should be lost in sowing the seed. Sow in light soil thinly, and do not cover except with a pane of glass. As soon as the seed germinates the glass must be removed, and the pots or pans kept in a light, but warm position to prevent damp.

Correas.—These pretty winter flowering shrubs make effective greenhouse plants even in a small state, and their propagation is not a difficult matter. Make cuttings of the young shoots when half ripened. As a rule four leaves will be enough to leave on the cutting, so in removing it from the plant cut immediately below the third pair; then cut off these two bottom leaves, and the cutting will be ready for insertion. Choose medium or weak shoots for cuttings rather than strong ones, which are far more liable to decay. If to be placed in a small frame within the propagating house, 4-inch pots will be a convenient size, but if bell-glasses are to be used of course the pots must be chosen to suit the size of the glasses. Fill the pots to within 1½ inches or 2 inches of the rim with broken crocks, the upper layer being crushed finely to prevent the soil from being washed down through the interstices. When this is done fill them to just below the rim with soil consisting of peat and sand sifted fine and pressed down firmly, then finish off with a thin layer of pure sand. Give each pot a watering through a fine rose, and let them stand an hour or two before using them. Then insert the cuttings as thickly as possible without over-crowding, bearing in mind that cuttings which touch the sides of the pots generally root before those in the middle. When small pots are used this can be carried out, but where bell-glasses are employed the cuttings must not be brought near enough to the edge to interfere with the removal or replacing of the glasses. Put the cuttings in firmly, and when each pot is finished give a thorough watering to settle every cutting in its place. The most suitable temperature is one a few degrees higher than that in which the plants from which the cuttings have been taken have been grown—say that of an intermediate house, as if too great a change takes place in this respect the cuttings often speedily decay while a few degrees higher than they are accustomed to will hasten their rooting.

Japanese Privet and Garrya elliptica.—Cuttings of these should be taken towards the end of summer when the young shoots are about half ripened, and kept close in a cold frame till rooted. They should consist wholly of the current year's growth with just sufficient leaves removed for purposes of insertion, but no more. Get some 6-inch pots, drain them well, and fill them with sandy soil pressed down rather firmly, then insert about a dozen cuttings in each pot, give a thorough watering, and the operation is complete. In this way many of the cuttings will root during the autumn, and the others will do so very early in spring, when they may be potted or planted out, but the better plan is to pot them in small pots till established, then plant in the open ground. They may also be put in now, when they will root during the summer, but they will require keeping close and shaded till that takes place. If put in the open ground a sheltered spot should be chosen for them, and the cuttings should be made longer than for pots.

ORCHIDS.

East India house.—Owing to the cold and sunless character of the weather recently, we have scarcely required to shade the occupants of the warm house, but the shading is ready to be let down on the shortest notice. Nearly all the Orchids in this house are now forming roots and starting to grow freely. They must be aided in their development by a moist, warm atmosphere. We found it very difficult to keep up the temperature with the freezing east winds we had blowing about the middle of April. Not only had the pipes to be kept warmer than we liked, but we let down the shading and hung mats all round the house to cover the upright sashes. By doing this the temperature could be kept at 65°; without it we had to be content with 60°. It is during such trying weather that insect pests, such as yellow thrips, find a congenial home in the centre of the plants and the axils of the more recently developed leaves of Angræcums, Saccolabiums, &c., the warmer and drier night temperature exactly suiting them. Some people are ever ready to tell us that a well-managed collection of plants should not have any thrips on them. Those who are fortunate enough to have a clean house may rest and be thankful. These remarks are not intended for such; they are, however, the favoured few. It may be necessary to fumigate the house, and this is an operation requiring great care. Such plants as are injured by smoke must be removed. The house should be kept dry as well as the leaves of the plants, and any badly infested subject that is known to have a colony of thrips in the centre should have a very small pinch of dry flowers of sulphur dropped into it during the afternoon. This turns the thrips out and exposes them to the smoke. It is best to fumigate two nights in succession and again on two successive nights ten days later. We use the best tobacco paper. It is not such safe material as the best leaf tobacco, but with care an accident seldom happens. Some of the plants may be dipped in a solution of nicotine soap, used according to directions sent with it. This is a good thrip destroyer. Cleanliness at this season is of the greatest importance, as if any plants are checked in their growth by insect pests now it cripples them for the season. The same remarks apply to all the departments. Keep up the temperature to 65° as a minimum now, and if it rises to 85° with sun heat and a moist atmosphere, the plants enjoy it much.

Cattleya or Mexican house.—In this house, as well as in the warmer one, most of the Orchids are either rooting freely or just starting to do so, and under those circumstances we have had to do battle with a countless number of slugs; by night and by day the war has been waged, and with successful results. Slices of Potatoes and Carrots have attracted quantities of them not larger than a pin's head. They eat, if allowed to do so, the tips of the growing roots of Cattleyas, Lælias, and Vandas, and considerably check their growth. We notice that the plants of Vanda cœrulea growing in the lightest and coolest part of the house are rooting freely and starting into growth. A traveller told us some time ago that he had frequently seen the frost on the leaves of this plant as it grew upon the trees in India, and as it is usually found on the top of isolated trees well exposed to the light and air, some idea may be formed of the treatment most suitable to it. Cattleya labata is not often seen in first-rate flowering condition. It may be that some varieties of it are more free in producing flowering sheaths than others, but at the best it is a shy-flowering species. Masses of young roots are now pushing out freely, and the plants seem to both grow and flower best when the roots grow outside of the pots. The evergreen Calanthes are most useful and free-flowering Orchids. The spikes of flowers are developing freely, and if there is any trace of green fly upon them it should be destroyed by fumigation. We could not smoke the house, but the Calanthes were removed to another house requiring fumigation, and the fly destroyed. C. veratrifolia, with its pure white flowers, is the most desirable species to grow; it is easy of culture and plants of it are not expensive. C. Domingiana is also a charming plant, but it is necessary to obtain a healthy example to start with, for it is not easy to work an unhealthy plant into a good growing condition. The same may be said of C. Masuca, also a distinct and good free-flowering Orchid. They require a plentiful supply of water. Angulloas are now growing well, and the flowers are developing with the young growths; they also require plenty of water. Odontoglossum citrosmum is also pushing out its flower-spikes with the young growths. The spikes, if not tied up, hang over the sides of the pots and get injured. Indeed, this is a time of the year in which all classes of Orchids require the careful hand of the gardener; he must be wakeful and watchful.

Cool house.—As the house is on the north side of a rather high wall, it has not required much shading as yet, but the sun gets round on it soon after noon, and sudden bursts of sunshine have to be guarded against. The cool Orchids are usually rather overshaded; but this can very easily be overdone, and we do not advise shading except to prevent the leaves being injured. The aim of the cultivator now is to expose the plants to light, air, and sunshine so far as they are not injured. A close, damp, and over-shaded house will produce enfeebled plants, that often become a prey to insect pests. A good grower remarked to us the other day that if the plants were kept in a healthy condition, by the right cultural requirements being adhered to, thrips and other insect pests disappeared. All the potting should be done before this time, and there is nothing to be done but to water the plants, and to see that they

are clean; an over-damp atmosphere at night causes the flowers to damp off. What useful plants for the cool house are the Masdevallias! The new hybrid M. Chelsoni is now in flower with us, and a most beautiful and distinct plant it is The flowers are as large as the ordinary forms of M. Veitchi, and much darker in colour. Masdevallias are numerous enough, many species not being worth the trouble of growing. For a small collection we would recommend Chelsoni, Harryana, Veitchi, Lindeni, ignea, and tovarensis. Odontoglossum Edwardi has come to the front recently as a distinct and good species. It flowers during the winter and early spring months, on which account it is very useful; it is so distinct either for use as cut flowers or as a variety in the collection. Some plants we have but recently imported are breaking very freely. The more recently formed pseudo-bulbs seem to die off and the growths start from back bulbs. They are in no hurry to form roots, but the plants are potted in clean drainage, and as soon as roots are formed, some of the usual potting material will be packed round the bulbs for the roots to run into. The minimum temperature here may be about 50°, admitting air in the morning at the top of the house when the glass rises above this.

FRUIT.

VINES.—Take advantage of every ray of sunshine in the management of late houses by closing about 3.30 with moisture, when the fire-heat may be kept shut off until the temperature falls to within 5° of the night heat, which need not exceed 60° for the present. If inside borders are well drained they may be copiously watered without fear of injury; indeed, a large percentage of inside borders never get half enough water; the roots go out in search of that which is denied to them at home, and many people imagine it is the position of the border and not their own bad treatment which drives them downwards and outwards, often into deep subsoils too crude and cold for anything less hardy than a common Oak. Another mistake which many people make is the giving their late Vines too much root room, particularly in low damp situations were everything but the moisture-laden atmosphere is unfavourable to good Grape growing. In such situations we have always found that internal borders 6 feet wide, and external borders 9 feet wide, will give a maximum of good Grapes at a minimum of cost, simply because they are full of active roots which can be fed without watering half the garden, and being warm the Grapes invariably set, swell, and colour well. Another advantage is the alternate system of taking out and renovating the borders with new soil without having to sacrifice a crop, when too much vigour is unfavourable to the proper ripening of the wood, and as the latter means unripe Grapes, growers of late kinds who complained so much last winter will do well to look to their borders, and if they are wide, deep, rich, and cold, steel forks must be brought into use before they will again be successful in the Grape room.

Early houses in which the Grapes are ripening may have more air on fine days, but draughts must be avoided, and if the inside borders are sufficiently moist the usual damping down may be continued, as spring Grapes require more moisture than can be given to late ones. Let laterals grow without a check if they seem inclined to start, and keep a sharp eye on the old foliage, as spider is almost sure to be present, and injury to the primary leaves at this early season is very often the cause of early Vines breaking prematurely in the autumn, and covering their unfortunate owners with glory by ripening up new Grapes in January. With many the usual remedy for spider is flowers of sulphur, but, independently of the fact that Frontignans and other thin-skinned kinds are often rusted and ruined by its use, timely sponging of the upper and undersides of the leaves with soapy water is undoubtedly the most effectual, as it is the most economical mode of dealing with this troublesome pest. Another troublesome marauder is red spider, as it thoroughly enjoys the dry warmth and security which it finds on a bunch of Grapes, but it must be destroyed, otherwise the delicate bloom will be disturbed before it is properly set.

PEACHES AND NECTARINES.—Assuming that the final thinning of the fruit in the early house has been brought to a close, and the shoots have been properly regulated, give every Peach the full benefit of sun and light by elevating it above the foliage and pinch the points out of the strongest growths where their vigour is likely to detract from the size of the fruit when ripe. Feed well with warm liquid and syringe freely with soft water twice a day until the fruit begins to ripen the first time before the ventilators are opened, and again after they are closed, when with sun heat the temperature may run up to 75°, and gradually descend to 60° for the night when mild, and 56° when cold, and sharp firing is needed to admit of a little front air. Ply the syringe well in succession houses in which the fruit is stoning, mulch the borders with good rotten manure to keep in surface moisture, and feed with warm diluted liquid at every watering, or guano water where the growths are weak and the foliage is deficient in size and substance. Open the ventilators early on fine mornings, and increase the air as the temperature rises to 70°, reduce in a similar way, and close about 4 p.m. with a good syringing. Continue to disbud the shoots and thin the fruit in late succession houses, leaving a small percentage to be taken off at the final thinning. Heel in the young growths as they advance, lay in no more wood than is actually required for the production of the next year's crop of fruit. Fumigate on the first appearance of green fly, and encourage a short-jointed, vigorous growth by the free admission of air and timely closing to save fire heat.

PINES.—Early started Queens now swelling freely may be kept at a temperature of 70° by night and 80° through the day, with a rise of 10° more after shutting up with sun-heat and moisture. With increased light and sunshine the syringe may be used more freely, care being taken that an excess of moisture does not accumulate in the axils of the leaves, and so produce a crop of troublesome suckers. The plants will now require carefol attention in the way of feeding as often as water can be given to the roots. As a rule, Pine plants receive more water than is good for them, particularly where they are loosely potted in large pots, and bottom-heat is obtained from fermenting materials only. Where fire-heat is used there is less danger, but in all cases a moderately moist growing state of the soil should be the aim. Good diluted liquid from the tank is not easily surpassed for general watering, and it is rendered more valuable when used alternately with soot or guano water. All stimulants should be weak rather than strong, perfectly clear, and a few degrees warmer than the house when used.

SUCCESSIONS.—If, owing to the severity of the past spring, the general stock of summer fruiters show a greater inclination to grow than throw up fruit, increase the temperature, reduce atmospheric moisture, and keep them moderately supplied with water for a time. The majority of the plants will make a growth before they fruit, and unless there is likely to be a scarcity of ripe Pines at any particular time, it is best to let well-ripened plants take the usual course. Look over the earliest potted stock now rooting freely. Give more light and air. Keep the atmosphere moist, and syringe overhead after closing on bright days.

STRAWBERRIES.—If possible, remove all pot plants from houses in which Peaches, Grapes, or other subjects liable to be permanently injured by red spider are growing. Good pits heated with hot water, in which the plants can have full exposure to light, answer best. Syringe copiously twice a day at all times when not in flower. Feed well with good liquid until the fruit begins to colour, when clear water will be most suitable, and remove to an airy, temperate house a few days before wanted for use. The finest late kinds will now be well advanced, and as these will, under judicious management, lead up to early crops in the open air, insure quality by thinning off the weak blossoms before they open. A good batch of President, Paxton, or other favourite kind plunged in a cold pit, where the lights can be thrown off on fine days, will give pounds of fruit at a most acceptable time where December-started plants give ounces.

MELONS.—Having removed all surplus fruit from the early pot Melons, support those left on small pieces of board suspended from the trellis. Top-dress with strong loam and rotten manure, and water freely with warm liquid or guano water. Carefully preserve all old leaves from the base upwards. Syringe copiously after closing for the day, and run up to 90° with sun-heat. Plants growing on hills train regularly, stop when the vines have covered two-thirds of the trellis, and impregnate all female flowers as they open. Aim at a bottom-heat of 80°, and keep the roots on the dry side until the fruits begin to swell, when more moisture and additional top-dressing may be given.

PITS AND FRAMES.—Plants in pits and frames will require constant care and attention to linings and covering, otherwise they will receive a check and become a prey to insects. Keep the young Vines and foliage thin, and remove all male and female blossoms until sufficient for a full "set" has been secured. Impregnate on fine days, and allow the surface of the bed to become dry during the process. Collect all waste material from Sea-kale beds, add a little fresh manure, and when in a fermenting state renovate beds from which Carrots and Potatoes have been removed. Form the hills at once, have strong, healthy plants ready, and turn them out as soon as the soil becomes warm. Make frequent sowings for future use, and throw away pot-bound plants before they become infested with spider.

ORCHARD HOUSE.—The fruit in the forcing house will now be stoning and apparently at a stand, as there will be but little outward difference for five or six weeks; but when this trying process is complete the change will be rapid, and more heat may be given if absolutely necessary. If time is not an object, a temperature ranging from 55° to 58° at night, and 65° to 68° by day—with, of course, a few more degrees after closing—with sun will give the finest Peaches without distressing the trees. Guard against over-cropping as a very serious evil, always leaving the finest and best-placed fruit to ripen. Stop all strong growths to increase the size, and remove laterals to let in light and air. If the house is quite closed at night it should be well syringed and opened about seven in the morning, gradually reduced after two o'clock, and finally shut about half-past three, with another good syringing. A plentiful supply of moisture will now be needed, but an excess, particularly by night or with a low temperature, will soon destroy the flavour of the fruit. The water used for syringing should be free from lime, and the liquid given to the roots clear, generous, and a few degrees warmer than the mean of the house.

SUCCESSIONS.—As soon as the fruit is safe syringe twice a day when fine, and see that the roots are regularly supplied with water. Disbud and shorten back to a good shoot above the requisite number of fruit, and pinch the points out of strong growths before they have time to derange the balance of the sap. Give Cherries, Plums, and Pears the most airy part of the house. Syringe well, ventilate freely, and fumigate with Tobacco paper on the first appearance of green fly. Strawberries on shelves will take an abundance of water to prevent the balls from shrinking away from the sides of the pots. Avoid the use of saucers, syringe copiously, thin the fruit when set, and feed with good liquid manure. Keep a sharp look-out for grubs, which may be expected to appear on Plums and Cherries, and hand-pick before they have time to perforate the fruit.

HARDY FRUITS.—The most important work in this department will have been for some time the protection of blossoms and embryo fruit from frost by the application of the most available kind of shelter. In early gardens safe from frost

young growths may have felt the effects of the scathing east winds if they are not already well stocked with red spider. Where this is the case timely attention to the preparation and application of insecticides is of importance, but it must be borne in mind that at this early season weak applications can only be applied with safety. For general use the old-fashioned wash of soft soap, sulphur, and tobacco water is not to be despised, as it is safe, easily applied, and within the reach of all. Look well to newly planted and root-pruned trees. It is not necessary to saturate the ground with cold water, but a good moist mulching and an occasional dash with the syringe will help them through this trying spring. Look over old Strawberry beds, remove troublesome weeds, which often get established in the stools, and at the same time work in the winter mulching as a protection and stimulant to the young surface roots now starting into growth. New beds may now be made where plants have been kept for that purpose. Make them deep, rich, and solid, use fresh virgin loam for planting with, mulch and water.

Cucumbers.—As few plants give a better return than the Cucumber, it is too often the practice to allow the plants to exhaust themselves, and so become a prey to insects at a time when good fruit for private use is of the greatest value. Where old plants can be dispensed with, a heavy flush may be taken prior to taking them away; but if it is necessary to retain them, light cropping is of the greatest importance. Established plants will now take more water at the root, heavier syringing, and the compost used for top-dressing may be heavier than that used through the winter; keep the foliage thin and clear of insects by the application of the usual remedies, and lower the trellis a few inches to prevent it from touching the glass now growth is becoming luxuriant. Ventilate without producing a draught, close at 80° to 85°, run up to 95°, and avoid shading. Continue treatment recommended for frames, renovate linings alternately, cover with dry mats, earth up with rich turfy loam, and keep the young growths thin and free from insects by good cultivation and the maintenance of a steady heat. Make a good sowing of Smith's Frame for planting after forced vegetables. Prepare beds for ridge kinds and plant under cap glasses.

KITCHEN GARDEN.

Brussels Sprouts should now in most places be ready for pricking out. Get a load or two of old Mushroom manure, spread it on the surface of any out-of-the-way corner (1 inch deep is ample), and finish off with another inch deep of fine soil. Burnt refuse is the best of all mixtures for young plants, say four barrow-loads of soil to one of refuse; on this prick out the young plants 4 inches apart, and when planting out finally force the spade under the bottom of the bed, and each plant will come up with a ball. Set your line across the site to be planted, and take out one side spit, and at every 3 feet apart lay in your plant, pressing the soil firmly round it. Nothing more is needed except keeping the ground free from weeds. Spring Broccoli should now be sown in most parts of the country. We sow in drills 1 foot apart, and plant out the plants from the seed beds to their permanent quarters, the site being that occupied by early Potatoes. When the Potatoes are all lifted we give the land a rough rake over with an implement called the agitator, set the line across the site, and make the holes with a crowbar; one man drops in the plants while another fills the holes with water. The work of planting is then complete. Of all winter Broccoli we have ever seen we pronounce Snow's (when true) to be the very best. The first to make its appearance with us this season is one sent for trial called Hosking's Broccoli, a most useful addition, growing compact and dwarf, followed by those two really fine varieties Leamington and Watts', both too well known to require further remark. For the latest we find Burghley Champion and Cattell's Eclipse to be the very best. We have the two latter now coming into use. Keep plenty of Lettuces tied up for blanching. Black-seeded hardy Cos is the thing to grow for the winter. In these Lettuces one finds something crisp and good, but French Cos Lettuces grown under cloches are soft, like tissue paper compared with brown paper as regards thickness and substance of leaf. They are really handsome Lettuces, but never did the old proverb, "Beauty is but skin deep," apply better than in the case of these French Lettuces.

INDOOR GARDEN.

EURYA LATIFOLIA VARIEGATA.

Though nearly or quite hardy in some parts of England, this variegated shrub, as a rule, is seen to best advantage under glass, the colour of the foliage being in that case purer than when exposed to keen, biting winds in early spring. It is a plant well adapted for indoor decoration, as it can be used in halls, corridors, and in similar places where more tender subjects would suffer, and it can easily be cleansed from dust, which invariably settles on plants thus employed. The variegation is well defined, and if kept under glass, but exposed to the sun, the young leaves become strongly suffused with a pinkish tinge, which adds greatly to their beauty. The foliage also looks well under artificial light. In addition to its effectiveness in the shape of good-sized bushes for positions such as those indicated, this shrub is also very useful in 5-inch or 6-inch pots for windows or for mixing with flowering plants in the greenhouse or conservatory. It may be kept in a room for years, provided it gets a certain amount of sun; indeed, if washed occasionally, this Eurya can be kept indoors as long as the popular Ficus elastica. Though known for many years, it has never become very common, but it seems to be now attracting more attention than hitherto, judging by the numbers met with in some nurseries, notably at Coombe Wood, where there is a large house devoted entirely to fine healthy little bushes of it in 5-inch pots. Being very brightly coloured, they meet with a ready sale. The reason why this plant is not more common than it is, is doubtless owing to the fact that it does not strike root very readily, but still, with a little care and attention, its propagation is by no means difficult. The best cuttings are those made of young shoots taken when they have nearly reached their mature state, but before they get as hard and woody as the older growth. They should be dibbled firmly in well-drained pots of sandy soil and after a good watering placed in a close frame. As they take a considerable time to strike, a good practice is in the first place to put them in a cold frame till callused, and after that a little heat will greatly assist the formation of roots. If taken from plants under glass, the young growth will be of sufficient firmness by the beginning of summer, when a couple of months in a cold frame will suffice to callus them; then if placed in a little heat after that time, they will become well rooted before winter, and if then potted off they gain a start on those put in later in the season. Satisfactory results are also obtained by cuttings put in in summer and kept in a close frame till spring, when a little heat will cause them to root. The usual routine of shading and other attention must of course be accorded them, and special care must be taken if kept in heat for any length of time to guard against the attacks of thrips, which are apt to disfigure the leaves. A great point to be observed is to put in the cuttings as soon as possible after separation from the parent plant, as if allowed to flag, even to a small extent, rooting is thereby retarded. T.

Crassula jasminea.—This plant seems to have become popular within the last two or three years, and, judging by its effective appearance at the present time, it is likely to be still more extensively grown. It is a dwarf, dense-growing plant with erect stems, each of which is terminated by a cluster of white tube-shaped flowers somewhat resembling those of a Bouvardia. These blooms are very valuable for use in a cut state, especially in the smaller kinds of bouquets, such as button-holes, for which their somewhat fleshy character eminently befits them, remaining as they do a considerable time without any signs of fading. The plant is so floriferous that a few potfuls of it will yield a considerable number of cut blooms, but besides that when grown in 5-inch or 6-inch pots they form attractive little masses, very suitable as an edging to groups, or indeed for many other purposes. So floriferous is this plant, that when in good condition and viewed from above, the flowers alone are visible, being produced in sufficient numbers to completely hide the foliage. Its propagation and culture are of the easiest kind; cuttings of the young shoots root readily if put in well drained pots of sandy soil without even the protection of a close frame or bell-glass. In potting, good open loam with a liberal admixture of sand forms a suitable compost, and during summer the plants may be set out of doors on a bed of ashes, or if the weather is very wet the protection of a frame should be afforded them. During winter a light shelf in the greenhouse is the best place for them, and during that time care must be especially taken not to over-water them, as, like most succulent plants, they are at that season rather susceptible of damp.—H. P.

DECORATIVE PALMS.

To cultivators whose knowledge of Palms is limited to an experience with them when small and ser-

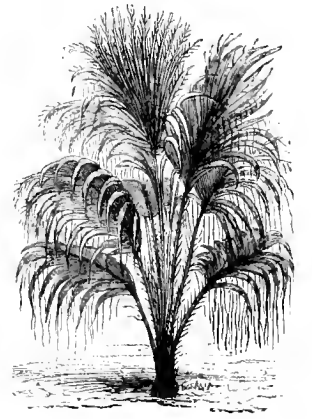
Livistona Hoogendorpi.

viceable for pot-work, it may be interesting to learn that almost the whole of the plants which belong to the great Palm order are, when fully developed, quite tree-like in their proportions, and not a few of them are even worthy of comparison with the Mammoth Pines of the forests of North America. It is the assumption of a graceful ornamental habit almost as soon as they are developed from the seed, and their continuance in such habit until they are of mature growth, that has led to the popularity of a large number of Palms in all the work appertaining to the decorator and the plantsman's art. Palms, either fan-leaved, or plumose, or feather-like, always occupy one of the principal positions in the decoration of rooms, dinner-tables, halls, and at all festivities, and amongst the mixed collections of stove and greenhouse plants they figure largely and always with striking effect. Recently even the theatres have begun to add to their attractions a selection of graceful Palms, which, placed about the auditorium, or upon the stage itself, lend an air of grace and refinement to the surroundings. We are as yet only in the beginning of art of this kind. In Continental towns it is rarely indeed that one enters a place of public entertainment, a café, or a restaurant, and fails to find a free sprinkling of graceful foliage and flowering plants, adding

light and beauty such as plants only do add to such places. Palms, of course, figure prominently in all work of this kind, a fact which to a large extent accounts for the great popularity of the Palm order with our own Continental brethren and the enormous numbers of them grown for purposes of decoration.

Calamus Lindeni.

It is surprising to an English gardener to note the numberless kinds that are employed in France, Belgium, and Germany for the embellishment of halls, &c., many of them, too, such as he has been carefully coddling, from the impression that they were delicate and incapable of standing anything but good treatment. By a system of gradual hardening off so as to inure the plants to the rough life they are destined for, a large number of Palms are made serviceable for the decorator's use in foreign towns, and it appears to us that a great deal more might be done by cultivators here in providing more variety of foliage for uses of a similar kind. Palms, from their robust, bony nature, are especially adapted for this kind of work. The three species represented by the accompanying woodcuts may be instanced as possessing both in appearance and sturdiness of constitution the requirements essential in a useful furnishing plant. Of the first, Livistona Hoogendorpi, it may be said that, like its relations, L. chinensis (Latania borbonica) and L. rotundifolia, it may be used with impunity for furnishing of all kinds. Dwarfer in



Washingtonia filifera.

stature, with leaf-stalks covered with stout brown spines, and the leaf-blade divided almost from its base into a number of arching segments, it is quite distinct from the two other species here mentioned. Washingtonia filifera (Pritchardia filamentosa) might be called the Weeping Willow Palm, the long silky filaments that hang in such profusion from its graceful fan leaves giving it an appearance not unlike that tree. It is almost hardy, being a native of the Southern States of North America, but happiest when grown in a warm greenhouse, and, if a large specimen is desired, when planted in a border. Being a quick grower, it soon develops into a useful size. The third plant is Calamus Lindeni of gardens, though whether a Calamus or an Oncosperma, it is not yet possible to say. M. Linden introduced it from the East Indies a year or two ago. The leaves are bright green above and silvery on the underside. There is a host of Calami of habit similar to this, and although they are all natives of tropical regions, they may be so managed in this country as to prove available for decorative work. The Kentias, Seaforthias, Chamærops, Phœnixes, Hyophorbes, and many other genera comprise plants that prove of great value for a similar purpose. B.

OUVIRANDRAS, OR LATTICE PLANTS.

Amongst the most singular of all vegetable productions are the Lattice Plants. They are aquatics whose leaves float near the top of the water in which they grow, but not quite on the surface. The water should not be very deep, for the plants are not large growers, the leaves of a healthy, well-grown specimen not often attaining a length of more than 12 inches or 15 inches, and borne on foot-stalks not nearly so long as the leaf-blade. Coming as they do from Madagascar, a country proverbial for its high temperature, it necessarily follows that under cultivation Lattice Plants must be continuously in water, kept at something approaching a uniform temperature. Another matter of importance is that the water should be clean and without sediment, otherwise the deposit left on the leaves would not only spoil their appearance, but also cause them to decay prematurely.

Propagation.—These Ouvirandras can be increased by division of the crowns, but I much prefer seedlings, which are produced freely from self-sown seeds wherever the plants are grown well and have sufficient room. They can, however, be induced to grow freely in a moderate space, such as a tub 3 feet or so in diameter and 2 feet deep. In the bottom of this should be put a mound of loam about 6 inches or 8 inches deep and a foot in diameter; in this the young plant should be placed, just pressing the soil around it, and leaving the surface of the mound quite smooth; then fill up with water at a temperature of 80°, introducing it very gently, so as not to displace the soil. The vessel thus furnished should be set over or as close as possible to the hot-water pipes, so that the water in which the plant is immersed may be kept at an even temperature; this is best secured by growing it in something that will hold a considerable body of water, such as a slate or lead cistern about 3 feet square; in that case the plant can be put in a pot, and the pot placed on another inverted in the tank; in this way the leaves will not be deeper in the water than they like. Some fresh water at a temperature of 80° should be added three or four times a week, so as to cause a moderate portion to run over; in this way the water will be regularly renewed, and by that means kept in a fresh, clear condition.

Changing the water.—Little further is required, except that if the water, notwithstanding the precaution suggested, happens to get foul, it should be completely changed, and the leaves very carefully sponged, so as to remove all slimy matter from them. Lattice plants, however, rarely do well if the water cannot be kept clean without entire renewal. I have spoken of Ouvirandras as requiring the water being kept in a continuously warm state. This cannot well be done unless in a house in which a high temperature is maintained, and without such is at command it is of little use attempting their cultivation. Where the plants have plenty of room they grow to a large size, forming a number of crowns with some dozens of leaves, in which case they usually flower, and the seeds vegetate readily. There are two kinds, O. Berneriana and O. fenestralis; the leaves of O. Berneriana are blunter than those of O. fenestralis, and the former is by some thought to be the best grower. T. Baines.

MARICAS.

"F. W. B.'s" truthful drawing of the flower (p. 313) of one of these pretty tropical Flags conveys a much better idea of their beauty than the best description could do alone. During the past winter, and even now, there has been a number of them in flower in several of the tropical houses at Kew, more especially in the Palm house, where M. gracilis is represented by a number of large pot-fuls that have been gay with flowers for several months. In the same house plants of both M. Northiana and M. cœrulea have borne several good spikes of bloom this spring, and as Mr. Baker vouches for the correctness of their several names, they may stand for the purpose of setting right those who have their plants of this genus incorrectly named. Of the nine species included by Mr. Baker in the genus Marica, only three are known to be good garden plants, although a fourth, viz, M. Sabini, might perhaps claim to be included were it not that, so far as I can make out, it is not very easily distinguished from M. cœrulea. Of these three the most useful is M. gracilis, which "F. W. B." has called M. cœrulea. The colour of its flowers alone is sufficient to distinguish it from the others, but even when out of flower it may be recognised by its viviparous flower-scapes, a character unknown in the two following species. The figure in the *Botanical Magazine*, tab. 3713, represents a very emaciated specimen of this plant, the flowers being much smaller and less graceful than those seen on plants now-a-days.

M. cœrulea is the tallest growing species known, well-grown plants of it producing erect sword-shaped foliage 4 feet or 5 feet in height. In habit it is much less tufted than M. gracilis, the foliage being arranged so as to form a flat, fan-like plant. The flower-scape is about 3 feet long, flat like the leaves, and bears near its apex a stalked spathe, which pushes out at right angles with the scape, and bears from four to six large blue flowers, which, both in size and shape, resemble those of some of the Tiger Lilies. It is a very fine plant, and if it could only be induced to flower as profusely as the commoner species, its value as a spring flowering stove plant would be great. The plant at Kew bore two fine heads of bloom about a month ago, which, during the time they lasted, were very much admired.

M. Northiana has flowers the colour of which is similar to that of M gracilis, except that, instead of the segments being almost wholly chocolate-brown near the base, they are thickly spotted with the same colour. In size they are almost as large again as those of M. gracilis, whilst in the form of the flower-scape and spathe this species approaches M. cœrulea. The foliage is about 2 feet long and some 2 inches in width, and disposed similar to that of the last mentioned. The introduction of this species dates back almost a hundred years, Lady North, the wife of the then Bishop of Winchester, having introduced it from the gardens of the Queen of Portugal in 1789. Some years ago a species called M. grandis was sent out by a Continental nurseryman, and which, so far as I know, has not flowered in this country. In habit and leaf characters it appears to be identical with M. Northiana. It is in good condition in the Palm house at Kew. W.

New variegated-leaved Banana.—A finely variegated form of the handsome Musa Ensete is described in the last issue of the *Revue Horticole* as having been raised among a lot of other seedlings by M. Armand Guingand, a gardener at Croissy, from seed sown by him in January of this year. The raiser describes his plant as improving in distinctness and brilliancy of marking as each new leaf develops itself, and as being of an apparently vigorous constitution. He also says that the seed which produced this variegation germinated four clear days before any of the others sown on the same day. Should this varie-

gation prove constant, as there is every reason for hoping it will do, it should be a welcome addition to all collections of ornamental foliage plants, and a fitting companion to the variegated Ficus elastica and other ornamental inmates of our stoves and warm plant houses.—W. E. G.

Agathæa cœlestis.—I find that a few little bushes of this yield an almost continuous supply of cut blooms the whole year round. It is a plant of the easiest possible culture, doing well under liberal greenhouse treatment. The blooms resemble those of the Paris Daisies (Marguerites); indeed, they are sometimes called Blue Marguerites. Their usefulness in a cut state is increased by their long, stiff stalks, which enable the blooms to be used in different arrangements without wiring of any kind. With a little more heat than that of an ordinary greenhouse this Agathæa will flower throughout the winter, the best results in this respect being obtained by growing the plants on liberally out of doors in summer and pinching off the blooms as they appear, so that the plants may be bristling with flower buds by the autumn, and when moved under cover will commence to flower at once and continue throughout the winter.—H. P.

NOTES AND COMMENTS.

New books on gardening.—It is rather singular that two works on general gardening should be published at the present time, and that the plea of one of them (*Popular Gardening*), as put forth in the prospectus, should be that "existing treatises are to a great extent out of date," considering that the "best book on general horticulture in the English language" is barely more than revised and re-issued, while other excellent standard and special works are younger still. The encyclopædia form of publication, though old, is still popular, is adapted to all branches of knowledge, and has seen its amplest development during the present generation; but a complete work of the kind on horticulture has not hitherto been attempted. *The Dictionary of Gardening* promises to go some way in this respect. *Popular Gardening* (Cassell's) is a work of another kind, and will be received, we imagine, with a mixed degree of approbation and disappointment, considering that it professes to supersede all other works of the kind. The first number, we presume, is a good example of what the others will be, and it does not come up to one's idea of a standard garden work either in the plan or the matter of it. It is, in short, neither more nor less than a monthly periodical of gardening, not differing from others, except in the fact that it is written by a few individuals, and that whatever they may write, and whether right or wrong, cannot be controverted. The matter will go forth as gospel, and, as will be seen, some of it is far from that. The editor does not collate his matter in the same way as Loudon or Thompson and others have done, and from all sources, but adopts the much less troublesome plan of allowing each member of the staff to give his own version, and views, and crotchets; hence the experience recorded is that of a few practitioners only working necessarily under special and restricted conditions of practice—that is to say, each subject, be it vegetables, fruits, or flowers, is not treated from a general point of view, embracing all that is known of it, but is treated from the particular point of view of one individual, a most objectionable feature in a professedly standard work. Consequently, and as might be expected, the articles are of very unequal merit.

The contents are promiscuously arranged—Pots and Potting, Florists' Flowers, Life History of Plants, Ferns, Herbs, &c., coming one after the other without any order. An excellent beginning on the Life History of Plants, the best article in the number, and commencing at the beginning of plant life and growth, should have been at the front, but the first chapter opens on flower-pots, and the first sentence declares that the whole fabric of horticulture rests upon flower-pots. "Suppose the supply of garden pots withdrawn," says the editor, "horticulture would not merely stand still, but speedily relapse into a state of chaos and retrogression." Physiologists and gardeners have described flower-pots as a "necessary evil," and except for bedding plants and plants for the table the tendency of late has been to get rid of pots whenever possible, but then *Popular Gardening*, we must remember, begins a fresh date in horticulture. This is not all. The whole of the horticultural papers have testified to the utility of and excellence of glazed flower-pots, but the editor of *Popular Gardening* informs us that practitioners shun them as they would shun the plague! I give these examples as likely to be of service to readers regarding a work from which they are asked to expect so much. There is, of course, much that is excellent in the number, but nothing that is new except as regards pots! The plan and the arrangement of the kitchen garden which are likely to be very different in the future from the past, are the same as were popular a hundred years ago, and very similar to the plan in London's *Encyclopædia* of sixty years ago, the sides of the quarters being thickly occupied with fruit trees. In short, *Popular Gardening* will be as much out of date after the last number is published as the back number of any other periodical! So far it does not promise to approach the *Gardeners' Assistant's* last edition for general usefulness, impartiality, and reliability. One grave fault of the book is the poor discretion shown in the treatment of the different subjects. For example, fifteen columns from the editor are devoted to flower-pots, much of it extremely frivolous, and little more than two columns to the culture of an important subject like Asparagus, and containing only the baldest particulars and no recent experience. Five columns are also devoted to the common Daisy, and if the same rule is to be observed to the end, goodness knows when the book will end on "common hardy flowers." It is interesting to note here that the judicious Robert Thompson in his *Assistant* devotes about fifteen columns of greater length to Asparagus—quoting all worthy authorities of the time—and dismisses flower-pots in two columns, leaving nothing unsaid. Readers will, therefore, understand the kind of wilderness they have to sojourn in till *Popular Gardening* is completed.

Permanently shaded and unventilated plant stoves.—A note in THE GARDEN a few weeks back on the bad effects of lath shadings stated that those who desired well-cultivated plants only wanted a sight of these shadings to condemn them. When I read this it occurred to me that we sometimes over-estimated the effects of shading, and a case in point occurred to me, the particulars and whereabouts of which I have no objection to furnish. For the last twenty years I have been familiar with a plant stove about 100 feet long and 15 feet high or more at the back, glazed with small panes puttied at the laps, that has never had any ventilation, there being no openings of any kind at the sides, top, or ends to admit air, and hence, in order to keep down the temperature in summer, the roof has been thickly smeared over with a green or bluish kind of paint from April till about October; yet in this house many kinds of Ferns, Palms, and other plants have grown for years, and it is well filled at the present moment with a miscellaneous collection of plants requiring a stove or intermediate temperature, and their health and size would surprise any gardener.

Apple trees in pleasure grounds.—A correspondent suggests planting Apple trees in pleasure grounds for the sake of their ornamental appearance when in flower, and asks what sorts are best for the purpose, to which the reply might be that there are none better than the common Crab, which, as a rule, annually covers itself with blossoms as no cultivated variety of the Apple does, but all the free-bearing Apples are also free and showy bloomers, and the Lord Suffield and Hawthornden may be named as examples. To form a bush or a small tree the Pyrus Malus floribunda, however, beats all the Apples. Its flowers are small, but produced in profusion, and we know no variety of the Apple or Crab to equal it in an ornamental aspect as a deciduous flowering shrub.

Pruning, or no pruning.—Mr. Edward Luckhurst, who up till lately has if anything in his writings favoured and practised the restrictive system of training fruit trees, thus records, in a contemporary, his recent experience of extension: "A pyramidal Zephirin Grégoire Pear tree bearing very little fruit and making excessive lateral growth, had the whole of the top branches left unpruned, the pruning of the lower branches being continued regularly, with the singular result of little wood growth in the unpruned branches, which soon became crowded with clusters of fruit buds, while the lower branches became even more vigorous, and remained barren of fruit. As an application of this lesson, the tops of several lofty pyramids both of Pears and Apples in full bearing were left unpruned, with the satisfactory result of a short growth well set with fruit buds, the lower pruned parts also continued perfectly fruitful." "Of losses under hard pruning," says Mr. Luckhurst, "I may mention Morello and Kentish Cherries, a tree or two of the first dying occasionally under it in any soil; of the last, all the trees which I have had in a thin soil failed, but others left entirely unpruned continue healthy and fruitful. A row containing a dozen different sorts of Cherries well illustrates the effects of pruning and non-pruning. The trees were planted thirteen years ago, and were kept carefully pruned and trained; in due course they came into fruiting, the yield being abundant and fine, and the trees were then as handsome, healthy, symmetrical pyramids as could be desired. But the promise of successional full crops of fruit was not fulfilled; the spurs soon gave signs of incipient decay, and the trees were gradually changing into a sickly, barren condition. Close pruning was the apparent cause, and it was discontinued; with a free unchecked growth health returned to the trees." Records like the above from a practical source are extremely valuable, and we need not be too particular to enquire whether Mr. Luckhurst learned the advantages of extension first from THE GARDEN, as circumstances seem to warrant one in believing, or, as he professes and says, in the form of "a hint from Nature," which he now with great generosity imparts to the public. It is satisfactory that the adoption of "extension," for the name appears to have been excluded in the "hint," has enabled him to retrieve his losses after many years' restriction of even Cherry trees, which are the last species one would think of pinching and pruning, more especially if they lived under the shadow of the Cherry orchards of the south, where every tree whether old or young is a living testimony against such practices. It gives ourselves unqualified pleasure to support Mr. Luckhurst in his views. Probably no single individual has had more private correspondence and reliable information on this very subject than the present writer, and it entirely corroborates Mr. Luckhurst's experience. Many of our correspondents are gentlemen and lady amateurs who lament the time spent in studying and training pyramids and the like and the poor results gained. One lady writes lately of extension: "My avenue of Apple and Pear trees, planted three years ago, have already quite large heads of branches and buds," and they have not cost her an hour's pruning during that time, while another proposes to call extension the "common sense plan," it so entirely meets his views on the fitness of things.

Dwarf natural bush trees will take the place of the pyramid in the future; their merits are only beginning to be recognised. Those who are tired of their trained pyramids, as many are, especially those whose trees have reached a large size and which cannot be curtailed without much pruning, may easily convert their trees into natural bushes by the summary process of cutting the main central trunk

off near the ground, leaving the bottom branches. This may be done at any season and without reducing the size of the trees more than desirable. We could point to tall symmetrical pyramids treated thus only this spring and which are still trees 5 feet high and as broad and shapely bushes.

Daffodils. — Apropos of these as market flowers there is no doubt much depends on fashion, and just now Daffodils are in favour, but an Edinburgh nurseryman informs me that in that town "common Daffodils out of the wood are fetching 4d. per dozen flowers and any quantity can be sold," Emperor and Empress fetching the same price wholesale. Even higher prices are got in London. Emperor and Empress, maximus and Horsfieldi are sure to be popular market flowers. I find in our collection there are "rogues" among the sorts, Horsfieldi being mixed with Empress, which it resembles, but still is distinct. Friends of mine write me to the same effect, and members of the trade have to my knowledge received very mixed lots from growers, none of the varieties coming all true to name. J. S. W.

HAREFIELD GROVE, RICKMANSWORTH.

WITHIN the suburbs of London, if indeed elsewhere in this country, a more remarkable private garden could not be found than that at Harefield Grove, the country seat of Mr. George Webster. It is remarkable alike for its vast extent and for the system of high-class cultivation carried on in it; in short, it is quite unlike any other private garden we have seen. Yet for all that it is but comparatively little known, a circumstance which may be accounted for by the fact that Mr. Webster only acquired the property some four years ago. Since then he has seemingly completely altered the features of the place. What were bare fields he has planted with extensive orchards and fruit gardens, and in the vicinity of the mansion he has erected an enormous extent of glass houses the like of which one only expects to see in the largest nurseries and market gardens. As to the extent of glass, one need only mention that there are no fewer than seventy-three houses, not small ones, but, on the contrary, capacious structures, considerably over 100 feet in length. Large, however, as the glass area is already, it is still to be added to, and several extensive ranges are either in course of erection or contemplated. The outdoor garden is on a similarly gigantic scale; besides about 20 acres of pleasure grounds there are newly planted orchards, comprising an area of some 15 acres, and containing no fewer than 62,000 hardy fruit trees. The gardener at the head of this remarkable place is Mr. J. Gough, well known in connection with the Crystal Palace at Sutton Coldfield, of which he was superintendent.

The produce obtained from such a large garden as this is cannot be consumed on the place; consequently all the surplus fruit, flowers, and vegetables are sent to Covent Garden Market. The chief subjects of culture under glass are Grapes, Pine-apples, Peaches, Nectarines, Cherries, Strawberries, Figs, Tomatoes, Cucumbers, Melons, French Beans, and Mushrooms; and of flowers the principal are Roses for cutting and Gardenias. The house room devoted to each of these is most extensive; six houses, each over 100 feet long, are occupied by Cucumbers, which are cut the whole year round, a speciality being made of the winter supply, on account of the higher prices which the fruits then realise. Just now half of these houses are producing Cucumbers profusely, while in others are the successional plants to maintain the supply. They are planted out on either side of span-roofed houses and trained beneath the roofs, which are sufficiently high to allow walking comfortably under them. The principal sort grown is Telegraph, a substitute for which has not yet been found here.

FORCED STRAWBERRIES receive great attention, no fewer than 12,000 plants being grown for early forcing, which is carried on in specially constructed houses, which, as soon as the Strawberry crop is gathered, are devoted to Cucumbers, Tomatoes, and Melons until the Strawberry season recommences. Sir Joseph Paxton, Sir Charles Napier, and Vicomtesse Héricart de Thury are the three sorts to which Mr. Gough trusts, and right well does his crop at present look. We asked him if he layered in the fruiting pots or not. He said that he always layers the runners on small turves, and as soon as they have got a firm root hold, they are taken up and potted direct into the fruiting pots.

TOMATOES form a prominent feature, their produce being calculated by the ton. Just now those in the earliest houses are heavily laden with fruits fast ripening. These, like the Cucumbers, are all planted out and trained under the roof. Of varieties there are few, the only sort that Mr. Gough cares for being his own selection from the Old Red, a selection remarkable for size, smoothness, and productiveness. This serves his purpose well, and far surpasses, he says, any of the new varieties, though Vick's Criterion finds favour with him.

PEACHES AND NECTARINES occupy some very large houses, and finer trees than are here we have seldom seen; they are, for the most part, in span-roofed houses, and being trained in an arched-like manner, so as to cover all available space, they can be seen to advantage. Curvilinear wire trellises, such as those used here, allow of easy manipulation of the trees, and are in every respect a plan to be recommended. One of the finest Peach houses is some 120 feet long by 25 feet in width; it is divided so as to have one crop slightly in advance of the other. There are also houses set apart for standard trees, and a glass case some 6 feet in width and over 100 feet in length is also used as a Strawberry house as well as for Peaches. The chief sorts of Peaches grown are Sea Eagle, of which Mr. Gough speaks highly, Grosse Mignonne, Lord Palmerston, Bellegarde, Early York, and Noblesse. The favourite Nectarines are Victoria and Pitmaston Orange. As many as 500 dozen fruits of Peaches and Nectarines have been gathered in some seasons from these houses, all of the finest quality.

GRAPES occupy no fewer than fifteen houses, and great attention is paid to their culture. All the vineries are large, most of them being lean-to's, and some are 100 feet in length. The health and vigour of the Vines in every house indicate how well Grape culture is understood here. Some of the borders are inside and outside, while several houses have only inside borders. In every case the Vines are furnished with luxuriant foliage and carry grand crops, some of the Black Hamburghs, Sweetwaters, and Foster's Seedling being now fully ripe. Other sorts of Grapes grown largely here are Gros Colmar, Lady Downes, Black Alicante, and Muscat of Alexandria, the latter being most plentiful. These maintain a continuous supply the whole year round. The winter crops of Kidney Beans are a source of profit, inasmuch as there is always a good market for them. They are here in almost every house; in some they are planted out, in others in pots and boxes. The sorts that find most favour with Mr. Gough are Ne Plus Ultra for the general crop and Osborn's Forcing for the very early supply. Large quantities of Mushrooms are produced in several of the houses, the beds being fitted up beneath the stages, while there is a fine house wholly devoted to Mushroom culture. It is some 60 feet long by 12 feet wide, and is fitted with three tiers of beds on either side of the pathway.

ROSES, chiefly Tea varieties, are represented by the thousand, there being some 3000 grown in pots alone, while in the open they number some 20,000. These yield an enormous supply of cut bloom, which finds its way to the market. The forced plants are, of course, the most remunerative, and these are housed for the most part in a capacious Rose house, fitted with stages for the smaller pot plants, while there are huge Maréchal Niels and others planted out, and which festoon the roof in a beautiful way. As regards the sorts of Roses grown, they include the very best, though it is apparent that a few are favourites, such, for instance, as Maréchal Niel, Niphetos, Gloire de Dijon, Madame Falcot, and Isabella Sprunt. All these are highly valued on account of their special beauty in a half-expanded state, a condition most suitable for the market. There is another Rose which Mr. Gough speaks highly of, and which he intends to grow even more largely than he does at present. This is Reine Marie Henriette, a Tea variety of a lovely deep rose-pink colour. The flowers are well formed, and are particularly fine when half open. It possesses, moreover, a vigorous constitution, so that a healthy plant would soon cover a large area under the roof of a house. Of course the chief aim here is to get early bloom, as these always fetch good prices in the market. Some two months ago the crop of Roses was at its best, but now that other flowers are plentiful they are declining. As soon as the pot Roses are cleared out of the houses after flowering the house is occupied by some other crop, it being the system here to allow no glass houses to remain idle.

EUCHARISES are another important item in the cut flower trade, and seldom have we seen them more successfully grown; indeed, they form a particular feature in themselves. There is an enormous quantity of them grown in various sized pots, ranging from 18 in. downwards. In the Eucharis houses there was a strong odour of cow manure, which no doubt accounts for the unusual vigour of the plants. This valuable manure is much used in this garden, and the supply is, we imagine, inexhaustible, since there are, be believe, upwards of a hundred cows kept by Mr. Webster. The Eucharis crop was past, it being at its best about two months since, though the plants will produce another, and probably two more, crops of flower this year.

GARDENIAS are what Mr. Gough specially prides himself on, and certainly they are very fine, and we have rarely seen them equal to these, only in some of the largest market gardens, such as Ladds', at Bexley. All the Gardenias here are planted out, except the successional plants, which remain in pots until required for permanency. The Gardenia beds are somewhat shallow and rest on slates, beneath which are the hot-water pipes, so that the temperature of the soil can be raised as desired. Gardenia flowers are cut throughout the year, but they are required most in winter and early spring, though this season, on account of the Court being in mourning, the demand is not so brisk as usual. Besides the few special plants that are grown on an extensive scale, there are numbers of houses filled with a general collection of plants, both fine-foliaged and flowering, and very fine they are, particularly the fine-foliaged plants, such as Crotons, Anthuriums, Dracænas, Ferns, and Palms. The collection of Caladiums is uncommonly fine, containing most of the finest kinds represented by huge specimens a yard or more in diameter. Stephanotis and Tuberoses are among other things grown largely for cut flowers, and, besides a select Orchid collection, such showy plants as the Calanthe Veitchi and vestita are represented in quantity.

THE HARDY FRUIT ORCHARD affords an example of what may be done in fruit growing on a large scale. The area of this orchard comprises some 15 acres. It is divided into rectangular divisions and traversed by broad paths, so as to render it accessible. In this space there are no fewer than 62,000 fruit trees, some 6000 being pyramids; 3000 Plums, chiefly Victorias, while the rest are standard Apples and Pears, bush Gooseberries and Currants of the various kinds; while skirting the orchard is a plantation of Filberts numbering some 5000 trees. The trees are planted in lines running the whole length of the orchard, which is considerably longer than wide. There is but little waste space, for between the rows of pyramids and standards are bush fruits; while the space between these is occupied by Strawberries, the sorts being chiefly Sir Joseph Paxton, Dr. Hogg, Sir Charles Napier, and Vicomtesse Héricart de Thury. The Apples are all grafted on Paradise stocks, which suits the soil here admirably, it being a strong loam on clay, but

is well drained. A large assortment of Apples and Pears are grown, but the largest number of trees consist of a few favourite sorts, such as Echlinville, Maltster, Worcester Pearmain, Pitmaston Pippin, and Cox's Orange Pippin. Before the late spell of cold weather set in there was a prospect of an exceptionally productive crop, but this prospect has been somewhat marred. A great protection, however, was afforded to the trees by means of tarred netting, which was spread almost over the entire orchard, and which probably will remain on during the season as a protection against birds. The sturdy growth the trees and bushes in the orchard have already made is remarkable, and there is every promise of its being a great success in future years, when the produce from it will be enormous. Having regard to the fact that only two years ago the site of this orchard was pasture land, the present condition of it is all the more remarkable.

The kitchen garden adjoining the orchard is a spacious enclosure, bounded by a wall on one side some hundreds of yards in length, against which it is contemplated to erect another range of houses. The heating appliances of such an extent of glass is, as may be imagined, on a large scale, there being some 24,000 feet of piping, to heat which there are eight powerful boilers, three being Jones's terminal saddle, three of Anderson's terminal saddles, and the rest tubular, Cornish and one horizontal tubular about 18 feet in length. Messenger's patent valves are used everywhere for regulating the heating apparatus, and are found to work admirably. The houses are all excellently constructed, and fitted with all the newest appliances as regards ventilation and other details. The major part of them has been erected by Mr. Clark, of Stourbridge, who is at present carrying out work here There is one other feature in this part of the garden which deserves notice, and that is the excellent arrangements provided for housing the garden men who live on the place—about eight in number. Their apartments adjoin the kitchen garden, and are commodious and capitally fitted up Besides the necessary bed-rooms there is a spacious reading-room, living-room as well as a bath-room, the whole forming a wide contrast to the often miserable "bothy" accommodation provided for garden men. Mr. Gough, who, we understand, designed these apartments, evidently knows the advantage of comfortably housing his men.

The mansion, a handsome building, occupies rising ground surrounded by a great extent of lawn and pleasure grounds, embellished with ornamental water, but the finest feature of the place is the magnificent tree growth which is everywhere to be seen. This, for the most part, consists of Larch, Scotch Fir, Oak, Horse Chestnut, Beech, and other deciduous and evergreen trees, while of newer and choicer Conifers there are some admirable examples, the soil being just suitable for their fine development. In the pleasure grounds there is a spacious tennis lawn about half an acre in extent, from which diverge numerous broad terraces and walks. The grounds are beautiful in summer with gay parterres, while everywhere may be seen isolated large beds of particular plants, such as Clematises, variegated Acers, and one part is embellished in summer by sub-tropical plants. The rosery, too, which contains some hundreds of plants, is a beautiful feature. Most of the beds are raised some 2 feet above the level, which, we should imagine, conduces to the growth of the Roses, particularly the more delicate kinds. The sides of the beds are clothed with Veitch's Ampelopsis, which makes a beautiful drapery.

We were interested in seeing in various parts of the pleasure grounds some admirable attempts at wild gardening and already there are broad masses of Snowdrops, Narcissi, and Saxifrages perfectly naturalised. The Japanese Maples are great favourites, being quite hardy here. Their splendidly rich leaf-colouring at this time of the year renders them a great attraction. One large, bushy plant of Acer polymorphum sanguineum in the shrubbery, with a background formed by the variegated Negundo, was the finest example of high coloured foliage we have ever seen out of doors, the tint being a blood-red. A handsome conservatory adjoins the mansion, and this is kept gay with flowers the whole year round. The roof is festooned with climbers, and the flowering plants are admirably arranged in bold masses of one kind—a far better way than the usual one of indiscriminately mixing them. These are the more salient features of this remarkable garden, to an account of which it would be impossible to do full justice from notes taken during one hasty visit.

W. G.

Grubs (*J. W. L.*).—The grubs destroying your plants are commonly known by the name of leather-jackets, and are the grubs of the common daddy-longlegs or crane fly Bury small slices of Potatoes, Turnips, or Carrots (with a small skewer stuck through each) near your plants about an inch below the surface, and examine them every morning; some of the grubs will probably be found feeding on the slices.—G. S. S.

ORCHIDS.

A NEW LADY'S SLIPPER.

(CYPRIPEDIUM GODEFROYÆ.)

To the long list of meritorious species and varieties of Lady's Slipper already in cultivation has just been added an entirely distinct new-comer from Cochin China in all respects equal to any of the very best sorts known. This Lady's Slipper had for some time previous to its introduction been known to exist by that indefatigable Cochin China explorer, Mons. Godefroy Lebeuf, to whom we are indebted for the annexed illustration of this real gem, and to whose wife it has been dedicated. As regards habit, it is nearly allied to the beautiful and well-known C. niveum and concolor, from both of which, however, it is distinguished by its foliage as well as by the deflexed upper edge of its

Cypripedium Godefroyæ. Detached flower natural size.

petals. But the essentially distinctive character is undoubtedly found in the markings of its delicate flowers, which, besides being entirely covered with small and very light white hairs, are copiously spotted in all parts with magenta-purple. The staminode, which resembles that of C. niveum, and on which there is a central buff yellow blotch, is ornamented with exceedingly minute, dust-like dots of a pleasing bright chocolate-brown hue, while the interior parts of the slipper are densely covered with larger spots of the same colour. On its outer surface the markings are of a much lighter tint, and become gradually more faint as they advance towards the apex of the lip, on which the spots are smaller than on the other segments. The dorsal sepal, which is peculiarly suborbicular, is tinged with pale green at the apex, and the connate lateral sepals are smaller, while the petals, which are oval-oblong in shape, are broad and deflexed as in C. concolor. These handsome flowers are borne on stout peduncles, reaching a few inches above the foliage. It may be mentioned that, like C. niveum and concolor, this Cypripedium is found in a wild state growing on limestone rocks on the side of a mountain, where until about 10 o'clock in the morning it is in the shade, but where after that time and until night it is thoroughly exposed to the intense heat of the unbroken rays of a tropical sun. It is of robust constitution and a free bloomer. This interesting novelty is being sent out by Messrs. Veitch, who have purchased the stock from the importer. S.

NOTES ON ORCHIDS IN FLOWER.

THE Orchid flowering season is now at its height, and, therefore, each of the large collections about London may be said to represent quite a flower show as far as this class of plants is concerned. The collection in Mr. Ball's nursery at Chelsea is particularly noteworthy both for extent and the numbers of choice varieties which it contains. His annual exhibition of Orchids, which will open on Tuesday next (13th instant) and continue to July, promises to even out-distance the magnificent displays which have been held in this nursery during the past three or four seasons. Every one of the numerous Orchid houses fairly teemed with bloom when we saw them the other day, and the whole of this flower beauty will be concentrated in the capacious exhibition department. The chief features of the show at present are Cattleyas; the splendid C. Mendeli in endless varieties are all beautiful, but some are ten times more beautiful than others. One in particular is the finest variety of Mendeli we ever saw; indeed, we know of no other Cattleya that could rival it in magnificence. The flower is large, well formed, the broad sepals being of a delicate pink, while the lip, the chief point of beauty, is unusually broad and of an intensely rich deep crimson-magenta. There is a wide contrast between this and an ordinary form. It is thoroughly deserving of a distinctive name, as many of lesser merit are so distinguished. Among other choice varieties in flower that are remarkable are Lælia purpurata grandis, with a very large lip, conspicuously blotched with white, rendering it most distinct; L. purpurata alba, the genuine white variety, with broad snow-white sepals. Then, among Odontoglossums, which constitute always the chief glory of Mr. Ball's exhibition, may be found the very cream among the multitudinous varieties of O. Alexandræ, some remarkable for their great size, others for the profusion of spotting, and others, again—and perhaps the loveliest of all—are those with a suffusion of pink on the flowers. There is quite a host, too, of hybrid varieties, the finest of these including O. Ruckerianum, the true O. hebraicum, facetum, mulus, Andersonianum, various forms of Wilckeanum, Halli, and—most remarkable of all—an extremely handsome one, which was named O. Victor some time ago by Prof. Reichenbach. It may be best described as being in the way of Wilckeanum, but is handsomer than any form of that hybrid we have seen. The ground colour of the flower is primrose-yellow, which is heavily blotched with chestnut-brown. Presently there will be crowds of other Odontoglossums in flower, notably the matchless collection of O. vexillarium, as well as O. citrosmum and its numerous varieties. Of O. vexillarium there is an intensely dark form named rubrum, several shades deeper than the autumn-flowering variety. The Masdevallia collection, which is probably unequalled anywhere, is just commencing its season of flower. Besides the host of varieties of M. Harryana, which includes the splendid Bull's Blood variety, the rare acanthifolia, there are dozens of flowering plants of the Humming-bird Orchid (M. trochilus), which never fails to arrest the attention of visitors by its strange form and colour. Other varieties include Cymbidium Devonianum, not often seen in bloom, though an old introduction. It has dense drooping spikes of flowers of a bronzy green and crimson. The true Dendrobium anosmum may also be seen in bloom; it is in the way of D. macrophyllum, but has smaller flowers, which are devoid of the characteristic Rhubarb perfume of macrophyllum. The flowering Lady's Slipper Orchids include a glorious panful of the scarce Cypripedium Warneri, while of C. lævigatum there are numerous grand examples representing various forms, some with much darker and therefore showier flowers than others. These are a few of the many remarkable Orchids now in perfection in this nursery.

ORCHID NOTES FROM KENWOOD.

AN unique specimen of the rare and beautiful Phalænopsis Marie is now flowering in Mr. Corning's garden at Kenwood, near Albany, N.Y. In growth it is much in the way of P. sumatrana, but more delicate in tone and with the flowers somewhat smaller; they are white and heavily blotched with amethyst, and therefore very pretty. P. Parishi is flowering well on bare blocks of wood, to which it takes kindly. Moreover, this style of growing it ensures good, sound roots throughout the winter; it is the best way to grow it. We find among several varieties of Luddemannia those named Wardi and ochracea (the yellow form) are probably the two best. The flowers of the true Vanda insignis in bloom here differ somewhat from the plate recently given in THE GARDEN in having the lip slightly reflexed instead of incurved. Several large plants of the rare Eriopsis Sprucei are just going out of bloom. Arpophyllum giganteum, a fine Orchid for a large house, we have had here with a dozen of its large, erect, purple spikes relieved by the deep green of its handsome drooping foliage. It is truly a noble Orchid. Batemannia lepida, a rare species, is bearing drooping spikes of curious-shaped, reddish brown flowers about 3 inches across, with a lip of pure white; unfortunately it has the disagreeable odour of Lælia autumnalis. A species of Schomburghia in the way of crispa is bearing flowers of an orange-yellow with a white lip, quite a desirable Orchid, collected on the Rio Japura. Numbers or Cattleya citrina are finely in flower, some having about seventy flowers, and in many instances there are two flowers on a spike. These plants have passed the three years' probation usually accorded this species, and, without exception, all are in the best of health, their roots forming quite a fringe along the side of the path. Our success in growing this Cattleya so well is probably due to a cool, very airy, light position that we give it combined with syringing overhead twice a day in winter and three or four times, according to the weather, in the summer. We use no potting material whatever, but simply wire them to bare blocks of wood; consequently no roots rot. We have found that they thrive well for a short time in Moss, and then begin to diminish gradually. F. GOLDRING.

Cypripedium sylhetense.—This is a newly introduced variety of the well-known C. insigne. It comes from Sylhet, as its name implies. It is similar in habit and growth to the type, but the flowers are small and not so attractive. The only desirable character which it possesses apart from that of novelty is its late flowering—being now in full flower, while the majority of the original C. insigne are over long ago. It has been recently exhibited by Mr. Philbrick from his collection at Fernfield, Bickley, and also by Messrs. Veitch, to whom a certificate of merit was awarded at the last Regent's Park Show.

Acineta sulcata.—This rare Orchid was beautifully in flower in the Royal Exotic Nursery, Chelsea, during the past week. It is in the way of A. Humboldti, but the flowers are larger, more fleshy in texture, and of a rich orange-yellow colour with a black blotch in their interiors. The spike is large and dense, and droops like the rest of the Acinetas from the base of the suspended plants.

Phalænopsis Sanderiana.—This lovely new species is again in flower in Orchid collections about London. One of the finest forms we have seen of it was that in Messrs. Veitch's nursery, Chelsea. The flowers were unusually large, with broad overlapping sepals suffused with a most delicate rosy pink tint. It is the queen among Phalænopsids, we consider, and probably even still finer varieties will crop up among the imported plants.

Oncidium sarcodes.—An uncommonly fine specimen of this Orchid is in flower in Captain Fairfax's garden at Ravenswood, Melrose, N.B. On one spike there are no fewer than forty-five flowers. A portion of the spike is sent to us, which clearly indicates what a remarkably fine variety it is, the sepals being broader than ordinary and more richly coloured. A five-flowered cluster of Leptotes bicolor is also sent, an unusual number of flowers on this Orchid.

Cypripedium superciliare.—By far the finest form of this extremely handsome hybrid Lady's Slipper is now in flower in Messrs. Veitch's nursery, where it had its origin a few years ago. The flowers of the variety in question are much larger than usual, and the spotting of the lateral sepals is more copious, and the colour of the whole flower is richer. It is one of the most desirable of hybrid Cypripediums. C. vernixium, also a fine hybrid, is in bloom, and so is the new species C. ciliolare, which promises to be a rival to both C. Argus and C. Veitchi.

Rare Epidendrums.—The three following species of Epidendrums are now in flower in Messrs. Veitch's nursery, Chelsea: E. Wallisi, a species with tall, slender, leafy stems, terminated by clusters of large showy flowers having chrome yellow sepals and broad, flat, white lips, traversed by purple markings. E. arachnoglossum has tall slender stems also, surmounted by small and dense clusters of rosy pink flowers with fringed lips. E. xanthinum is the counterpart of the preceding species in point of habit and size, but is a rich glowing yellow. These are all showy Orchids and not often seen in bloom.

Orchids from Bridge of Allan.—From the Fernfield collection Dr. Paterson sends us a few of the most noteworthy kinds he has in bloom. Among these are two varieties of Odontoglossum cirrhosum, both tall, much-branched spikes; both are fine forms, one light, scarcely marked at all; the other heavily blotched. As Dr. Paterson observes, the much-prized O. niveum majus are not comparable for beauty with these cirrhosums. Of D. Farmeri there is a glorious spike of a lovely tinted variety, the flowers being white, edged with rose-pink. This spike was cut from a plant bearing nine spikes, which are deliciously scented. A very fine flower of Trichopilia coccinea is also sent, the lip being very large, of rounded outline, and of a rich crimson colour suffused with a vinous purple.

Cœlogyne pandurata.—Of this strangely coloured Orchid an uncommonly fine spike has been sent to us by Mr. W. Owen, Greenbank Nurseries, Hartford, Cheshire. It bears thirteen fully expanded flowers, which are pea-green in colour, with the exception of the lip, which is heavily blotched and netted with jet-black. This Orchid possesses a beauty peculiar to itself, and is totally unlike any other. Its rarity, too, adds considerably to its interest.

White Maxillaria Harrisoniæ.—There was exhibited in London last year a variety of this Maxillaria named alba. The flower, however, was not pure white, inasmuch as the labellum was of the ordinary tawny-red colour. Mr. Thomson, of Clovenfords, Galashiels, now sends us a genuine white variety without a trace of colour in it, the whole flower being of waxy whiteness, but of the same size and possessing the same perfume as the type. We have never before seen this variety, and imagine it to be uniqne. It is one that will no doubt be much songht after by Orchid fanciers.

Odontogloseum Roezli.—This lovely Orchid is grown to great perfection by Mr. Douglas in Mr. Whitbourne's garden at Great Gearies, Ilford, where it exists in large numbers, seeing that at the present time there are no fewer than 200 blooms of it expanded, representing some exceptionally fine varieties, remarkable for the large size of the blooms and the broad blotches of crimson upon them. No doubt many of our readers would like to know the exact treatment Mr. Douglas gives this Odontoglossum, in order to produce such a crop of flowers, it being an Orchid that many fail in growing at all.

Choice Odontogloseums.—A nnmerous and most interesting series of varieties of Odontoglossums has been sent to us by Mr. Vicary from Mr. Peacock's wealthy Orchid collection at Sudbury House, Hammersmith. The specimens are sent more particularly with the view of showing the variation that exists among individual plants of the same species or variety. The gathering includes some exceedingly choice varieties which it would be a difficult matter to match. Of O. crispnm (Alexandræ) there are four splendid forms, all widely different. One is heavily blotched on the three onter sepals, leaving the two others immaculate; a second is a gigantic flower for a crispum, measuring nearly 4 inches across, with broad, overlapping sepals very much toothed on the edges. It is among the finest crispums we have ever seen. A third form is very large and pure white, and another much resembles Bateman's guttatum. O. Andersonianum is represented by no fewer than six forms. No. 1 is an extremely fine flower, very large, heavily spotted with cinnamon-red on a pale yellow ground. We have seen few if any to surpass this, and Mr. Peacock is lucky to possess such a beauty. The other Andersonianums are all different, though their points of distinction are such as cannot be intelligibly described; some are scarcely spotted at all, while, on the contrary, others are very heavily blotched. Of that scarce and debatable variety, Wilckeanum, Mr. Vicary sends two forms, one being a marvellously fine one, much more heavily marked than usual. Of O. triumphans there are four varieties, all good, but one is very remarkable for large size and richness of colour, showing how snperior some forms are to others. Of the variable O. cirrhosum there is one form unusually light, almost spotless; another has very yellow markings on the throat; while a third, the finest of all, has extremely dark spotted flowers, and are tinted with green in the centre. The other noteworthy kinds are the true Coradinei, which is distinct, though not so showy as others of a similar stamp; the rare O. polyxanthum, a good form; O. nebulosum, remarkable for being more spotted than ordinary, similar to the pardinum variety; O. Rossi majus, a pink form in the way of rubescens; O. Halli, O. luteo-purpureum, O. tripudians, and O. maculatnm superbum, very distinct from the type on account of the much more pronounced markings; and Donnianum, which is larger in every part and richly marked. Mr. Peacock's collection is one of the few in which we have seen the latter rare variety. We must not omit to mention two lovely pink varieties of O. crispum, as deep in colour as O. vexillarium, with fine full flowers. These pink forms are now so eagerly sought after by connoisseurs, that they invariably fetch high prices at sales. One more remains to be noted, which is O. Uro-skinneri, a species not half known and cultivated enough. The form herewith represents the very finest form, having very deep chestnut-brown sepals and a large heart-shaped lip of a deep rose-pink, mottled with white.

Lælia Wolstenholmiæ—This great rarity among Orchids we saw a few days ago in fine flower at Messrs. Veitch's nursery at Chelsea. It may best be compared with L. elegans, though no form of this species we have seen is like it as regards the colonr of the flowers. These are about the size of those of L. elegans, but the sepals have broad margins of a deep amethyst surrounding a paler ground. The lip is richly colonred, and the whole flower is most attractive. So seldom is this seen in bloom, that orchidists may like to see it. Visitors to this nursery will also see a glorious display of the multitudes of Orchids that flower at this season. The various Lælias and Cattleyas include all that are choice and rare, the endless forms of C. Mendeli being particularly remarkable.

Cattleya Reinecklana superbissima.—Among the many rare things in flower in the well-cnltivated Orchid collection at Sir Nathaniel de Rothschild's at Tring Park, a compact specimen of this lovely pure white form of C. Mossiæ is at present bearing thirteen blooms. Its flowers are of perfect Mossiæ shape and size, and the sepals and petals pure white, without any tinge of colour. The lip, too, is white and beautifnlly fringed, and the throat is lined with violet, the middle portion orange, and the lower or outer part lined and dotted with violet-crimson, each colour being distinctly displayed, and not merging into each other, as in other forms of this plant. It is agreeably scented, and, seen with its gorgeous head of bloom borne on a moderate-sized plant in a 6-inch basket, it is simply delightful. The plant was a lucky selection out of the necessarily small importation of white Mossiæs got over by Messrs. F. Sander, of St. Albans, last summer, and which were so eagerly bought up on their arrival. Mr. Hill has also again bloomed the pearly white C. Skinneri alba, obtained from the same firm, and the white-flowered Aerides vandarum is blooming well in the sunny house, in which 200 planted-out Vanda teres are furnished with one or two spikes on each growth. There is therefore a prospect of an unprecedented display of the flowers of this reputedly shy-blooming species.—J. O'B.

Pruning Orchids.—Not being an authority on Orchid cultnre, I feel some diffidence in taking part in this discussion; but, having acted on the advice of "J. S. W." for two years, and cut off all the old stems of Dendrobiums and Orchids of a similar character that had flowered, the result is that the plants which flowered every year before they were pruned as well as I could wish only gave us a comparatively few blossoms this season, with a weak and a very indifferent growth. "J. S. W." may say I have not treated them the same in other respects, but there has been no difference in their management, and I can assure "J. S. W." that it will be some time before I prune them again.—J. C. C.

—— Allow me to thank "J. S. W." for his invitation to go and see his prnned Orchids; but this I decidedly decline to do. If he wishes to prove the success which he claims for pruning, it is incumbent on him to bring his plants where they can be seen publicly. If there is any merit in bulb pruning, the three years' trial which "J. S. W." has had with his Dendrobe cannot fail to make it apparent.—T. Baines.

Sunflowers in shade.—I see it stated in a contemporary that now-a-days even "tasteful people" admire the great Sunflowers formerly to be seen and enjoyed in cottage gardens only. It reminds me of the parable of the Sunflowers in "Ariadne": "There was a high wall near, covered with Peach trees, and topped with Wistaria, and Valerian, and the handsome wild Caper plant; and against the wall stood rows of tall, golden Sunflowers, late in their blooming. The sun they seldom could see for the wall, and it was pathetic always to me to watch the poor, stately, amber heads turn straining to greet their god, and only meeting the stones, and the cobwebs, and dusty Peach leaves of their inexorable barrier! They were so like ourselves! straining after the light, and only finding bricks, and gossamer, and wasps' nests! But the Sunflowers never made mistakes, as we do; they never took the broken edge of a glass bottle, or the glimmer of a stable lanthorn, for the glory of Helios, and comforted themselves with it—as we can do." J. W. B.

Rose Garden.

Rose Fortune's Yellow.—If this Rose is not very handsome in shape or remarkable for the pnreness of its colouring, it possesses other good qualities that should be the means of its finding its way into collections where it is not now known. It is very hardy, a strong grower, and produces large numbers of flowers above the ordinary size. I look upon it as the best of all the hardy large flowered yellow varieties, while the coppery shading that pervades the outside petals renders it very distinct from anything else.—J. C. C.

Celine Forestier Rose—This is a most useful sort for a cool house, coming in during April and May. It should have very little pruning beyond what is necessary to thin out the branches, for which purpose the oldest and weakest should be removed, leaving the others as much as possible their full length. A plant in a cool house, at a Springfield Nursery, only two years old, has produced upwards of 500 blooms and buds during the month of April, and will probably continue to produce them for some time to come.—Jersey Gardener.

Rose Baroness Rothschild.—As a pot Rose this is not in my opinion surpassed by any of the numerous varieties that are recommended for pot culture. I do not say that as regards form it makes such an excellent specimen as some others, but its luxuriant growth and ample foliage make up for a little deficiency in the number of branches. The remarkable feature about it is its wonderfully large blossoms and their exquisite colouring, so pure and soft, pervading the whole flower when grown under glass. Although always beautiful, I think this Rose much improved by pot culture and glass protection.—J. C. C.

Rose Seline—Many years ago, when at the Durdham Down Nurseries, near Bristol, I was much engaged in budding for Garraway & Mayes, who then carried on business there, and one of the favourite Roses for dwarf stocks was Seline, a strong-growing, robust variety, making shoots on dwarfs quite a yard long, and having a free, nearly spineless bark, that always ran well Since leaving that pait I have never seen the Rose again, and it cannot, I think, be the same kind as that about which Mr. A. Evans writes, as I do not remember to have heard of the one used at Durdham Down as a stock ever flowering, which the variety Mr. Evans has seems to do freely. If I were to see leaves and wood, I should know at once if it were or were not the old Seline.—S. D.

SHORT NOTES.—ROSES.

The Banksian Rose.—On the south wall of the church here the yellow-flowering Banksian covers a large space, and just now it is unusually attractive, being clothed with innumerable bunches of pretty little double blossoms. It is one of the first of wall Roses to bloom in spring, and apart from this it is a very serviceable climber.—J. Muir.

Roses and Gladioli in April.—Miss Jekyll sends us Rose Safrano from the open wall, a pale yellow Gladiolus (is it Milleri?) also from the open air, in a border at the foot of a south wall. They have been in flower some days. It is satisfactory to have delicately beautiful and sweet-scented Gladioli in April.

Rose Countess of Pembroke—This is one of Mr. Bennett's hybrids, and in all probability will eventually become popular for forcing purposes. The colour and shape of the blooms, though smaller, are otherwise not unlike Beauty of Stapleford, but the latter is scentless, whereas the Countess is strongly perfumed. It is not a strong grower, but blooms freely and opens quickly and well.—W. I. M.

TREES AND SHRUBS.

OUR ORNAMENTAL TREES.

THERE has been of late years a tendency among planters to run after trees and shrubs of recent introduction, and to neglect our own, or such as are more common and at hand, as well as more suitable for our climate, and not less ornamental. For example, many profess to be enamoured of all sorts of foreign Coniferæ and Evergreens, many of which are next door to worthless for either ornament or use, while the beauty and excellence of the common Spruce, Larch, Yew, and many others are comparatively overlooked. It is the same with deciduous trees and shrubs. No objection can be urged against the planting of any ornamental species likely to succeed; but why not make more of our own beautiful Thorns, Crabs, Elderberry, Geans, wild Roses, Furze, Broom, and any other handsome native tree or shrub that grows?

CONIFERS.—To begin with, we doubt if there be a handsomer tree grown than the Silver Spruce either as a single specimen or in the mass. We know where thousands exist that are perhaps twice as lofty as any considerable number of foreign Firs or Pines existing in this country, and which are furnished down to the ground with long branches in the perfection of health. Plant a Silver Spruce in any collection of Conifers, where these do well generally, mark its progress and appearance, and see if it does not equal or excel the most valued of any other species in every way. The Scotch Fir is another noble tree, and some magnificent solitary examples of it are to be seen in Nottinghamshire, the foliage luxuriant and plentiful, and the bark clean and bright, far surpassing many of the exotic species in gardens not far off. Then there is the common English Yew. Does anyone ever think of planting it to grow into specimen ornamental trees? There are few or none more eligible. Planted in good soil and afforded room, it is hard to beat, forming, as it does, a dense and lofty pyramid or dome, entire from the ground line to its topmost bough, its deep green foliage and massive habit producing an effect in a park or on a lawn such as no other evergreen tree does, except the Holly when well grown. The grand old and yet healthy Yews at Hatfield are probably the finest feature of the grounds, and are worth going a long way to see. Thickets of Yew trees, or Yews planted as underwood, though excellent for that purpose, give one no idea of the tree as an ornamental subject, or of its capabilities of growth when growing in a good soil on open ground. We have many kinds of evergreen trees here in a cold, uncongenial climate, but the finest specimen in the lot is an old Yew that has kept its position where chance placed it, and become a favourite tree as well as a landmark. There are, however, many varieties of the common Yew, some being much denser in branch and foliage than others, but all are handsome; only the dense kinds make the most striking trees in the long run, and their growth is rapid in a good, well-drained soil.

THE HOLLY makes another equally handsome specimen. Planted as a hedge plant or in the mass, where the individual tree cannot show itself or find room to grow into its natural shape, it does not strike one particularly; but when growing alone it is a most beautiful evergreen tree, attaining a height of 40 feet or 50 feet, and clothed to the ground with its glossy green foliage. Even in poor soils the Holly grows to a large size, but it grows thin at the top when it attains the age of thirty or forty years. In a good, deep, dry soil its luxuriance never fails, and in the most exposed situations it maintains a dense green and impenetrable front to the gale all the year round, growing dwarfer in such situations, but losing none of those characteristics which render it such a desirable Evergreen anywhere. The common Holly is one of the best of its class, and is also one of the best berry-bearers—an important consideration, as the Holly is, without exception, the finest ornamental berried tree we possess, although there are now broader-leaved and finer-habited varieties. One of the most beautiful Hollies, although not a berry-bearer, is the variety named Shepherdi. The original tree of this variety still grows, or did grow, in the Handsworth Nurseries, near Sheffield, not long since, and, notwithstanding that it had for years been persistently clipped in to afford cuttings for propagation, it was a fine broad tree, with its lower branches lying close on the ground all round. The main characteristics of this variety are its broad lustrous leaf and bushy habit, while it grows as tall as the common kind. There are numerous other varieties, but among green Hollies, the common kind and Shepherdi are the best. The variegated section, however, provides us with some very distinct and pretty forms. Golden Queen and Silver Queen are the two best, because they grow almost as freely and as large as the green kinds, whereas most of the other variegated sorts are not of strong habit.

DECIDUOUS TREES.—Among the flowering section of these I regard the wild Cherry as one of the most beautiful. From the time it puts forth its fresh green leaves and clusters of pearl-like buds till the flowers are shed, it is a picture of beauty and luxuriance. We have several old and very large trees of it here, that, be the season good or bad, never fail to flower most profusely. Then we hear much of Pyrus Malus floribunda as a spring flowering shrub, and it deserves all that can be said in its favour; but it is no better than the common Crab, and not so hardy. No Apple produces such a quantity of flower as the Crab, which is always smothered with blossom; still many of our Apples and Pears are extremely handsome when in flower, and I know of none which surpass that popular Apple, Lord Suffield. Some tall trees of it with round, natural-shaped heads here are every year remarkably beautiful in May or June; nothing approaches them out of doors in the way of flowering trees at that season. It has been before suggested that the prettiest flowering varieties of our fruit trees might ornament our pleasure grounds and parks far oftener than they do, and their employment as ornamental trees need in no way interfere with their culture in the proper place—the fruit garden. In fact, the Apple, Pear, Plum, or Cherry should never be touched by the knife when planted in pleasure grounds. Next let us regard the despised Elderberry on its own merits. Whether looked at when in flower or when laden with its clusters of purple fruit, I hesitate not to describe it as one of the handsomest of trees, and had it only been an exotic instead of a common plant in our woods, it would have been regarded as such by everybody, and planted accordingly. As a bush growing in the coppice it does not strike one as being in any way remarkable; but the Elderberry will make a tree if it is allowed to do so, and then it grows about 20 feet high, produces a broad round head, which, when covered with clusters of milky white flowers, is the most noticeable tree in the landscape in summer, being distinct and conspicuous. In this neighbourhood there are many old Elderberry trees near the ruins of an old country house, where I suppose they were originally planted as ornamental trees, probably 200 years ago. Their trunks are gnarled and ancient-looking, but the tops are healthy, and never fail to flower abundantly. Among the more stately of deciduous trees of ornamental form must be named, first, the Spanish Chestnut. Its fine broad foliage at all times makes it a striking tree, but, in addition to this, it is, taken as a whole, one of the grandest looking trees that is grown when it has room to extend laterally. One tree here when in full leaf can only be compared to a majestic tower of foliage, mass overlapping mass up to a height of about 90 feet, the bottom branches resting upon the Grass, and their spread in a straight line across the base extending 70 feet, the circumference of the base reaching about 150 feet. It is the noblest looking tree of any kind in the neighbourhood. We have many other Chestnuts of equal size, but they have not had the same room in which to grow. The Spanish Chestnut, Elm, Horse Chestnut, Beech, Walnut, &c., all make finely-shaped trees when allowed to grow in the open park, and are quite unlike trees of the same kind that have grown up in woods or near other trees, as many park trees have done, not having been planted for a purpose, but left as fragments of former groups or plantations. The Beech, for example, is a tall, ungainly tree when grown even in thin plantations, but in the open it forms a broad, umbrageous head of enormous spread and a proportionate trunk. The great Beeches at New Battle Abbey, in Midlothian; at Eccles, in Dumfriesshire; and the fine trees in the park at Drumlanrig are all good examples in their way.

J. S. W.

GAS AS A HEATING MEDIUM.

SINCE the advent of the electric light the price of gas in many of our large towns has been considerably reduced; consequently, it has now been brought into greater prominence than hitherto as a heating medium—notably in the case of cooking stoves and many kindred contrivances of a useful character; but it would appear that horticultural engineers have failed to take advantage of it, a fact evidenced by the absence of advertisements offering a boiler of good construction suitable for the consumption of gas and capable of heating any length of piping from 50 feet to 5000 feet. Some people may think that it would be impracticable to accomplish this, both upon the consideration of expense in cost of gas and the difficulty of obtaining sufficient heat to effectually keep in motion a large body of water; but these objections may be regarded as groundless when it is pointed out that at the Crewe Works of the London and North-Western Railway gas alone is used for the smelting of iron, which, it may be presumed, requires a very much higher temperature than will ever be necessary for the heating of water in greenhouse pipes. Everyone is aware of the first-rate manner in which things are conducted on the line referred to, and that efficiency and economy are studied to the fullest extent. It may therefore be adduced, as a matter of certainty, that unless gas was more effectual and less expensive than the ordinary methods employed in the operation of smelting metals it would not be used. Presuming all this to be true, the question naturally arises, Why should people living in or near large towns be subjected to the dust and labour attending stoking when a clean and not more expensive medium is ready to their hand, and only awaits to be applied to ensure almost general adoption?

T. I. C.

Birkenhead.

QUESTIONS.

5193.—**Lawn mowers.**—Can any of your correspondents give me their experience of the "Easy" lawn mower? It is advertised as made 20-inch cutter for a child, and 40-inch for a man. Is it easy for either one or the other to work a machine of this width?—A. R.

5194.—**Hawkers.**—Can any of your readers tell me if taking vegetables round to greengrocers' shops in or out of a borough is considered hawking or not? I am uncertain about it; some say it is and some say it is not; any information on the subject will therefore oblige me.—MARKET GARDENER.

5195.—**A bowling green** formed five years ago, and laid with seaside turf, is getting overgrown with Moss. What means could be suggested for eradicating the Moss without injury to the Grass, and what would be the best time for applying a remedy? A thin layer of sea sand has hitherto been put on the green yearly in the autumn.—W. M. S.

5196.—**Marechal Niel Rose.**—I have a very fine specimen of this Rose in a greenhouse. For many years it has borne great quantities of perfect blooms; this year the blooms are comparatively few and very poor, the stems of nearly all being short and bent. This year it received a very close pruning; can this have affected it? I have heard that this particular Rose will only bear very little pruning, and should be very much obliged for any information regarding it.—W.

5197.—**Transplanting Araucarias.**—I have a large Araucaria on my lawn which I desire to remove. It is about 15 feet high, and the main stem is 20 inches in circumference near the ground. The soil is light Bagshot sand. Will some of your correspondents favour me with suggestions as to its removal? Should it be undertaken now or in the autumn? and what preparations, such as digging a trench round it, should now be made? I have an abundance of leaf-mould, manure, &c. at my disposal.—FAIRMILE.

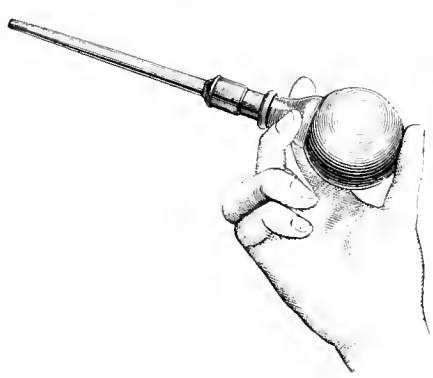
Lath blinds.—The fact of these having been largely employed for many years by a great number of the most skilful plant growers in Europe sufficiently refutes "J. C. C.'s" assertion that they "would make a house too dark for the healthy growth of plants." It would not do for the Paris market growers to bring lanky, feeble specimens to market, and I am sure that a few hours in some of the Paris nurseries and market gardens would convince your correspondent that the amount of light which passes through these blinds is sufficient to keep the plants shaded by them in a robust, healthy condition. "J. C. C." evidently fails to take into account the clear space between each lath, which compensates for the thick nature of the material, and which, as I in a former article pointed out, admits of the unobstructed passage of light. The heaviness of these lath blinds is therefore more apparent than real. Your correspondent may take the word of one who has grown almost all kinds of plants under them that even such things as demand but little shade will not suffer from their use, and if Orchids can be grown under them to such perfection as even to excite the wonder of such an experienced cultivator as Mr. Veitch, can it be reasonably asserted that they are not a suitable form of shading? A little reflection will, I think, convince "J. C. C." that he has formed an incorrect estimate of the value of these lath blinds, and instead of judging from appearances, which are generally deceptive, I would advise him before condemning them to give them a trial. A little practice is worth a deal of theory, and when your correspondent has used them for a season or two he will be ready to acknowledge that they do not "make a house too dark for the healthy growth of plants."—J. CORNHILL.

KITCHEN GARDEN.

TOMATOES IN THE OPEN AIR.

I DO not think it is the general impression that it is useless trying Tomatoes outdoors, as stated, because they are often grown outdoors in the south, and not unfrequently in the north also, but the question is, Is the game worth the powder in the case of a fruit that pays so well for protection, except when outdoor crops are planted as supernomeraries? In most private establishments, Tomatoes are now considered indispensable; all spare fruit can be disposed of advantageously, and a few plants under glass will yield a constant supply for many months; whereas outdoor crops do not come in till September or October, as a rule, and except in favourable situations the latest fruits do not ripen. It is a long time now since I discovered the advantage of indoor colture. In 1854 when at Drumlanrig, under Mr. McIntosh, two lots of Tomatoes were grown, one lot consisting of about four large plants grown in pots at the end of the Pine stove, and another lot that used to be forwarded under glass with the Dahlias and planted out at the some time, viz., when about coming into flower. The Tomatoes were planted on little mounds against a high and close wooden paling, blackened to make it warm. It is very cold in the valley of the Nith in winter, but also warm in summer, but all these outdoor plants did was to mature a few of the earliest set fruits, and as a good long row was put out they came to be useful when the demand was greatest, but many did not ripen, and the plants were pulled up by the root before the frosts took them, and hung up by the heels in a warm shed to ripen what fruit was left on them. I do not think the outdoor plantation was repeated often, and the few plants in the stove provided the main supply. Tomatoes were then very seldom grown in gardens, but when much later we had to grow Tomatoes for as many months in the year as possible, though more favourably situated as regards climate, we did not attempt outdoor culture for the reason that early crops cannot be had by that means, and outdoor plantations are therefore not needed, because the plants indoors that produce fruit in April and May always continue to bear freely through the autumn as well, and even up to Christmas. That is my experience at least. This is in a private garden where selling the fruit is not an object; but if I was to go in for market I would put all my spare plants ont of doors for a catch crop towards the end of the season. As to the superiority of outdoor grown fruit, my experience is that it does not equal that grown indoors either for size or flavour. The temperature of our climate, as a rule, is too low to impart high quality, but the difference is not of so much consequence. Tomatoes grown in a warm, but airy and dry, temperature under glass I have not yet seen equalled by outdoor fruit. J. S.

New patent fumigator.—A novel little contrivance for fumigating plants has been patented by Messrs. Simpson and Smith, 151, Strand, who send us a sample of the instrument and the annexed illustration of it. It consists of an india-rubber ball attached to a brass tube or chamber which holds the tobacco. When the latter is lighted a long brass nozzle is fixed to the holder of it, and by pressing the rubber ball a continuous stream of smoke comes from the nozzle. This fumigator is said to be designed particularly



New patent Fumigator.

to enable ladies and those to whom the smoking of a tobacco pipe would be unpleasant to free their plants from green fly and other parasites with comfort and convenience. The fumigating material may be tobacco or tobacco paper, either alone or mixed with other matters the fumes of which are destructive to insect life, and as the smoke from the pipe is cool no injury is done to the plants. For window plants and small plant cases this instrument will doubtless be found useful in destroying not only green fly, but also thrips and other pests of that kind.

Worms (*J. G. K.*).—The "worms" which you forwarded are not wireworms, but species of the flattened millipedes (Polydesmus complanatus), which at times injure plants considerably by gnawing their roots. Cut some Potatoes or Apples in half, and scoop out part of the insides and place them in the haunts of these creatures in such a manner that they may drop into them, or put pieces of Potato, &c., into small garden pots, which should then be filled with dry Moss and laid on their sides. These traps should be examined every morning.—G. S. S.

A new Ceanothus.—In the higher altitudes I was glad to meet with a Ceanothus of which I had seen a few fragments in our academy herbarium, where it had been confounded with the common Ceanothus cuneatus, but from which it differs very widely in having its leaves and flower clusters alternately arranged, and in having large and conspicuous black stipular glands. The shrub, as seen growing, betrays at once a very different habit from that of Ceanothus cuneatus. It is larger, with a rather graceful tree-like head, and showing a trunk covered with dark, almost black, rough bark; whereas the bark of its ally is smooth and of an ash colour; moreover, it seldom or never assumes the distinct Plum tree outline, in allusion to which I name the new species Ceanothus pruniformis. At the date of my observations it was in full flower, and at a distance could easily have been mistaken for a wild Plum.—E. L. GREEN, in *Pacific Rural Press.*

Fruiting of the Cocoa plant.—At a recent meeting of the Royal Botanic Society, Prof. Bentley mentioned that in the last quarterly record of the Society was a note by the secretary upon the fruiting of the Cocoa plant in the Society's garden. So far as he could ascertain, it was the only instance known in this country, and he was happy to say the fruit seemed likely to reach maturity and ripen its seeds. It was interesting from its being one of the very few plants that produced their flowers directly upon the main stem and large branches. Speaking of the consumption of Cocoa, he said that the amount imported in 1820 was only a quarter million pounds, in 1866 it had reached four million pounds, in 1873 eight million pounds, and at the present time was probably not less than twelve million pounds per annum.

Tuber-bearing Solanums.—An excellent paper on this subject, by Mr. J. G. Baker, of Kew, is given in the last issue of the Linnean Society's Journal. The conclusions arrived at are, "That there are six distinct species of tuber-bearing Solanum, viz.: 1, S. tuberosum, with many varieties, extending as a wild plant from Chili to the Rocky Mountains—climate always cool, equable, dry; 2, S. Maglia, wild on damp coasts of Chili; 3, S. Commersoni, wild on lowlands of Uruguay, about Montevideo; 4, S. cardiophyllum, wild in highlands of Central Mexico; 5, S. Jamesi, wild in Rocky Mountains; 6, S. oxycarpum, wild in Central Mexico. All the cultivated forms owe their origin to tuberosum, but Darwin's plant and that experimentised by Sabine are not tuberosum, but Maglia. Deterioration of the Potato may, no doubt, be traced to two sources—too much of its vitality being thrown into the tuber at the expense of other parts of the plant, and its being grown in unsuitable climates (*i.e.*, countries damper and warmer than its native home. There is a wide field open for further experiment in cultivating species 2, 3, and 4, and hybridising them with tuberosum. Maglia would, do doubt, bear damp, and Commersoni (Ohrondi) warmth better than No. 1. The Potatoes of Jamesi and oxycarpum would, no doubt, be too small to be of any practical use."

Books (*Gladiolus*).—Hobday's "Cottage Gardening."

Alpine Auriculas (*E. W.*).—Bold and showy, but not of much value commercially; they sadly lack refinement. An alpine Auricula should have a shaded edge and a bright gold centre.

Grasshoppere (*M. C.*).—The insect which you send is a not fully developed specimen of female grasshopper, belonging, I believe, to the genus Copiophora. It is not a native of this country, but it has been found more than once recently in hothouses. It would probably prefer the leaves to the blossoms of the plants you mention. Grasshoppers are vegetable feeders, and are very undesirable inmates of hothouses. Destroy all you can find. The larger specimens you found were probably the fully developed, perfect insect.—G. S. S.

Names of plants.—*A. K.*—Amaryllis (Hippeastrum) marginata. —*F. R. Smith.*—Apparently Epidendrum phœniceum, but cannot be certain without fuller material —*L. M.*—Orobus vernus (blue); the other is Polygala Chamæbuxus.—*E. Beveridge.*—1, Masdevallia ignobilis; 2, M. triangularis; 3, Berberis Darwini; 4, B. stenophylla; 5, apparently Gongora portentosa —*W. C. Walker.*—Next week.—*G. C.*—1, Orobus vernus; 2, species of Symphytum (send better specimen); 3, Cynoglossum sempervirens.—*D. Dowdeswell.*—1, species of Cerastium (foliage required to name species); 2, Ajuga reptans; 3, Lamium purpureum; 4, Nepeta Glechoma —*J. W. Ley.*—Crinum asiaticum.—*F. Knel er.*—Spiræa Thunbergi; Ilex dipyrena; Quercus Mirbecki.—*Salmoniceps.*—Phillyrea augustifolia, a variety of a very variable plant.—*Young Gardener.*—Amelanchier Botryapium.—*C. L. C.*—1, Mercurialis perennis; 2, Adoxa Moschatellina; 3, Stellaria Holostea.—*H. D. Evans*—1, Dendrobium chrysanthum; 2, Tillandsia Gardneri; 3, T. stricta; 4, Oncidium flexuosum; (send when in flower).

APPOINTMENTS FOR THE WEEK.

May 13.—South Kensington.—Meeting of the Fruit and Floral Committees of Royal Horticultural Society.
14.—Bath Spring Show.

No. 652. SATURDAY, May 17, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM NICE.

Now is the time when poor, frost-nipped English gardeners should come here and see what wonders sun and rain can work where there has been no check beyond winter drought. Even I, accustomed as I am to it, think I never in my wildest dreams imagined anything so gorgeous as the wealth of Roses and other flowers grown as they are by the acre for winter blooming, and which now are uncut, as it is too hot to send flowers so far as to Paris. Rose Marie Henriette is specially brilliant in contrast with Lamarque and Cloth of Gold. The two latter have sometimes five and even seven fully expanded Roses in one head, giving the effect of Roses bigger than Pæonies. Reine Marie Henriette, however, seems to flower more down, long shoots carrying a single flower at each joint for many feet; it is the most decorative red climbing Rose I have yet seen. Is Beschorneria yuccoides hardy anywhere in England? It is now flowering abundantly here, and its tall, scarlet bracted stems and bright red and green pendent flowers would add a new charm to any garden where it may thrive. It is reported to be as hardy as Yucca aloifolia. Strange to say, Phœnix canariensis var. tenuis is proving itself the hardiest of all Palms, and will certainly thrive out-of-doors wherever the common Agave or Aloe exists. Last year, when severe frosts did great damage in the low grounds or in exposed windy corners, this Date Palm did not suffer in the least, while the common one was disfigured in many places, and even the Aloes were cut. For those who have sunny gardens in the south of England these two plants may be a very striking addition. I am amused to see how many folk call Pittosporum Tobira white Daphne, and even call it Daphne Blagayana! Bushes of D. Blagayana 20 feet high and much more round would be a sight indeed! The newer rose-coloured Ivy-leaved Geraniums are most beautiful as they hang down from many a high garden terrace wall, and suggest the idea that if some old-established plants were placed for the summer in England, either on rockwork or hanging down a steep bank, we should find ourselves well repaid. Young plants struck from cuttings cannot give any idea of their beauty. The air is so heavy with the scent of Orange blossom, Roses, and Pittosporum, Heliotrope and Jasmine, that many people are leaving in consequence. Doubtless to such a good whiff of London smoke will be a welcome tonic!

E. H. WOODALL.

Flowering of Rheum nobile in Aberdeenshire.—Perhaps if another edition of "The English Flower Garden" be brought out you would like to mention that R. nobile succeeded perfectly here; it was about 4 feet or more high, a pyramid of ivory delicately veined bracts each covering a flower-spike, but so compact for the first few weeks it looked as if you could not insert a knife under these pure white (or ivory rather) leaves; later it became looser, and one gradually saw under and into its little green flowers, and finally we got seed from it and gave some to Mr. Lindsay at the Edinburgh Botanic Garden, and we find ours have begun to come up, though we feared (and Mr. Lindsay quite decided) there was no chance of their having fully ripened. We fear the old plant is not going to appear again. We have had it six years from seed from the Sikkim branch of the Himalaya Mountains, where our gardener's son is. It requires no care, just to be left alone in a common mixed border. The Edinburgh one never got full justice, as an accident happened to it before it seeded.—FORBES IRVINE, *Drum Castle, Drumoak, Aberdeenshire.*

Narcissus nomenclature.—Apropos of Narcissus nomenclature, kindly let me, in answer to the Rev. Mr. Wicks (p. 383), state the case very briefly from a botanist's point of view. We botanists, one and all, object strongly to any names in Latin form being put into circulation unless two conditions are fulfilled—firstly, that a clear definition of the characters of the form named should be printed in some accessible book or periodical; and secondly, that it should be explicitly stated to what grade in systematic classication, whether genus, species, variety, garden form or hybrid, the name refers. As Mr. Burbidge very properly points out, Daffodil lovers cannot isolate themselves and live in a world all alone to themselves. All questions connected with nomenclature must be discussed and settled on general grounds. The catalogue will be a great boon to botanists in dealing with the genus, and I am sure we shall all feel that Messrs. Moore and Barr have earned our hearty thanks. We shall not now need to waste our time in hunting about to find out what is the meaning and status of a large number of names in Latin form, like primulinus, Leedsi, Barri, Burbidgei, and Humei, which have been put into circulation in gardens without any definition or explanation. A botanist feels towards names such as these as a cat feels towards mice or a shopkeeper towards bad half-crowns.—J. G. BAKER.

Is our climate deteriorating?—Perhaps 68 years' experience may add to the interest naturally created by this enquiry. From my school days the garden has been my delight—first as a working amateur, and for many recent years by watching the proceedings of a skilful gardener. The following remarks are the outcome of the former period. I will start with 1816, locality South Hants. Peaches and Nectarines were universally grown in all gardens of any pretension, the green aphis being their only enemy. Apricots ripened thoroughly and were planted against old walls or on walls unsuitable for Peaches. Every cottage and every respectable house had its vine of Black Cluster and Sweet Water Grapes, which generally ripened and coloured well. Cherries were so abundantly produced on old trees as to be sold from carts at 4d. per lb., and in our home garden we shared the crop with the sparrows to our mutual content. The Green Gage Plum grew on standards and were sold by the gallon. Cucumbers were ridged out under handglasses on the 1st of May, and the crop was offered during the summer months at two for a penny. I now come to the present, and, for many past years, Peaches and Nectarines cannot be grown on open walls without protection, and then not in quantity, oftener than once in five or six years. Apricots seldom ripen and are consequently discarded. All the house and cottage vines are removed from the same cause. The Green Gage comes only from walls and is very shy even then. Cherry trees are all cut down, and under glass only can Cucumbers pay for culture. These are my experiences from 15 years of age to my present total of 82. Do they establish Mr. McNab's theory?—G. D.

Rhododendron exoniense.—Flowers of this lovely new greenhouse Rhododendron have reached us from Mr. Robert Veitch's nursery at Exeter, where the variety originated. It differs in several particulars from the numerous other Rhododendrons of the same race. The flowers are about the size of those of a good form of Azalea indica; they are pure white when expanded, but the buds are tinged with pink. The foliage is small and glaucous beneath. It is a most profuse flowerer, and one of its chief good qualities is its compact and symmetrical habit of growth. It always assumes a rounded outline, and is never straggling, as in the case of other varieties of white greenhouse Rhododendrons. A photograph sent with the flowers clearly shows this peculiarity in habit. It is, we consider, a real addition to greenhouse flowers, and one that will inevitably become popular. Each time it has been exhibited in London it has been greatly admired.

Musa rosacea is one of the handsomest flowered of Bananas, the beauty of its inflorescence being its chief recommendation to horticulturists, as is also the case with the two other ornamental flowered species, viz., M. coccinea and M. violacea. The best of the trio is, of course, M. coccinea, the dwarfness of whose stature and brightness of whose floral bracts renders it especially useful for ordinary stove cultivation. M. rosacea grows to a height of 12 feet, and produces an erect spike of flowers, and along the upper portion of this spike the large rosy purple bracts are arranged. A plant of this species is now in flower in the Palm house at Kew. It may be worthy of note here that Loudon's description and country for M. rosacea seem to belong rather to M. Sapientum than to the true rose-coloured species, which is a native of India, and not of Mauritius, as is stated by Loudon, that island possessing only one native Musa, viz., M. Sapientum. M. violacea is a handsome species, rather like the rosaceous one; in fact, the two are often confused with each other, and as they are almost identical in everything except the colour of the floral bracts, it is impossible to discover any error until the flowers appear.

Passiflora alata.—This, though one of the oldest, is yet one of the most beautiful of the Passion flowers, as healthy and as vigorous in growth as a Kidney Bean, and as free flowering as a Tropæolum. Like P. quadrangularis, it has winged stems, large, entire, dark green foliage, and is a large growing climber, covering a pillar or the whole side of a stove in one season if its roots be happy and the temperature and atmosphere of the house are right. The flowers are 4 inches across, the sepals and petals overlapping each other, and curving slightly inwards so as to form a saucer-like outer whorl, which is vinous purple inside and green outside. Arranged round the centre of this saucer is the corona, which is composed of a large number of erect, cylindrical, pointed or subulate filaments placed thickly together, so as to form an inner cup like what is seen in the Daffodil, in which, however, the cup is really a cup, and not a whorl of filaments. The colour of this crown is the chief attraction in the flower, each filament being zoned with white and pale violet from base to point. The odour of these flowers is a most delicious one, unless one sniffs at a flower old enough to have commenced to decay, and then the odour is a little mixed. For cultivation in large stoves we strongly recommend this beautiful Passion flower. There is a plant in the Palm house at Kew which is now bearing a large number of blossoms. Two other species of Passiflora are also in bloom in the same house, one on each side of the above species—they are the handsome hybrid P. Belloti, whose relationship with P. alata is easily traced both in the colour and shape of its flowers, and a white-petalled, violet-crowned species named P. quitensis, though, according to Dr. Masters' de-

scription of this species, the name is wrongly applied to a large white-flowered plant.

PLANTS IN FLOWER.

Rose Lady Mary Fitzwilliam.—Two good blooms of this Rose, cut from a plant in a small pot growing under Vines, have been sent to us by Mr. Fish. Its scent is that of a Tea Rose, but its form is more like that of a Hybrid Perpetual than a Tea It promises to be a useful variety.

Coronilla glauca.—Some finely flowered sprays of this have been sent to us from Hopton Hall, Wirksworth, Derby, by Mr. Bolas. They are from a plant planted out last summer in a spot very much exposed to strong west winds the year through. Nevertheless, it is now very bright and effective.

Buddlela globosa in pots How well this favourite old shrub thrives under pot culture! We treat it as a winter flowerer, and the specimens herewith sent are from plants in small pots (long toms, as they are called). Singular to say, each branch produces eight flower-heads. G. Bolas, *Hopton Hall, near Derby.*

*** Judging by the specimens sent, the Buddleia is grown admirably in pots by Mr. Bolas, and no doubt it is a useful plant for the conservatory, especially in winter.—Ed.

Dendrobium thyrsiflorum.—A magnificent spike of this Dendrobe was sent to us the other day from New-Hall-Hey, Rawtenstall, near Manchester, by Mr. Law Schofield. It is the best we ever saw, both as regards colour and size. The bulb from which this spike was cut measured 21 inches long and 3 inches round, and the plant bore three other spikes the same as that sent. The cluster of flowers measured 10 inches long and 4 inches in diameter.

Scarlet Mitre flower. Some beautifully flowered sprays of this little-known Chilian shrub, Mitraria coccinea, have been sent to us by Mr. Crook from the garden at Farnborough Grange, where it evidently thrives to perfection. Its long slender shoots, gracefully hung with bright scarlet urn-shaped flowers over an inch in length, have an extremely pretty effect. It is almost hardy, but our correspondent does not state whether he grows it under glass or in the open. It is a plant not half known enough.

Hoop-petticoat Narcissus.—I send you a few blooms of this Narcissus; they are from large masses in the borders here. Many of the clumps contain from 40 to 60 flowers, and I need hardly say how grand they look when grown in such large masses, far surpassing the feeble way of dotting one or two all over the border. Few flowers surpass this Narcissus for cutting from. No flower is more simple or more elegant, and none are of simpler culture. Five years ago we had but one pot, and now we have a good stock of it both out doors and under glass.—J. Crook, *Farnborough Grange.*

Marechal Niel Roses.—Some extraordinarily fine Maréchal Niel Roses have been sent to us by Messrs. Cooling from their Rose Nurseries at Bath. They are, without exception, the largest and finest flowers we have ever seen of this Rose, and Messrs. Cooling themselves say that they are the finest they have ever cut. They were included in the collection which took the first prize for cut Roses at the Bath Show on Thursday last. We should have welcomed any information from Messrs. Cooling as to the conditions under which these flowers have been produced.

French Pansies A beautiful gathering of Pansies has been sent to us by Messrs. E. Forgeot, of Paris; they excel any we have seen for a long time both in point of size and variety and splendour of colouring. They are chiefly what are called fancy Pansies. Some are self-coloured —snowy whites, glowing yellows, and rich purples; others are singularly blotched and spotted, while some are striped and feathered in a fantastic way. A pure white sort with rather small flowers was very beautiful; also one with a rich edging of purple on a creamy white ground. We have seen some of these varieties at Munstead, where they are grown admirably from seed and treated as liberally as Cabbages.

Rhododendron campylocarpum.—Of this rarely seen and extremely pretty Rhododendron a truss of flowers has been sent to us by Mr. W. Nanscawen, from Coldrinnick, Menheniot, Cornwall. The flowers of this species are similar in size and form to those of R. Thomsoni. The leaves are ovate and glaucous on their under surfaces. The colour of the flowers is a soft primrose-yellow, and on their bases is a crimson blotch. There is a delicate beauty about this Rhododendron which renders it most interesting. There were ten flowers in the truss. It is a Himalayan species, and presumably hardy in Cornwall.

Berberis Darwini.—Mr. Smith has sent us from Messrs. Rodger, McClelland's nursery at Newry two charming varieties of this Barberry. One is named B. Darwini nana, the extreme height of which is from 2 feet to 2½ feet and the width from 3 feet to 4 feet—a crowded mass of stems and shoots, and now a dense mass of flowers and buds. In the other (B. Darwini pendula) all the shoots start with a curve, arch over, and touch the ground at the point. This grows about 1½ feet high in the centre, and is nearly 4 feet wide. They are the most conspicuous shrubs on the rockwork at Newry at the present time.

The Fire Bush (Embothrium coccineum).—A dense flower cluster of this brilliant Chilian Protead has been sent to us from Coldrinnick, Menheniot, Cornwall, by Mr. Nanscawen, where it evidently flourishes to perfection. The Honeysuckle-like flowers are of fiery scarlet in colour, encircled by a collar-like row of bright green leaves. It is to be regretted that such a beautiful shrub as this is should be too tender to thrive in the open air, except in the south-west counties, especially Cornwall, as it cannot be grown so successfully under glass. It seems to require a free, open atmosphere. It was figured in The Garden, Vol. X., p 566.

Scilla verna.—At Mr. Baker's suggestion I forward a series of Scilla verna from different parts of England, and one Spanish variety. For the name of the last I am indebted to Mr. Baker. 1, from Llandudno; 2, from the Land's End; 3, from Tenby; 4, from Northumberland; 5, from Spain. The last, Ramburii of Boissier, is rather larger than the rest both in flower and leaf, and the umbel is more racemose. Those from the Land's End and from Llandudno are nearly alike. From Tenby the plant is more vigorous and the flowers finer; the pink variety, as in the case of the pink variety of Scilla bifolia, is larger than the blue; but the most remarkable deviation from the type is apparent in the specimens from Northumberland. The petals in this variety are more pointed, and the umbel closer and more pyramidal. I have another small Scilla in bloom just now, but allied rather to Scilla autumnalis than to verna—viz, Scilla pratensis.—T. H. Archer Hind, *South Devon.*

*** A most interesting series, which shows what variation there exists even in the little vernal Squill from different localities. The pink form from Tenby is very pretty. S. Ramburii of Boissier appears to be only a geographical variety of S. verna.—Ed.

Late flowering Tulips.—A large and varied assortment of late-flowering Tulips has been sent to us by one of the chief of Dutch bulb growers, viz, Messrs. Ant. Roozen & Son, Overveen, near Haarlem. They all belong to the old florist's class of Tulip which have sprung from Tulipa Gesneriana. All the sections of the florist's Tulip are represented in this collection; thus there are feathered and flamed bizarres, feathered byblœmens, feathered and flamed roses, and breeders. Some of these are very fine, but there is a great similarity of colours among them, and probably owing to this circumstance these late Tulips are not so popular in English gardens as they once were. There is, however, likely to be a revival in this direction, as we heard, only a few days ago, that the popular taste is being turned towards these strangely coloured Tulips. The flowers find favour particularly with the flower-loving public at the west end of London for decorative purposes, and certainly some unusual effects can be produced by them. They are valuable in the open-air garden, as they fill a kind of gap between the Narcissi and other spring flowers and the full flower-tide of summer. From the bountiful collection which Messrs. Roozen have sent us we have selected the following named sorts, as being among the finest and most distinct. Another good quality these Tulips possess is, that they last in good condition in water for over a week if the stalks are freshly cut every alternate day: Gloire de Walworth, a fine variety, creamy white, edged and flaked with crimson; Constantine, creamy white, flaked with crimson; Rose Paarlschoop, rose-pink, flaked with deeper and lighter hues; Bacchus, purple, striped with white; Rose Tendre, white, and crimson streaked; Madame Gyzelaar; Rose Camuse de Craix, creamy white and crimson; Gesneriana major, the most brilliant of all, the colour being a vivid crimson and very shiny; Antipatre, deep crimson, flaked with white; Reine d'Espagne, deep purple, flaked with white; Willem de Zwyger, large, and of a rich deep claret-purple.

Flowers from Cornwall.—From Mr. J. C. Tallack come examples of outdoor flowers gathered in the garden at Prideaux Place, Padstow. Among them are spathes of Arum Lily taken from a plant standing in the centre of a small pond and growing in a 14-inch pot, the rim of which is about 2 inches below the surface of the water. This has been its position for the past eighteen months, and it has stood the late mild winter without the least protection. There are at present about a score of spathes showing, and they are very fine ones. A Camellia sent is stated to be almost the last of the season; the bloom is a fairly good one, but the plants have not flowered so well as usual this year. Banksian Roses, also in the collection, are not so fine or so plentiful as they generally are; the white one especially is very poorly flowered, owing to the unripened state of the wood. From the same garden likewise come alpine Auriculas, which have been very good, but now past their best. Rock Roses (Helianthemums) are simply glorious. Of the three varieties—dark red with a tinge of crimson, rose-coloured, and yellow—it is difficult to know which to admire most; but for beauty and scent combined none of the flowers sent can be compared to the double Poet's Narcissus, which in both respects is quite equal to the best of Gardenias. Amongst other flowers sent are Roses, Squills, Japanese Primroses, Habrothamnus fasciculatus, Weigelas, and Lily of the Valley.

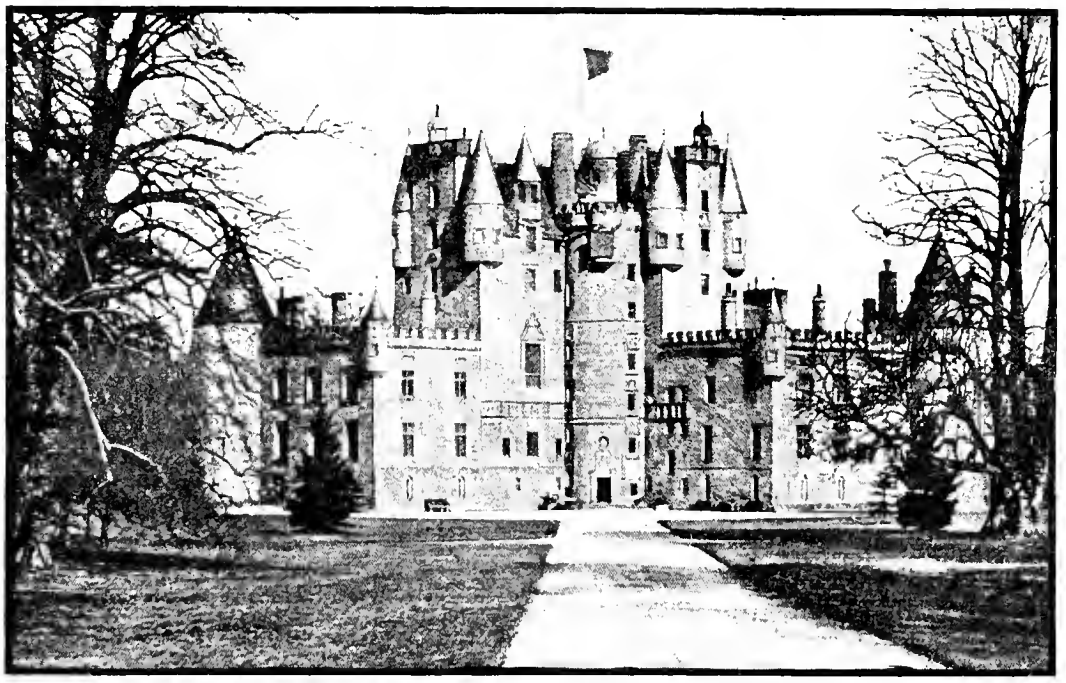
A new scarlet Thistle.—Cnicus conspicuus is the name borne by a very Scotch-looking Thistle with a red head of flowers in one of the compartments of the T range at Kew, and we suspect that, to those who have heard so much of the beauty of Mexican Thistles, this new introduction from that country will prove somewhat disappointing. It is said that this identical species was cultivated in gardens in this country many years ago under the name of Erythrolæna conspicua, and that, after enjoying much popularity, it was allowed to disappear altogether. We are more surprised at the popularity it enjoyed than at its being cast aside, for our native Thistles must have been as plentiful in the halcyon days of the red-headed Mexican Thistle as they are now, and we know of many farmers who would be glad to supply waggon-loads of Carduus, Cnicus, and other Thistles to anyone anxious to possess them as garden plants, and, so far as ornament goes, the farmer's gift would be worth more than the Mexican weed. By the side of Carduus nutans, this new, or rather lost and recovered, Cnicus would appear quite second-rate, even as a Thistle. There may be something more in the Mexican plant than in our own Thistles from an economical standpoint, but the best judge on these points—so far, at least, as Thistles are concerned—is our friend the donkey. We would not recommend C. conspicuus as a good garden plant, whatever may he its value for fodder purposes.

GLAMIS CASTLE IN JANUARY.

If it be true, as Lavater says, that "as a man's salutation, so the total of his character," then Mr. Johnstone must be one of the most agreeable of men, as well as one of the best of gardeners. After a tiring railway journey it was cheering to receive a friendly greeting. The approach from the station to the castle is by what is called the station drive. For the first mile or so it wends through a wood, with a copious undergrowth of cover for game in the shape of Rhododendrons. Now and again a roe-deer would run composedly across the road. From this woodland the road enters the park—exactly like an English park in appearance—the trees massive and old, and backing one another up apparently, although not in reality, to the base of the Sidlaw Hills; this paradise covers in all about 2000 acres. Soon Earl Patrick's Bridge is reached, from which there is a pretty view. Half a mile further on is the castle, before reaching which the main drive, an avenue of a mile in length and 22 feet broad, has to be crossed. At this point the finest view of the castellated pile can be obtained. It seemed so quiet, notwithstanding its grandeur and giant size—the only noise the cawing of the rooks in the avenue, the only background the frothy leaden clouds driven by stormy Boreas. Any lengthened musing, however, about King Duncan and knightly lord and cruel is vetoed. "You must see this Yew—it is the finest I know," said my conductor; it was indeed a fine tree, 18 feet round at 6 feet from the ground. The gardens are about a quarter of a mile from the castle, and the path thither traverses a well-arranged pinetum planted about eighteen years ago for shelter to the flower garden, which is outside the kitchen garden, and wisely so, as any blaze of colour would be shockingly out of place round a castle like Glamis. Picea Nordmanniana and nobilis grow very freely here, as do also Abies grandis, Douglasi, and Albertiana. Separating the flower garden from the pinetum is the clear limpid stream of the Dean. A flower garden in January is necessarily rather dreary to look upon; but notwithstanding some previous contention, it must be acknowledged that the one at Glamis is just where it ought to be, and, *mirabile dictu*, gives a kempt appearance to the stream bank.

The kitchen garden, again, is ornamental as well as useful, and the vegetables are kept as far out of sight, by means of hedges and herbaceous borders, as possible. The collection of herbaceous plants is one of the best in Scotland, and is an especial object of care to Mr. Johnstone. The first thing that strikes one about the vineries and Peach houses is their height, the back wall being from 18 feet to 20 feet. This, as is fully exemplified in other gardens, greatly aids in finishing the Grapes properly. As regards varieties for very late use, Lady Downes is a great favourite, and preferred both for keeping and flavour to Alnwick Seedling. Gros Colmar is not much grown, and, although rather guarded in his reply, I fancy Mr. Johnstone does not like it. Mrs Pince is magnificent. Cosford Black is a synonym of Gros Maroc, a Grape which should be largely grown; it is a grand Grape in appearance, as dark as a Sloe, with a beautiful bloom. On a back wall it colours as well as in front, and is very juicy and fairly well flavoured. Of white Grapes, Raisin de Calabre is grown instead of Trebbiano, and Mrs. Pearson is thought well of, but not so Golden Queen. Mr. Johnstone's plan of inarching two canes into one is too well known now to need any special notice; he uses none of the advertised Vine manures, but simply a mixture of lime, soot, and common salt spread on the border and watered in. Among Peaches, the red Magdalen is very much liked. The plant houses are well stocked, especially the Palm house, which contains a grand Seaforthia. On the back wall of the stove is trained the largest Begonia plant I ever saw. A quantity of Asparagus plumosus nanus is grown for decoration and cutting. In the forcing pits were a quantity of Rhododendron Nobleanum and Souvenir de la Malmaison Carnation and East Lothian Stock, three flowers extremely useful about Christmastide. The Pines are even finer than those at Taymouth. There is one fruiting house for them and three succession pits. The variety for winter use is unmistakeably Charlotte Rothschild. A more even and finer collection than Mr. Johnstone had to show of this variety could not be imagined; not a small one amongst them, many reaching 9 lbs. in weight. In the same house were fine examples of Smooth Cayenne, Prince Albert, a first rate kind, Lady Beatrice Lambton, and Black Jamaica. The fruit room displayed a fine collection of Apples, the best crop there has been at Glamis for ten years. Northern Dumpling and Beauty of Moray are two new Scotch kinds that should be grown everywhere, being very hardy and of excellent quality. In Potatoes, the White Elephant, as in many other parts of Scotland, has not only given enormous yields, but proved a table Potato of first-rate quality. The wall trees are fine healthy trees and beautifully trained, chiefly on the fan system. The gardener's house is very pleasantly situated, and, taken all in all, Glamis kitchen garden is a model of what such a garden should be.

C. A. M. Carmichael.



Glamis Castle, Forfarshire.

NOTES.

On gardens.—Ever since the first man was placed in the first garden to dress it and to keep it have gardens been ever the chosen resort of the wisest and most thoughtful of mankind. Numa left his garden at Cures to become the king of Rome. That Cincinnatus was taken from the plough to be a dictator is well known; and even Plato sought peace and consolation in the pleasant haunts of a garden. It is likewise recorded of Socrates that he delighted in gardens—loved to sit beneath a spreading Plane tree near to a purling stream at eventide. He forgot Xantippe there. René loved to show his flowers to his friends, and Fenelon also was a lover of gardening. That Shakespeare loved flowers needs no record beyond his own. Bacon also gave to the garden of his philosophy just as do the best, and highest, and wisest among us to-day.

New species of Potato.—In the Journal of the Linnean Society, No. 131, p. 489, Mr. J. G. Baker, of Kew, gives us some very interesting information on the wild South American Solanums which yield edible tubers. Mr. Baker points out that cultivators seem to act as if the production of tubers was the sole object in life of the Potato plant, and he further shows that any plant thus brought to the tuber-bearing state by abnormal means is at once disorganised and rendered unhealthy—indeed, a fitting subject for fungi and aphides. In a word, we debilitate our

Potatoes by over-feeding and over-work, and the great difficulty with which we have to fight the disease is enhanced, inasmuch as we grow this and other cultivated plants in great masses; whereas in a state of nature these plants are more or less isolated or scattered amongst other vegetation. Six species are represented by figures beautifully drawn on stone by Mrs. Baker. These are S. tuberosum, S. Maglia, S. cardiophyllum, S. Commersoni (S. Ohrondi), S. Jamesi, and S. oxycarpum. As several of these are now in cultivation, it is hoped our present race of Potatoes may become through their aid extended and improved.

Fair Daffodils.—When Milton wrote that oft-quoted stanza—

> Bid Amarantus all his beauty shed,
> And Daffodillies fill their cups with tears
> To strew the laureat hearse where Lycid lies—

it is by no means a certainty that he had any kind of Narcissus in his mind's eye. It has by some been thought that some Fritillary—perhaps the Crown Imperial—was the plant he alluded to, seeing that these plants really possess the power of filling "their cups with tears," or, what is pretty much the same thing, with pearly drops of moisture. Parkinson alludes to Fritillaries of the F. Meleagris section as Chequered Daffodils, and even Milton may have had these plants in view when he wrote.

The Bronze Leaf.—Of all foliage plants now luxuriant in the open air there are none equal to this in beauty. It is a giant Saxifrage from Japan, but as yet very rarely to be seen in even the best of gardens. It enjoys a deep, cool border of peat or leaf-mould, and likes shelter, but not shade. Its great, five-lobed leaves are borne aloft on 2-feet-long stalks, and when young remind one of Horse Chestnut or Pavia leaves. Each leaf when fully developed is 18 inches to 2 feet in diameter, the lobes being daintily wrinkled and of a glistening brown colour. The botanical name is Rogersia podophylla, it having originally been brought from Japan by Captain Rogers of the U.S. navy.

Allium triquetrum.—When well established this is very effective. We planted it three years ago at the foot of a sunny wall along with Gladiolus Colvillei albus (The Bride), and as now seen in flower the Allium is indeed most effective among the clusters of grassy leaves. Its ally, A. neapolitanum, is even more graceful, but does not flower so freely with us as does this species and the yellow-flowered A. Moly. This last is the Moly of Homer, and apart from its classical associations it is in all ways a distinct and effective decorative plant, increasing in strength and beauty year after year. A. paradoxum bears aloft its pearly bulbils instead of blossoms, and in general habit closely resembles A. triquetrum.

Moss culture.—An anonymous correspondent thinks it well to tell me that "criticism is the easiest kind of literature, and that it is not difficult, therefore, for me to condemn a new thing." I did not (p. 372) condemn nor "criticise" Moss culture, although I am quite sure that I can make as good "fertilising Moss" or "artificial manures" for my own use as are any of those offered for sale ready made. Besides, "Moss culture" is no new thing, since in the *Magazine of Botany and of Gardening*," vol. ii. (by James Burnett, Esq., M.A.), p. 38, I find the following account under the title of "How Mosses may be used in the cultivation of certain plants": "Several species of exotic plants grow well in common flower-pots, or indeed any vessel, whether round or square, very compact and close or porous and open, when filled with Moss. Mosses may thus be used with much advantage, especially for plants which require large pots and much moisture. The Canna indica, Canna patens, Datura arborea, Agapanthus umbellatus, Hydrangea hortensis, Eucomis punctata, Eucomis striata, Calla æthiopica, Eranthemum pulchellum, with several others, most readily send forth roots in Mosses or Hypnums. Cuttings of the Hydrangea readily strike root in the Moss, and soon form flowering plants. The yellow Crocus grows and blows well in pots filled with Moss; and some other bulbs would, perhaps, also succeed." This account, be it noted, was published in 1836, or nearly forty years ago, and the author evidently knew of the

Advantages of Moss culture, since they are duly set forth as follows: "Ornamental plants, when so grown, are much better adapted for being placed in sitting-rooms. Plants may much more safely be sent to any distance in Moss without pots than in earth and pots, the roots penetrating the Moss and forming balls, which retain moisture for a long time. When Moss is used, draining needs little to be thought of. Those Mosses that grow in plantations should be preferred, because many bits of rotten spray and decayed foliage mingle with them, and form a desirable addition. Pull up the Moss with its roots, or, if the place of growth admit, cut it up with an inch of the surface vegetable mould adhering to it; or, the Moss wetted, may be rolled among vegetable earth, which will adhere to it. Some plants grow well in the pure Moss, but many more will succeed in Moss mixed more or less with such earth. Hypnum Moss, it has been thought, possesses a power, to some extent, of regulating temperature more than most kinds of earth; that is, it resists extreme heat and extreme cold, and is not apt to lose all moisture suddenly, while it discharges a superfluity readily. It becomes also gradually richer by decay, when a supply may be easily added."

New things.—In garden work what are called new methods of cultural practice are generally as old as the hills. Our practice is after all a pedlar's cry of "new lamps for old," and we are all too apt to throw away the old broom which has done excellent service in exchange for that untried new one which, as the proverb hath it, always sweeps clean. New plants even are often most disappointing, while the old favourites of long ago are now loved like lost sheep, or, like the piece of silver, found again. New names are, indeed, plentiful enough, but new things are scarce, as it seems to me, in inverse proportion.

An alpine forest.—"There is a wondrous charm about these illimitable forests of Pine," says Ruskin, "which for miles and miles clothe the huge buttresses of the Alps. The charm is intensified at early morning, when a delicious fragrance steals up from innumerable wild flowers in the various openings among the trees, and from the green Moss which clothes with such velvet softness the rocks lying half-hidden in the rich verdure. Variegated Lichens enrich with the colours of the kaleidoscope these rocks and river-stumps; wild Strawberries peep out with their pretty pink eyes from the shady Grass, and if we chance to look upward from the wealth of beauty below through the rifts in the dark foliage overhead, some pinnacle of snow is seen soaring into the deep blue sky, as soft and white and still as the wing of a sleeping swan."

St Michael Oranges.—"Nothing can well exceed the beauty and rich luxuriance of the Orange quintas of St. Michael—those Hesperian gardens where the trees are literally laden with fruit, and where Apples of gold succeed the deliciously fragrant blossoms of silver all the year round. The principal fruit months are from November to March, when the emerald-green tints of foliage and unripe fruits mingle their beauties with the fruit that is ripe and of a brilliant gold." Thus writes a recent visitor to the Azores, where fruit trees and many rare tropical blossoms are quite luxuriant in the open air. The soil is rich in volcanic refuse and a genial climate is there, needing only cultural skill to make of it a very paradise.

A garden at Signa.—"In the garden of these children all the flora of Italy was gathered and was growing. The delights of an Italian garden are countless. It is at once more formal and more wild, at once greener with more abundant youth, and venerable with antique age. It has all Boccaccio within its walls, all Petrarch in its leaves, all Raphael in its skies, and then the sunshine that beggars words and laughs at painters! the boundless, intense, delicious, heavenly light! What do other countries know of that, save in Orange groves of Grenada and Rose thickets of Damascus. The old broken marble statues whence the water dripped and fed the Water Lily; the great Lemon trees in pots big enough to drown a boy; the golden globes among their emerald leaves; the Magnolias like trees cast in bronze, with all the spices of India in their cups; and the spires of ivory bells that the Yuccas put forth like belfries for fairies."

"**The Oleanders,** taller than a man, red and white and blush colour; the broad velvet leaves of the flowering Rush; the tall majestic Ilex Oaks, that made the noon like twilight; the countless graces of the vast family of Acacias; the high Box hedges, sweet and pungent in the sun; the stone ponds, where the goldfish slept through the sultry day; the wilderness of Carnations; the high Roses, yellow, crimson, snow-white, and the small Noisette and the Banksian, with its million of stars; Myrtles in dense thickets, and Camellias like a wood of evergreens; Cacti in all quaint shapes like fossils surprised to find themselves alive; high walls were there, Vine hung and topped by Pines and Cypress; low walls, with crowds of Geraniums on their parapets; and the mountains and fields beyond them."

In Italy.—"Great sheds and granaries were beautiful with Clematis and Wistaria and the rosy trumpets of the Bignonia—great wooden places, cool and shady with vast-arched entrances, and scents of hay, and empty wine casks, and red earthen Amphoræ; and through the high unglazed windows sights of the green Vines, with the white bullocks in the harvest carts beneath them, or of some hilly sunlit road with a mule team coming down it, or of a blue high hill with its Pine trees black against the sky, and on its slopes the yellow Corn and misty Olive. This was their garden; it is ten thousand other gardens in this warm and sunny land. The old painters had these gardens and walked in them, and thought nothing better could be needed for any scene of Annunciation or Adoration, and so they painted them beyond the windows of Bethlehem, or behind the throne of the Lamb."

South American forests.—Humboldt, in his descriptions of South American vegetation, says, in language that will not soon be forgotten, "It might be said that the earth, overloaded with plants, does not allow them space enough to unfold themselves. The trunks of the trees are everywhere concealed under a thick carpet of verdure, and if we carefully transplanted the Orchids, the Pipers, and the Arads which a single S. American Fig tree shelters and nourishes, we should cover a vast extent of ground. The same lianas or vines which creep along the ground slide up the trunks and reach the tops of the highest trees, passing from one tree to another at the height of more than 100 feet. Thus by a continual interlacing of parasitic and epiphytal plants the botanist is often led to confound the flowers, the fruit, and the leaves belonging to different species." Of the Orchid plants he adds, "One life would be too short to paint the Orchids alone in one of these S. American ravines."

VERONICA.

Sparrows and green fly.—The common sparrow has so few friends among cultivators, and was so roughly handled a few weeks since in THE GARDEN, that I must relate a circumstance which greatly redounds to its credit, and which came under my own observation. I have some borders in full view of my dining-room window in which are some Sweet Williams and Tulips which were much infested with green fly. The other day I saw several sparrows very busy among these plants, and, wishing to know what they were about, I fetched a pair of binocular glasses and watched them for some time, and was much interested in seeing them pecking at the plants in a very quiet and business-like manner, evidently clearing off the green fly. Something in time frightened them and they flew off; so I immediately went out and carefully examined the plants to make sure they had not been feeding on the leaves and had not damaged

the plants in any way. I am glad to say that the latter were uninjured and the green fly considerably diminished in numbers. I have since again seen the sparrows picking off the green fly. It is clear, therefore, that sparrows are not the unmitigated nuisance in gardens that some imagine they are. Had I been an anti-sparrowite, I have no doubt I should have driven the sparrows from my plants and then accused them of injuring the latter if they did not flower properly, which would have been a case of putting the saddle on the wrong horse. I believe nearly all birds feed their young on animal food, so that at this time of year the number of insects which must be destroyed by them is incalculable. Birds do much more good than harm in gardens in the long run, and when they are likely to be mischievous, fruit, &c., can be easily protected from them.—G. S. S.

FRUIT GARDEN.

GRAPE CULTURE AT ARGENTEUIL.

It is certain that the out-door culture of the Grape has much declined in this country during the last few years, for whilst in some of the southern counties one used a few years ago to see Vines in a flourishing condition on almost every cottage, it is now rare to find one in a healthy state. A series of bad seasons and mildew are undoubtedly the main causes of this decadence; to my knowledge many large Vines have been killed by mildew and all from want of the timely application of sulphur. It is, indeed, more want of cultural skill than bad seasons which has brought out-door Grape growing into disrepute. We cannot grow good Peaches nor Pears on open walls without much care in training and combatting insect foes; how, then, can we expect to succeed with Grapes, unless we minutely watch their progress during their whole period of growth? We know that the famous Chasselas Grapes of Thoméry are as carefully tended as the choicest hothouse fruit is with us. M. Lhérault, a well-known amateur, residing at Argenteuil, near Paris, has for some time made a special study of hardy out-door Grapes, and the following description of his vineyard, taken from the journal of the French National Horticultural Society, will probably interest some of your readers :—

"A space 489 feet long by about 98 feet in width, completely surrounded by walls some 8 feet high and coped with tiles, has been entirely devoted to Grape culture. In order to be able to utilise both sides of the walls, they have been built some 7 feet from the extreme verge of the property, so that there is an extent of 2280 feet of wall devoted to Vines. Besides the fixed tile coping, iron supports are inserted in the wall, and are constructed to hold, during September and October, and principally on the sides exposed to the south and west, boards destined to guarantee the Grapes against heavy autumnal rains, which almost always cause some damage.

"This temporary shelter is so ingeniously managed as to deserve description. In the centre of and fixed to the upper portion of each support is an S-shaped iron stop, holding two boards one over the other, which can easily be fixed or taken away at need. Naturally, the upper board exceeds a little in width the lower one, so as to shoot the rain off. By this arrangement only one support is needed, and when in favourable weather but one board is needed, the lower one is the easiest to take away. The left outside wall in full south exposure is entirely planted with Chasselas de Fontainebleau, trained as vertical palmettes, every other one furnishing the base of the wall, the other the upper portion. The laterals are placed, with great regularity, about 10 inches apart, each Vine being 20 inches distant from its neighbour. All the lateral shoots are pruned to two eyes. It is impossible to imagine anything more beautiful than this immense trellis furnished with golden Grapes, that one might suppose to be tied on, so fully furnished are the Vines, and so regularly disposed are the bunches. Each side shoot carries at least two bunches, some three, whilst others have as many as four. It is almost unnecessary to remark that thinning is practised with great care, and that no necessary details, such as training, stopping, disleafing, sulphuring, annular incisions is neglected. The front of the wall and about 5 feet distant from these is a centre espalier some 3 feet high also furnished with Chasselas, trained as horizontal cordons in two lines, each Vine planted about a yard apart and forming, in the case of each cordon, two rods, which go in opposite directions, yet, by means of much skill in training, apparently start from the same point The production of this espalier is a remarkable work. On the second wall, and having the same aspect, we find ourselves in the presence of a collection of 100 table Grapes, which appeared to us composed of the best known kinds which are likely to ripen in our climate." Here follows a long list of names, a few of which are Alicante Blanc, Courtilier, Almerina, Chasselas Napoleon. This, by the way, is the finest in appearance of all the Chasselas, and I wonder much that it should not be grown in this country. The berries are large, finely coloured, and it might be described as an enlarged edition of the Fontainebleau Chasselas. It is, however, not quite so hardy, but would do well in an unheated house. Gradiska, St. Antoine, Les Malvoisie, Prince Albert, &c. "Each of these varieties, which are about a yard apart, has a duplicate on the centre espalier in front of the wall, and again in the open quarter, which is opposite to it. Thus it is easy to ascertain the value of each kind either for wall, espalier, or in the open. The culture of the Vines in the open quarters is not less striking than that on the walls. On each side of the central walk, and the whole length of the ground, are on the right a square of table Grapes, and on the left one of wine-making kinds, the rows running breadthwise of the ground, and about 4½ feet apart.

"Each Vine planted a yard apart is trained to three wires, and supported by stakes about 5 feet high. What is so admirable in these open quarters is the regularity with which the Vines are trained, the bunches being evenly disposed throughout both as regards the table and wine-making kinds. With respect to these latter, a quarter is entirely devoted to the Gamay Noir, the kind almost exclusively grown in the neighbourhood of Argenteuil, with a view of showing the best methods of pruning and cultivating it. Each row in this quarter is submitted to different treatment, some being pruned hard back, leaving from two to three spurs only, some being subjected to repeated stoppings, whilst others are treated on the long-rod system, with or without annular incisions, &c. In this manner it is easy to compare the different methods, but, from what we were able to perceive, the long wood system gave the best results. It is scarcely necessary to enumerate all the kinds grown in these open quarters, but I may mention, as amongst the most prominent, Chasselas de Louray, Nascarat Noir, Alcantino, Damas Rouge, Bleu de Hollande, Olivette Blanche, Madeleine Royale, Moscatella, Trebbiano, and Vert de Madère. Those which form the basis of the Bordeaux vintage are Carmènere, Verdot, Merlot, Nalbec, Cabernet, Sauvignon, and Sémillon, whilst the kinds most favoured in the Burgundy district are Aramon, Petit Bouschet, Les Clairettes, Nollard, Muscat de Frontignan, Marneuvre, Roussaure, Gamoz Blanc et Noir, Gibaudet, and Romain. All these kinds are planted alphabetically, so that it is easy to find any particular one. On each side of the entrance gate the cross walls are furnished on the inside with Rose Royal Chasselas on the one side, and Frankenthal on the other, both trellises being loaded with superb Grapes, as well as the espaliers two yards in front of the walls, whilst the outside of these walls is covered with golden Chasselas, on the one side trained as horizontal cordons with about 1½ feet between them; the other is furnished with alternate palmettes. It is perhaps impossible to find elsewhere the out-door culture of Grapes practised as in this garden, but what strikes one so forcibly is the perfect order and regularity which without exception prevails in every portion of this Vine school. The walls, espaliers, and open quarters seem to vie with each other in perfection of growth, and the eye is charmed on all sides by the white and bronzy Grapes, as numerous as the leaves. Naturally this collection was not formed in a day, and M. Lhérault states that it was commenced in 1862, when the Luxembourg collection was destroyed. M. Rivière, in order not to lose sight of the principal kinds so well brought together by the Chartreux, sent the major portion of them to M. Lhérault, who, finding that a great number ripened well with him, put himself into communication with the principal French and foreign Grape growers, so as to procure the various known varieties. Since then, M. Hardy, director of the National School of Horticulture, made him a present of the fine collection formed by his father at Loisy-sous-Elveles. Since then, American and Asiatic Vines have been added to the collection, which now numbers some 1800 kinds true to name, and from which synonymous varieties have been carefully rejected. In the second enclosure, much larger than the other, we saw the entire collection planted altogether and in alphabetical order. For this important undertaking we have nothing but praise for the culture and general arrangements, in which our colleague is ably seconded by his two sons." The above account is as interesting as instructive, as it shows that even in a land more favoured than our own the greatest care and much skill are indispensable to succeed in the culture of outdoor Grapes. The seasons have, moreover, been relatively quite as unfavourable as our own, and yet M. Lhérault has succeeded in producing most excellent crops of Grapes on walls.

J. C. B.

APPLE STOCKS.

The Paradise.—Many readers will remember the discussion that took place on the merits of the different varieties of the Paradise Apple as a stock some years ago, one side preferring the English Paradise and another the weaker growing French variety. We have now had Apples on the English Paradise a good few years, and I begin to think that it is very little dwarfer, if any, and not more prolific than the Crab stock. The trees grafted upon it would have been 15 feet high by this time if they had been allowed to grow, and they would apparently in time reach 20 feet or 25 feet, the height or thereabouts which the common wild Crab reaches here, and we have a fine specimen just outside the fence. These remarks apply to Apples grafted on this Paradise, but one tree failed, and pushed a sucker from the stock, which was allowed to grow, and this tree, a Paradise, is now about 13 feet high and growing strongly. To me it looks suspiciously like a Crab in the leaf, but the habit is different, and I had the trees from a noted raiser and an authority on such matters. What I observe generally is that the trees grafted on this stock are on the whole not more prolific than those on the Crab, and scarcely less vigorous. Is this the common experience, may I ask? On the other hand, the same kinds of Apples on the true French Paradise are dwarfer and more stunted, but I will not venture to say more fruitful than the others. All the trees are naturally bush-shaped in form. Has the pretty and ornamental Pyrus Malus floribunda been tried as a stock? Here bushes of it the same age as the young Apple trees mentioned present a very different appearance from the Crab or Paradise, forming dwarf and very twiggy bushes, broader than high, and all extraordinarily floriferous—indicating a fertile stock, I should say. Though growing and flowering well enough here, this shrub, however, seldom or never ripens its annual growths to the extremities, 2 inches or 3 inches usually dying back during the winter. I have said before, and I still think, we over-estimate the productiveness of the dwarf stocks. They will dwarf a tree, but do they render it more fertile? From what I have observed, I imagine that if a tree on the Crab stock and one on the Paradise were both put in pots of proportionate size and allowed proportionate scope, the one

would bear as freely as the other. I am, of course, aware that fertility is not the only advantage attributed to dwarfing stocks. I should be glad to hear the experience of others on this subject.
J. S. W.

Vine roots.—I certainly decline the Grape duel which Mr. Baines challenges me to fight with the substitute he proposes putting forward in his place—Mr. Baines to have all the honour and none of the risk; moreover, showing the fruit cannot possibly settle the controversy about roots in any way. The quality of the fruit has not been either raised or disputed by me, and is totally outside the question. I hold Mr. Baines to his original text, that Vine roots take to inside borders as readily as to outside ones. I may add that not one Vine grower has come to Mr. Baines' aid, and that even his champion was careful to qualify his support with the reservation that "he had not expressed an opinion one way or the other."—J. S. W.

Setting Peaches by the syringe.—"J. S." (p. 386) deprecates the use of a camel's-hair brush for setting Peaches, and advocates that of the syringe. It may be of use to some who are in doubt as to the efficacy of the camel's-hair brush to hear that I have used it for setting my Peaches for over ten years with the most perfect success; fruit has set in such abundance during all these years, that the thinning, after the stoning process has been completed, has cost me no small labour. I may mention that this year close upon a thousand trees have been gone over with the brush with success, and that the early fruit was ripe in March. This will prove that the brush is at least as good as the syringe for setting Peaches.—G. A Passingham, *Milton, Cambs.*

Fruit prospects in Somerset vary according to the situation. In low-lying ground the frosts of April 22 and 23 were severe enough to injure the Plum and Pear crop, as well as that of bush fruit, while in more elevated situations, such as that from which I write, little harm was done, owing to the blossoms not being so forward. There is a good crop of Apricots generally, and I am in hopes that Plums will ultimately prove to be a better yield than is now expected. No doubt early Pears are sadly thinned, but I do not despair of getting a fair crop from such trees as promised well, but with very few exceptions Pear blossom was very thin in Somerset, especially on such sorts as Winter Nelis, Josephine de Malines, and Beurré Rance. With us all bush fruits are a medium crop. Strawberries promise well, and are making ample foliage—a good sign. Morello Cherries on south walls are well set, and on north aspects the blossoms are abundant and strong. Pyramid and bush forms of Apple trees are promising well irrespective of sorts. Apple orchards are also in a very promising condition; the quantity of blossom is larger than was expected, seeing how heavily the trees were loaded with fruit last year. If we go through this month without frost and high winds, I think we may safely reckon on a fairly good crop of fruit.—J. C. C.

SHORT NOTES.—FRUIT.

Pruning young Vines.—"J. C. C." (p. 387) had better give us the "something more he has to say on this subject" now, in case anything I might add might prejudice his views to some extent; his facts cannot be affected by anything I can say; therefore let us have them.—J. S. W.

Vine leaves (*J. H.*).—We are sorry to say we cannot explain the cause of the top spurs of your Vines perishing in the way described. We have seen similar effects from the attacks of the mite termed Phytoptus vitis, a pest which was extremely common last year, but whether it is on your Vines or not we cannot say; if it is, you will see (later in the season) little brown woolly patches underneath the leaves.—W. G. S.

Comparative earliness of Vines.—In one of my vineries are planted three varieties of Vines, all of which are treated alike. One is Black Hamburgh; this has berries as large as small Peas; a second is Golden Queen, which is just setting its fruit; the other is Alicante, which has just begun to open its first flowers. There is nothing very striking in this, but the behaviour of the three different sorts under precisely the same treatment is singular.—J. C. C.

Pine culture.—Being interested in the economical culture of Pines, I have read with much interest the remarks lately printed in The Garden on this subject, especially those written by Mr. Murray, who evidently is in a position to speak with confidence on this subject, seeing that he was so many years at Frogmore, where Pines are probably more extensively grown than in any other establishment in the country. My main reason for writing now is to ask Mr. Murray to give us more detailed information on the subject, viz., the pitch of roof which his pits had; whether span-roofed pits, in sheltered positions, would not answer as well as lean-to's; also whether the walls of his pit were built hollow; and particularly if he found Queen Pines to answer as well planted out as smooth Cayennes. I am desirous to know this, as I think all Pine growers will agree with me that the Queen variety of Pine has two strongly marked characteristics, viz., that it is, when well grown, the best flavoured Pine out; and, secondly, it is impossible to get it to swell in the winter months, which latter point would, in my opinion, tend to prevent it being grown successfully planted out. The plants would not then be so much under control as when in pots, and might throw up their fruit at an unfavourable time, and so damage the crop. I have not had anything like the experience of Mr. Murray, but I can substantiate his statement that Pines can be grown successfully with the pots plunged in leaves alone for bottom heat. The difficulty, however, as Mr. Groom says, with many is to get leaves. Personally, I am not in this position, hence my desire for the information I ask.—H. J. C.

FRUITS AND VEGETABLES FOR FORCING.

Forcing is an expensive business at all times, and in these days, when so many things can be bought in the market as cheap, if not cheaper, than they can be produced at home, it behoves all who are interested to study their wants in that respect, and grow those fruits, &c., which are most useful and acceptable as well as least expensive to grow. In the front rank of these I place the Strawberry, and I place it before even the Grape, because it can be grown by a greater number of people more cheaply and easily and under a greater variety of circumstances. I am afraid some fancy orchard houses would have a poor account to show if it was not for the Strawberries produced in them between April and July. Given a stock of outdoor Strawberry plants which exist in every garden, the culture of forced plants may be said to cost nothing hardly but the labour, and as they can be grown in conjunction with many other plants in Peach houses, vineries, greenhouses, orchard houses, or pits, there are few possessors of glass-houses who may not have them. The season of forced Strawberries extends from the middle of March till the end of June, when outdoor crops come in—a period of nearly four months, and 1000 or 2000 plants will afford a good dish every day during that period of good and delicious fruit. Our experience is that when forced Strawberries are in season and plentiful, little or nothing else is eaten at dessert; hence Strawberries take the place of early Grapes, Pines, and other things to some extent, to all of which they are preferred. Then no difficulty is ever found about procuring plants, as any quantity of stock desired can be raised between the beginning of July and the end of August, and all that is needed is to lift and pot the young runners in fairly good soil, and set them out of doors in some open situation to complete their growth; after which the plants may be stored in any cold shed, pit, or house, and forced as wanted. I feel sure that for many years back our Strawberry crops here and those of others which I know have yielded a 90 per cent. return on all outlay connected with them without a failure in any year when the varieties have been well chosen.

The Melon.—This is another good fruit to force, because good Melons cannot be bought, and they are so highly prized for dessert, being eaten wherever plentiful at breakfast, lunch, and dinner like Strawberries, which cannot be said of Pine-apples. It does not pay to attempt Melon culture too early. The season is from May till October, and during that time Melons can be grown cheapest and to greatest perfection, and no great extent of glass is required to provide a Melon or two every day during that period, for a 1-lb., 2-lb, or 3-lb. fruit goes a long way. Most gardeners, I believe, find that they cannot produce too many Melons, as when they are more plentiful than can be used at home they proved acceptable presents to friends. The Melon can also be grown by anybody possessing a frame, but we recommend the hot-water system of heating Melon structures as being the cheapest and best in the end.

Plums.—Really good dessert Plums cannot be bought any more than Melons, as only the coarse prolific market kinds, such as the Victoria and others, are grown for market, and these convey not the least idea of what a good dessert Plum is like, which is one of the most delicious fruits grown. The Plum grows and fruits under glass with a freedom unsurpassed by any other fruit. It should not be forced early, and the main point of culture is to keep the trees cool enough when in flower, and till past that date. Fruit may easily be had from July till November. Orchard-house Plum trees surpass all others for cropping, and the quantity of fruit frequently produced under glass excel anything in the way of crops we have ever seen. There are only a few sorts worth growing under glass, viz., Green Gage, Coe's Golden Drop, Reine Claude de Bavay, Kirke's Plum, and Jefferson's. Many people prefer Plums to Peaches; children almost invariably do, and they are certainly more easily grown. By far the best method of culture under glass is to plant bush trees out on the border, and root prune the over-vigorous trees periodically. In this way crops need hardly ever fail. A gentleman near here who does them in this manner produces extraordinary crops; he is only an amateur, looking after the general management of his own garden with the aid of one man. The next best plan is to train the trees to a trellis under the roof like Peaches, taking care to let the branches extend freely, and prune little, as the Plum is most impatient of the knife when in good health. Bush and standard trees are most easily managed.

Cherries.—These come to great perfection under glass in April, May, and June, and all they need is protection from frost against a wall, but the Cherry is more precarious than the Plum.

Grapes.—It is not usual to put Grapes at the end of the list, but I am dubious about recommending them for everybody as among "the best" to include in a select list for easy culture under glass. Certainly the Grape is easily grown when you know the way, but among amateurs and those with small gardens I find that their Grapes are as a rule inferior in quality to the common shop Grapes which I would rather buy at 4d. per lb. than grow under such circumstances. The most successful seasons for amateurs and others who only attempt to have one crop in the year is midsummer and autumn, as at these seasons Grapes can be had with most ease and with the least effort to the Vine, the Vines being started from March till the end of April.

Vegetables.—Of all forced vegetables perhaps there are none in such demand as Kidney Beans. Forced pods are more tender and nice than those grown outdoors, and the plants bear enormous and unfailing crops at any temperature between 60° and 90°, not being particular to 10° or 20° either way. They do best in pots, not growing too luxuriantly, and bearing much more freely than when planted out. Batches should be sown every six weeks or two months to afford a daily supply, which may be had from the time crops cease outdoors in autumn till they come in again the following summer. At this season Kidney Beans are one of the most acceptable dishes that enter the kitchen unless it be new Potatoes, which, however, do not pay for forcing now-a-days.

Tomatoes are another worthy crop in any garden, being in demand for various kinds of dishes, sauces,

stews, preserving, pickling, or using raw, some of the best-flavoured sorts being occasionally served up for dessert. Plants sown in January grown on in a good heat in large pots fruit in April and May, and continue to bear most freely till November—at least if the necessary temperature is afforded them, which may vary from 65° to 100° max. The Tomato is one of the most wholesome vegetables grown or known, and we believe no one has yet produced more than they could easily dispose of at remunerative prices. J. S. W.

FLOWER GARDEN.

GAMOLEPIS TAGETES.

THIS little composite, also known as G. annua, is an annual now rarely met with in gardens, with the exception of those of the old school, where it still finds a place. It associates well with Sphenogyne speciosa, Leptosyne maritima, and many other annual composites. Unlike many of our Cape

Gamolepis Tagetes.

annuals, the seed may be sown out of doors where the plants are intended to grow as early as April, and no attention is needed until the thinning-out season. It has also this advantage over some plants, viz, that it will grow and flower in dry and very sunny spots where there is often a deficiency of vegetation, more especially in extremely dry summers. It is of slender growth, seldom attaining a foot in height, much branched, and produces small corymbs of bright yellow or orange flowers nearly an inch in diameter. The leaves, which are much divided, have from five to seven linear lobes, sometimes pinnatifid, sometimes quite entire. The flowers are all borne on nearly the same level, and form compact masses. When used as an edging, its effect is simply charming, being one continuous blaze of yellow or orange from one end to the other. It is also useful for the better kinds of carpet bedding. D. K.

SINGLE DAFFODILS DOUBLING.

THE season for Daffodils being nearly over, other subjects will occupy attention, and Daffodowndillies will be allowed to rest for a time. Before correspondence on the subject ceases, could some practical turn not be given to elucidate some of the topics which have been engaging the serious attention of a portion of your correspondents? I am an unbeliever in the transformation of the elegant single Pseudo-narcissus of our meadows to the big double Daffodil of Italy. That the Pseudo-narcissus under certain conditions of culture or soil should in the course of two or three years double its height, double its size, and change its colour does not at all agree with my way of thinking, but, seeing there are a host of witnesses ready to back with proof all that has been advanced, why not empanel a jury to sit at South Kensington at each of the fortnightly meetings in March and April, 1885, to receive proof and, as far as possible, settle this vexed question. The same jury could receive proof of there being such a thing as a white Pseudo-narcissus of British origin and the doubling of N. incomparabilis. So far as my researches and observations have extended, there is such a thing as Butter and Eggs Narcissus going single, and I have heard of Eggs and Bacon Narcissus sometimes throwing a single flower, and for the first time I this season found a single Codlins and Cream, but I have never seen any Narcissus change from single to double, and therefore doubt the statements put forth; at the same time I can understand how casual observers fall into this error. Amongst these double forms of incomparabilis they find flowers in all stages; some like Roses, others with a full cup of florets and the divisions of the perianth free and distinct, as in the single incomparabilis, and sometimes the cup with comparatively few florets. I have very grave doubts of there being a white British Pseudo-narcissus; there are some with the divisions of the perianth as white as those of Horsfieldi, and there are some almost self-coloured yellows, but none, I think, where the trumpet passes from a sulphur colour to white, as in the case of the white Spanish Daffodils. I know but one variety of the English Pseudo-narcissus that has double flowers, and that is the one with the pale-coloured divisions of the perianth. I see no reason, however, in supposing the other shades of colour should not be represented by double forms. I name this that those who have the doubling process going on in their gardens should be in a position to state the colour of the single form that goes double, that is, whether the divisions of the perianth were white, sulphur, or yellow. I see also that it has been stated that the single poeticus goes double in some gardens, but I should like to see the proof, as I am not quite sure we have in cultivation the single of the double poeticus. Certainly it is not from the large single one at present in flower the double form originated. Will some of your correspondents give a little attention to this matter? I am this season trying to match single and double poeticus, and if I arrive at any conclusion, shall make it known. It may interest some of your readers to know that the single of Codlins and Cream Narcissus is N. incomparabilis semi-partitus.—P. BARR.

——I can confirm Mr. Wolley Dod's statement as to the change to double flowers in Narcissus Pseudo-narcissus This plant grows naturally in the Cartmel district of North Lancashire; bulbs brought from thence and planted in the old garden of the Rectory, Bolton-by-Bowland, become double in two or three years; similar bulbs planted in turf in the natural loamy soil here, only one mile distant, do not change in this way, but remain single. I notice, however, that the flowers are very variable this year. For instance, I have had several flowers with the trumpet quite square at the edge, as if cut off, neither frilled nor crenated in the least. This has not occurred before, but the season has been a remarkably fine one for Narcissi.—R. MILNE-REDHEAD, *Holden Clough, Bolton-by-Bowland, Clitheroe.*

Hardiness of Lily shoots.—I am surprised to see how well Japan Lilies some inches above ground have withstood the recent severe frosts. Here 15° were registered one morning, and yet the young Lily shoots were not in the least injured. This is all the more curious, as they are in an open bed, and Forget-me-nots and Fuchsias and even such hardy things as Clematises and Clarkias were much injured. The ground was perfectly dry at the time, which of course helped them, but the fact still remains that they entirely escaped, whilst other things reputedly much hardier were severely touched; indeed, I never remember seeing Myosotis dissitiflora so completely spoiled; not a bloom nor bud remains, and the young shoots are blackened. The moral of this is that Japan Lilies are much hardier than has been supposed, another point in favour of one of the noblest of garden flowers.—J. C. B.

BOOKS.

PAXTON'S FLOWER GARDEN.*

THIS is a re-issue of a work published some 30 years ago, slightly altered from the original, and with notes on new plants added by Mr. T. Baines. Both in horticulture and botany much in the way of progress and reform has been accomplished since the work first left the printer's hands. Unaltered, it therefore would have been practically of little value at the present time. In selecting Mr. Baines as editor, the publishers have acted wisely, so far as the cultural part is concerned, but the botanical part is not so well done. To intersperse the original text with notes on new plants, and to add plates and texts without any indication of what belonged to the original work, and what are editorial additions, is at least misleading. Our acquaintance with the original work, and our knowledge of what plants herein mentioned are of recent introduction, prevent us from falling into any error in this respect; but everyone cannot be thus armed, and were it not that Mr. Baines has ignored botanical matter by omitting authorities for names and synonomy, it would be difficult for the general reader to know whether it is Lindley or Baines who is speaking. The nomenclature of the original text, too, should have been corrected, so as to make it in keeping with that of the present time. It would not have been difficult to correct such names as Moutan officinalis by pointing out in a footnote or otherwise that the name Moutan has been dropped for Pæonia; that Rhodothamnus kamtschaticus is a Rhododendron, and not a Rhodothamnus; that the name Two-rowed Aponogete had been replaced by the much prettier one of Cape Pondweed for Aponogeton distachyon, and so on. The ugly names, the result of an attempt to anglicise the Latin ones, could never become popular, and would have been better omitted in the revised work. The Carmine Trichopil, Dampier's Clianth, Magnificent Medinill, and Kamtschatka Rhodotham may be instanced as the results of this sort of change. Even in the vernacular names of some of the additions to the work there is a want of accuracy. "Porte's variety of the Intermediate Butterfly Plant" is both long and wrong, the Butterfly Plant being Oncidium Papilio, the Phalænopsis being known as the Moth Orchid. The style of the work is such as should recommend it for the drawing-room table. It is well printed on good paper, the plates are rich and picturesque, and the woodcuts generally good and accurate. Some of the new plates are perhaps overdone in colour; they are pretty, but unnatural. "Painting the Lily" does not improve it in the eyes of a true lover of Nature.

INJURIOUS INSECTS.†

THIS pamphlet of eighty pages, and an appendix of sixteen devoted to the Hop aphis, is Miss Ormerod's seventh yearly report on insects injurious to field and garden crops, and contains much useful information thereon. The most severe attacks of the past season of 1883 have chiefly been those of fly maggots and grubs of various sorts. Daddy-longlegs grubs were a general trouble; so were Cabbage and Turnip-root maggots; and likewise the maggots of the Celery and Parsnip leaf miner; and in some places those of the Mangold leaf miner. More information is much needed as to the means of prevention and remedy of these four kinds of attacks, and also as to the reasons of the prevalence of the last two. Reports have been sent in regarding several kinds of attacks to fruit crops, which are important in orchard-farming, many of which may be prevented or forestalled by certain measures, such as having sheep present in orchards, or skimming the surface soil in gardens, which will get rid at once of the fallen infested fruit, or the infested surface soil,

* Cassell & Co., Belle Sauvage Yard, Ludgate Hill.

† Report of observations of injurious insects and common crop pests during the year 1883, with methods of prevention and remedy. By Eleanor A. Ormerod. Simpkin, Marshall & Co., Stationers' Hall Court.

before the grubs go through their changes. One great point of the observations of the past year is the notice taken of the presence of grubs and maggots of various kinds that infest the roots of crops being also found in manure and compost heaps, and thus carted on to the fields. This is one of the broad subjects, like the amount of bird-presence, which bears on all practice, and which we need to know more about. It is not a question of withholding manure, but of not permitting neglected or weed-grown heaps to become head-quarters of daddy-longlegs grubs, &c.

Amongst the many bad crop attacks of the past season, perhaps that of the daddy-longlegs grubs was the most widely spread and the most lasting. Early in the year enquiry began as to the nature of the grubs, which were then working at the crop-roots, and these continued more or less until with autumn a vast appearance of the flies gave reason to expect another attack of their grubs next spring. The attack was reported from many places, and from as far north as Caithness, in Scotland, down to Brighton. It was injurious to Grass pastures, Oats, and Wheat; to Beans, Peas, and Turnips; likewise to Strawberries, and to lawns in public gardens or squares in London and Brighton. More than one kind of Tipula was at work. The smaller, a yellower kind known as the spotted daddy-longlegs, which is sometimes considered as still more injurious than the common kind, was noticed by Mr. Fitch; and the kinds of grubs which were destructive in London may very probably have included those of the Tipula quadrifaria, which is stated by Curtis to be abundant in London gardens. It has long been known that the flies choose damp spots, and shelter in Grass or Clover for laying, and in the following observations attack is again noted on marsh soil, on wet land, and especially after Clover. The attack is noticed as having been least injurious where the land was well cultivated; and where severe injury was going on the same kind of application of fertilising dressings, which was found quite successful in carrying Oats through a bad attack in 1882, has proved again successful. For special treatment in bad attack on large breadths of Cabbage land it has been found that hand-picking answered at a paying rate. We wish also especially to draw attention to the observation of daddy-longlegs grubs being found in fold-yard manure. The first of the following notes refer more especially to the smaller kind of daddy-longlegs: At the end of April I received a communication from King's Heath, near Birmingham, regarding a grub then making great havoc in a large field of spring Wheat after Beans, and Beans after Wheat. This grub, on examination, proved to be of one of the smaller kinds of daddy-longlegs, probably the yellow-spotted kind (Tipula maculosa), which is, if possible, even more destructive than the common and somewhat larger kind. The grub was reported to be about 1 inch below the surface, and the heaviest roll used not to have the slightest effect upon it. A little later Mr. E. A. Fitch wrote me from Maldon as follows: "You ask about Tipula larvæ in Essex. They are very bad; almost all the early Peas are ploughed up, and much of the Wheat has suffered from 'black grub,' which appears to be the general local name for these pests. The pretty kind, with a lot of yellow on the thorax, is, I believe, the chief culprit. I had eleven acres of white sickle Peas, sown in November (Nov. 20), which looked remarkably well until the March severe weather set in; then the grub attacked them, and they wasted terribly every day, until hardly a quarter plant was left. Hoeing did not mend matters, so at the end of March I again drilled the same Peas without ploughing the oth rs up. After rolling and twice harrowing these came up a full plant, but were soon attacked, and there is not near half a plant of the two crops. The early ones are podding (a few almost fit to pick), the latter are not in bloom, so altogether the field looks like coming to very little. The only two good early pieces about here sold last week at £15 per acre, the buyer to pick, cart, and do everything in fact. I should be glad if mine would come to £15 per acre, and this on the best field I have. The only remedy I can suggest is thorough and early hoeing; nothing else will touch the grubs, which I believe work down deep in the manure under the flag of the furrow during the day." About May 10 I received information from Mr. A Bannester, Barling, Chelmsford, that daddy-longlegs grubs were infesting in great numbers a crop of white Peas on a fallow well tilled and on marsh soil.

Mr. G. Brown, Watten Mains, Caithness, mentions that farmers have suffered in all their crops from insect attack during the past season. The chief characteristics of the attacks were the myriads of insects in the grub state and the unequal nature of the damage done. Some localities suffered most severely, whilst others escaped with little apparent damage. He observes: "Tipula oleracea has been very prevalent on clay soils, on corn after rough lea. My attention has been particularly directed to a field upon this farm (Watten Mains) which is very varied in the character of its soil, being clay, peat, and loam alternately. On the clay knolls this grub did considerable damage, which may be accounted for in this way: The ordinary amount of cultivation necessary to bring the other parts of the field into good tilth was not sufficient to break down the clay into a fine mould. In consequence of this the seed was insufficiently covered up, and, the seed bed being rough, growth was much retarded; then the grub, attacking the weak plants, almost destroyed the crop. Next on the peat, much of the ground was covered by rough Grass, which cattle and sheep would not eat. These parts offered an excellent place for the deposit of eggs, and suffered in the spring from this cause; yet, owing to the vigorous growth which generally occurs on such soils, the damage done has been trifling. The loamy parts of the field escaped without damage, and have proved an excellent crop. The grub of this insect (daddy-longlegs) has also done much damage to the young Turnip plants, and Peas also suffered." From Levenshulme a note was also sent, with specimens accompanying, of the daddy-longlegs grubs eating off the Broad Bean plants just at the surface of the ground, so that the plants fell down as if broken off accidentally.

The three following communications note bad attack after Clover ley, and mention is also made in them respectively of the large amount of grubs to be found in a given space; that the rooks were not found to help in clearing the grubs; of fertilising dressings restoring the growth of the crop; and the very important matter of daddy-longlegs grubs being found in manure. The first refers to specimens and information, with which I was favoured by the Hon. Cecil Parker, from the Eaton Estate Office, Eccleston, Cheshire. Mr. Parker mentioned: "I sent grubs which were destroying a field of Beans here; the Beans were spring sown on land once ploughed after Clover ley. The grub attacks the Bean where it touches the ground, gnawing all round the plant, which is from 2 inches to 3 inches high. Dozens of grubs are found under a sod. I may say that no rooks have been noticed near the field." Early in May information was asked (with specimens accompanying) by Mr. C. E. Bruce Foy regarding a grub which was stated by the enquirer to be taking his spring Wheat at Mollington, Banbury, rapidly. He mentions: "In the last eight days a field that was green all over has hardly a blade of Wheat to be seen. The field was Clover last year, ploughed up for winter Wheat, but, owing to the wet season, could not get in before spring. The few grubs I send [thirty-three, Ed.] I took out of a drill row, only scratching with my finger the length of 2 feet, so you may imagine in what quantities they abound. They lie in the ground at the depth of three-quarters to an inch. We have a large rookery near, only no rooks go near the field." Mr. David Byrd, Spurston Hall, Tarporley, Cheshire, favours me with the following note relative to carrying an Oat crop over an attack of daddy-longlegs by fertilising applications: "This year we have a field of Oats of 20 acres (after Clover) sown on the last days of March. The daddy-longlegs grubs attacked the crop to such a degree that fully half the crop appeared to be taken; the loss was estimated at 18 bushels to the acre at 4s. per bushel—that is, a total of £72. On May 10 we began to apply the manure we had at hand—guano, 1½ cwt. the acre; kainite, 1 cwt. the acre; superphosphate, 1 cwt. the acre; salt, 2 cwt. the acre—at a cost of £28 10s., and labour £2 10s.; together, £31. The harrows followed the manure drill twice, and a heavy Cambridge roll two or three times over the whole field. The crop is now cut, and all traces of the drill rows are lost in the stubble. The roots have the appearance of having been planted, and many new shoots forced by the manure are plainly to be seen. These give a good head of Corn, only not so ripe by ten or twelve days. The crop is estimated to be from forty to forty-five bushels to the acre, so that we have the crop restored minus the cost of manures." The following note from Mr. Byrd as to the presence of daddy-longlegs grubs in the crop from having been brought out in the manure is a confirmation from a direct eye-witness of what is probably often the case. He mentions: "The Mangolds were attacked by the grub in the leaf, and, having sown Turnips with them, we took out the Mangolds, and have a very promising crop of Turnips, although the daddy-longlegs grub was there in numbers, carried into the field with the foldyard manure and spread in the ridges." Information was also sent in of Barley in Cornwall being destroyed by daddy-longlegs grubs; and notes communicated by Mr. C. Whitehead of attack (which in this case was identified as that of the Tipula oleracea) occurring in Strawberry beds near Maidstone. Likewise enquiries were received from north, south, and west of London, and also from Brighton, regarding attack of Tipula larvæ (daddy-longlegs grubs) to Grass in public gardens, squares, or park lands, the above notes, taken altogether, showing the widespread prevalence of attack.

The following notes refer mainly to the great appearance of the flies which took place in the autumn, with some observations as to handpicking. Mr. John Wilmot, of Derwent Lodge, Hounslow, notes: "We have had an enormous number of the crane fly grubs this autumn on our Cabbage seed beds. The plan we adopt is to send women with short sticks, and a small can to put them into, and go carefully along each row, and wherever a plant is eaten off there the grub is sure to be found. We have caught thousands of them this season in that way, and thus saved seven acres of Cabbage plants worth at least £40 per acre." Mr. Edward Lingwood, writing from Thwaite, Stoneham, Suffolk, mentions: "My greatest enemy, as regards green crops, is a brown grub, which I am informed develops to the daddy-longlegs. This works underground, and I have employed women to take them out and destroy them." Mr. D. Turvill, writing from West Worldham, Alton, Hants, on August 22, mentions the unusual amount of daddy-longlegs in the district as a symptom of coming trouble. He notes: "My Clovers are literally alive with them. I presume they are laying their progeny in our Clover to feed upon our young Wheats when they are sown upon it by-and-by. I shall not be surprised to hear of much thin Wheat later on." Mr. T. Hart likewise mentioned, from Park Farm, Kingsnorth, Kent, regarding daddy-longlegs, "that the Corn crops escaped the depredations of this pest, but the pastures suffered considerably. Some meadows were literally strewn with dead tufts, which the sheep had pulled up in feeding, and about the beginning of September the Tipula flies swarmed, rising at every step when disturbed in the pasture."

In my own observations of the habits of these flies, I found all that has been said of their frequenting damp localities and long rough herbage confirmed, even to the point that where there were a few feet or yards of long neglected Grass in otherwise sunny pasture, these parts were especially infested by pairing Tipulæ. With regard to the exact spots for egg-laying, it appeared to me these were chosen with more care as to locality than is usually supposed, and I watched the female selecting a little morsel of dead leaves in a damp path, or a similar collection amongst Grass to lay under. From this it occurs that the pro-

cess of bush-harrowing grass land, which is known to be serviceable as a prevention for wireworm attack, would be even more useful here. The dead leaves amongst the Grass and decaying matter generally would thus be thoroughly disturbed, and much that was stirred up to sunshine and air would be too dry for egg-laying on, and likewise, from what happens in other cases, we might expect many of the eggs which had been laid amongst these rotting matters would be destroyed by being dried up when exposed. I also tried very light sprinklings of gas-lime, about a month from the works, on a garden lawn which was infested by the flies, and found it acted partially, but not entirely, in keeping them off. Likewise, though the application destroyed some of the Grass blades for a while, it was followed by good growth and by extremely good growth of Clover, whilst the Moss was also generally destroyed; this in itself removed much damp shelter for eggs. Further, as the males and females are remarkably different in shape, it was noticed that only a small or moderate proportion of the flies were female, which may give hope for less injury than might be expected from the vast number of flies that have appeared. Good figures are given of most of the insects to which attention is directed.

KITCHEN GARDEN.

VEGETABLES TO BE SOWN IN MAY.

Peas.—Where a continuous supply of Peas is required through August and September a sowing should be made early in May and another towards the end of the month. For large gardens tall sorts are the most profitable to grow, and for the first sowing this month none beats Bruce Findlay, a comparatively new kind. It is a large wrinkled Pea, growing about 6 feet high, excellent in flavour and continuous in bearing for seven or eight weeks at a time. As it has a vigorous branching habit the seeds should be planted 2 inches apart. Another excellent tall variety for sowing later is Ne Plus Ultra, an old and valuable sort, possessing many good qualities. The best dwarf kinds are Veitch's Perfection and Marvel, the last named a grand Pea of the finest quality. The rows of all dwarf Peas should be 4 feet apart.

Scorzonera and Salsify.—These are tap-rooted vegetables and require rich, deep land in order to grow them well. They should not be sown until the middle of this month, or the plants are liable to run to seed, which spoils the roots. Sow them in drills 18 inches apart, and as soon as the plants are well out of the ground they should be thinned out to 9 inches asunder in the row. If the roots are taken up at the same time as Carrots are lifted and stored in the same way they will be found useful during the winter months.

Beans.—Two sowings of dwarf French Beans should be made this month, one about the beginning and the other at the end of the third week. Canadian Wonder is a very productive sort, but probably a little too coarse for refined taste. Williams' Prolific is an excellent variety; it is a heavy cropper and excellent in quality. These should be sown in drills 3 feet apart, and the plants should stand 9 inches asunder in the rows. A late crop of Scarlet Runners should always be provided, as that carries the supply on until late in the autumn. The last week in May is quite soon enough for this purpose, and the first week in the month is a good time to put in the earliest crop. Where Broad Beans are in demand a sowing should be made about the middle of the month. The Mazagan still holds its own where the Beans are eaten when about the size of good Marrow Peas. If a large sort is wanted, the Green Windsor is still unsurpassed for table use.

Cauliflower.—In order to furnish a supply of nice heads during August, a bit of seed of the Stadtholder should be sown on a warm border early this month, and care must be taken not to allow birds to pull up the young plants, or to let them suffer from drought. It is important that they should stand rather thinly in the seed bed to enable them to gain strength as they grow. When large enough to handle they should be planted in a rich piece of ground and have water given them until they have got established. This variety is the best for summer use, as it forms heads quickly, and the flower is well enveloped in leaves, which renders it excellent in colour and flavour. If seed of the Walcheren is sown at the same time and treated in the same way the produce will come into use a month later and keep up the supply for a length of time. For autumn use there is no more trustworthy variety than the Walcheren; for this purpose the seed should be sown at quite the end of this month. It should be sown thinly in good soil, and when ground becomes vacant the plants should be put out as fast as they get large enough for the purpose.

Carrots.—Where young Carrots are in constant demand a sowing of the Shorthorn variety should be made about the middle of this month. Any small spot on a warm border where the soil is fine and rich will do, a large space not being required, as they quickly become too large.

Coleworts.—There is no more useful member of the Brassica family for winter than the Rosette Colewort. The individual plants occupy but little space, and they quickly come into use, frequently enabling the cultivator to secure a second crop off the same ground where nothing else of such a useful character would do so. As the plants are put out closer together than the majority of Cabbages, a rather large number is wanted if there is much space to be filled. To make sure of getting sufficient plants it is desirable to sow a rather large breadth on some rich, freshly-dug ground. The end of the month will be early enough to sow the seed, and as soon as the plants get large enough they should be planted out. The first lot should be planted 15 inches apart each way. They will have more time and the best part of the season to grow in; consequently they will be larger than those put out later, and for which the distance of 1 foot apart every way will suffice.

Turnips in a young state are constantly in demand, and in order to keep up the supply it is necessary to sow at frequent intervals. One sowing made in the beginning and another at the end of the month will suffice to secure young and tender bulbs, the space to be sown being, of course, regulated by the demand.

Spinach.—This so quickly runs to seed during summer, that repeated sowings are necessary in order to keep up the supply. The Round-seeded variety is supposed by some not to run to seed so soon as the Prickly, but I find in practice that there is not much difference. Two sowings should be made during the month.

Lettuces.—In order to secure tender and crisp Lettuces during summer it is necessary after the 1st of May to sow where the plants are to remain. Thoroughly rich ground is also an important part of the management, for unless the plants are kept growing regularly they run to seed before they get to a useful size. There are plenty of good varieties for summer use, and probably a good strain of the Paris White Cos is not surpassed by any of them, although it is the oldest. Next to it I prefer the Kingsholme, a capital hardy sort that stands a long time before it "bolts." The seeds should be sown in drills half an inch deep and 2 feet apart, and as the plants get large enough they should be thinned out until they stand 18 inches asunder, for it is impossible to get large Lettuces if they are crowded together; two sowings will be necessary this month, allowing three weeks between each.

Onions for pickling should not be sown with the main crop, or they will be likely to get too large. I find that if the seed is sown about the beginning of May I get more suitable sized bulbs than I do when sown earlier. Onions for pickling should not be grown on very rich soil. We select the poorest in the garden. It is then well trodden to make it firm; the seed is sown broadcast rather thickly and covered with fine sifted soil in order that all should be at a uniform depth. If the plants come up in thick patches we pull out a few of them, and this is about all the attention they require while they are growing. The Queen is, I think, the best variety to grow, as it produces small handsome bulbs as firm as anyone could desire.

Endive.—A sowing of this should be made towards the end of the month to furnish an early supply, but only a limited number of plants need be raised this month, as if they do not run to seed late in the summer they will not keep well until winter. Any odd corner where the soil is fairly rich will produce a sufficient number of plants, and when large enough they should be put out 18 inches each way. There is no better variety either for autumn or winter use than Digswell Prize.

Chervil.—Where this is much in demand a pinch of seed should be sown once this month and again in August; a very small space will suffice, as it is not generally used in large quantities.

Chicory.—This should be sown this month in drills 18 inches apart, and the plants should be thinned out to 1 foot asunder in the drills. Chicory is especially valuable in severe winters when other salading is scarce. J. C. C.

NOTES ON CELERY CULTURE.

The Celery crop is one of great importance in most gardens, and one in which gardeners generally take much interest. No vegetable entails a greater amount of labour and expense than Celery, and when well grown no crop reflects greater credit to the cultivator. It is our practice, in common with that of many other growers, to complete as much of the laborious work of preparing the trenches, pricking out the plants, and finally transplanting the earliest raised as possible before the wearying and time-absorbing summer bedding out is commenced. In our case the peculiar formation of the garden, and more especially the character of the soil in the different quarters, do not admit of any very systematic rotation of crops, and as we have no time to devote to trenching the ground, the Celery trenches are formed wherever deeper cultivation is thought necessary. The trenches are cut any time during April and May. This season the quarter intended for Celery is still partly occupied with Broccoli, and it will be near the end of May before the whole of the trenches are cut. Getting them dug thus early, besides being most convenient, also greatly benefits our heavy soil. The manure and soil get thoroughly warmed, and the plants occupy it more quickly than they would do if newly dug, and therefore much colder than where they were previously located. This may be unimportant in many gardens where the soil is light and warm, but the case is very different with cold, badly drained soils. This early digging of the trenches does not necessarily absorb a space of ground for an undue length of time, as the intervening spaces can be and are usually cropped with Lettuces, Kidney Beans, and similarly quick-growing vegetables, the very edges of the trenches being frequently planted with early Cabbages by the market growers.

The best form of trench.—I have tried trenches wide enough to hold six rows of plants, others for two rows and single rows. If I was in charge of a small garden and took an active part in the work of moulding up, preference would be given to the wide trenches, as being the most space-economising, more easily kept watered, and more easily protected during severe weather. They should be 7 feet wide and would hold six plants arranged in lines 1 foot apart across the trench. It is absolutely necessary for the plants to be in straight lines across the trench, thus admitting of boards being placed against them while the soil is being worked in—a more explicit description of this process being perhaps better deferred till nearer moulding-up time. I do not, however, recommend wide trenches for heavy and rather wet soils, as in such cases the moulding-up is certain to be imperfectly performed, and the Celery does

not keep so well when surrounded by heavy masses of saturated soil. Trenches for double rows I soon found unprofitable, and would recommend others either to make them wider, so as to hold at least three rows of plants, or narrower for one row only. In any case the plants should not be angled, or moulding-up is difficult to properly perform, and not a little depends upon this. Better by far plant more thickly in single rows, and thereby secure produce of the very best description. Again, supposing double rows are worked into trenches about 20 inches wide, the plants usually being about 15 inches apart and angled, it will be found that the gain in numbers is trifling, if any at all, when it is seen that in a single row the plants may be disposed 9 inches asunder, the trenches also being closer together. Deep trenches are not advisable in any case. If we devote a comparatively light piece of ground to Celery culture, the trenches are cut about 15 inches wide, with 30-inch intervals, the top spit of the trench being thrown out and levelled on each side and a heavy dressing of salted, half rotten, short manure forked into the bottom. On heavy, cold land the trenches are disposed 42 inches apart and only half a spit of soil is thrown out. The manure being freely added, but not deeply buried, enables us to plant at the ordinary level of the surrounding soil, and the extra distance is allowed in order that we may have sufficient soil to properly mould up. To plant deeply in cold, wet positions invites destruction from the first severe frost experienced, and in no case should cold and poor subsoil be brought to the surface of the trenches. Better by far shovel out the loose soil remaining after a spit or less has been thrown out, returning some of the best after the manure has been levelled over the bottom. Always use plenty of good short manure, as no matter how much good food is used it will eventually be found that the Celery has left but little unassimilated.

Raising and transplanting. — To have Celery in perfection, the plants should experience no severe check from the commencement to the completion of their growth, and consequently extra pains have to be taken with it. We usually sow a pinch of seed each of a good white and a red variety during February in heat, a sufficient number of the plants resulting being pricked out in a frame on a slight hotbed. The white varieties are apt to bolt or run to seed quickly, but being the quickest to blanch, a row or two are always grown, and by the time these are used the red sort is fit for the table. To succeed these more seed of a good red sort, such as Major Clarke's Solid Red or the Leicester Red, is sown on a hotbed. When well into rough leaf, the seedlings are pricked out in frames stood on a hard bottom and prepared by having a quantity of rotten manure thrown in, which, when levelled and trodden down, is about 3 inches in depth, over this being distributed about 2 inches of sifted light soil. The plants are pricked out about 5 inches apart each way, but not angled, are watered in, kept close, and shaded from bright sunshine till well established, when air is given freely and the plants are gradually hardened off. While yet dwarf and clear of each other, an old edging iron or sharp spade is run through the lines in both directions, and the plants can then, or a few days later on, be transplanted, each with a square of manure crowded with roots, without any severe check being experienced. At one time, when we had fewer frames and a warmer soil to deal with, the greater portion of our plants were transplanted direct from the seed beds to the trenches, and this is much the simplest and best plan where the trenches can be dug early in the season, but not advisable where the Celery has to follow early Peas or other crops not cleared off early in the summer. Here it is only practicable with the plants resulting from the April sowing, and which is usually the last made. The seed is sown on a very slight hotbed; the seedlings receive plenty of room and air, and are carefully lifted and dibbled into the trenches when about 5 inches high. Showery weather is preferred for this work, and the plants for a few days are lightly shaded with branches of freshly cut Hazel or of some other deciduous trees, which afford shade as long as the plants require it. Some of our best Celery has been obtained in this manner. We also prefer to transplant those previously pricked out during showery weather, and in any case see that they are moistened before removal and subsequently kept regularly watered overhead with an occasional heavy soaking, varied with liquid manure of some kind. In conclusion, let me advise the disuse of the trowel in planting. Instead of crampiog the roots in small holes, the roots, if much separated from the soil, as they too often are, should be spread out in a drill and covered with good soil, in which they will quickly establish themselves. For our squares of manure and roots we draw a wide drill through the centre of the trench, this being levelled firmly about the plants according as they are placed in position.

W. I. M.

UTILISING POOR STONY LAND.

In this part of the south coast the soil, as a rule, is light and sandy, and some extensive tracts close to the shore are allowed to be completely barren, or rather under Furze, now brilliant with golden blossoms or covered with a dense tangle of Bramble. Having some of this kind of soil that has been recently reclaimed, I have been trying various garden crops on it in order to satisfy myself whether or not it would pay for cultivation, and what plants did best on it. Some parts of it are nearly pure sand; some so full of stones, that it was difficult to get soil enough to cover the seed, and all of it is most uninviting for garden crops. Thus far, as might be expected, Seakale and Asparagus show the best results, rooting abundantly and growing with a vigour which surprises me; in fact, they are succeeding better than they usually do on really good garden land. I therefore feel confident that both Asparagns and Seakale might be extensively and profitably grown on such land.

Seakale, indeed, grows wild in the neighbourhood of Southampton right on the edge of the tidal water, deluged often with salt water and spray, and yet the produce is excellent; the crowns are covered with the fine shingle lying around the plants to the depth of a foot, and directly the tops appear through this it is fit for cutting, the heads being more like solid sticks of Celery than ordinary Seakale. It is sold at from 6d. to 9d. per lb. to the greengrocers, and I feel sure that if anyone started growing it in a proper way, so as to get the produce in a good blanched condition from Christmas to May, it would prove a boon to the public and a good investment, for it grows just as well here as in France. Then there is

Asparagus, of which we are not likely to find too much in our markets for years to come, as the demand increases much faster than the supply. I have grown Asparagus in many different counties, but never found it to grow so freely inland, no matter how much care was bestowed on it, as where the salt-laden atmosphere blows over the beds. Dwellers, too, on the south coast get their Asparagus fit to cut very early in the season, and although no special culture is accorded it, the beds keep healthy and prolific for many years. I therefore feel sure that the south coast is just the place to start an Asparagus farm. It is a mistake to suppose that Asparsgus needs soil naturally very rich; I find that it keeps healthier and is longer lived on rather poor soil naturally, stimulating manures being added after the beds are in bearing.

Jerusalem Artichokes have proved to be a capital crop for this light shingly soil; the top growth is very dwarf; in fact during the heat of summer they look as if the produce would be worthless, but when autumn rains come they grow freely, and when lifted are a very heavy crop and the tubers large and fine.

Carrots also produce beautifully clean bright roots, and appear able to defy the drought better than many things, the roots going straight down and finding moisture even when the surface is a mass of hot, dry dust, for in the bright days of July this light stony soil gets intensely hot on the surface. Chicory, treated like Carrots also produces very fine roots in the poorest soil, and is a most useful addition for the supply of salading in winter and spring.

Tomatoes also succeed admirably on poor dry soils; good strong plants put out in the end of May, trained to stakes and kept stopped in closely ripened good crops of fruit out of doors, and a still larger quantity left on the stalks and pulled up as soon as frost threatened, when hung up in a warm glasshouse, ripened admirably and yielded a full supply until Christmas. Before being hung up they were divested of their leaves.

Other crops might be enumerated that grow well on poor light sandy soils, but the foregoing are sufficient to show that the poorest soils may be turned to good account for some kind of garden crop. Do not, however, attempt to plant the Brassica tribe in such soils, for even a short spell of tropical weather will spoil all chance of a crop, except of caterpillars and grubs of various kinds, that multiply with extraordinary rapidity hereabouts when favoured by heat and drought.

Gosport. J. Groom.

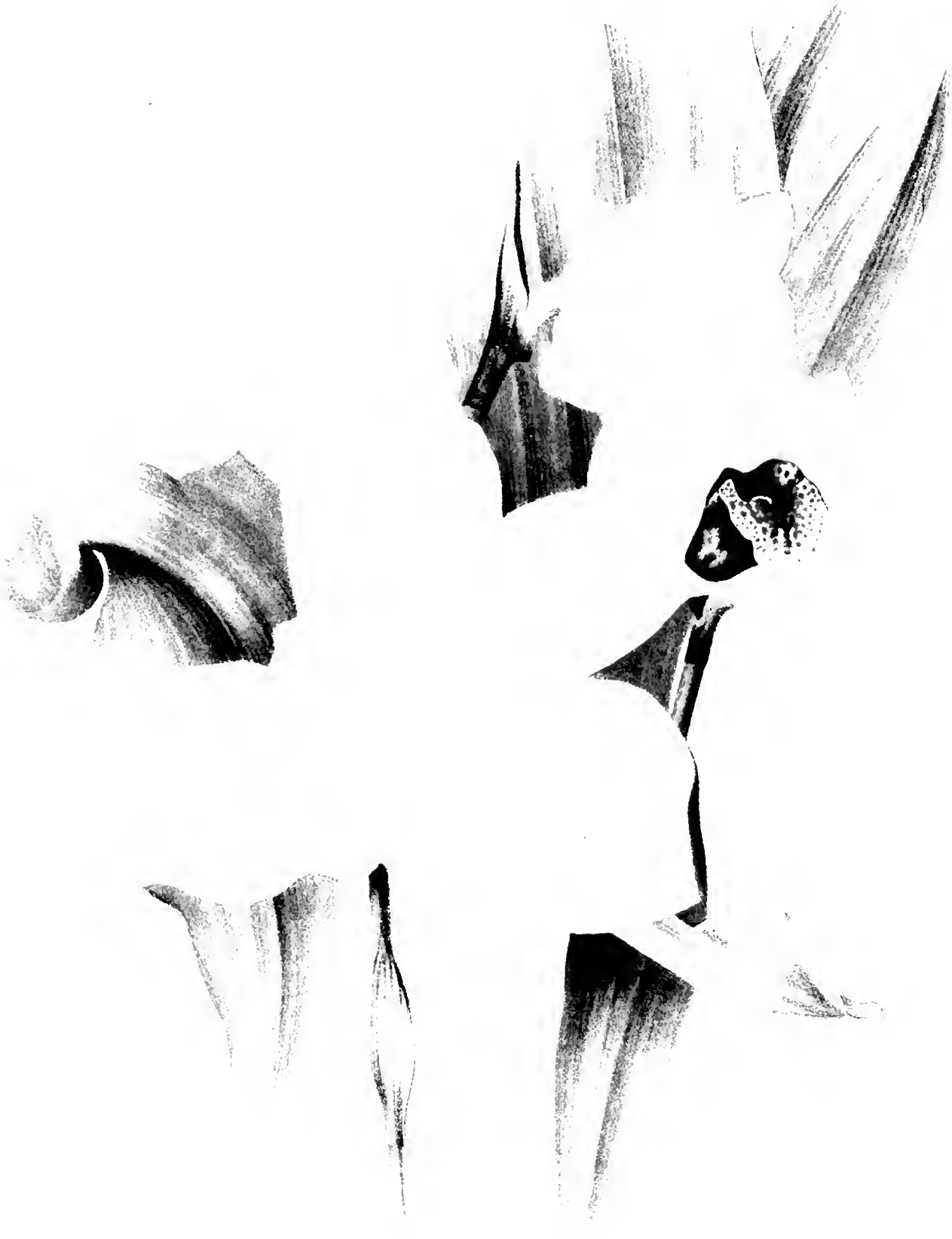
GARDEN FLORA.

PLATE 440.

LYCASTE SKINNERI.*

When amateurs ask me which are the six best Orchids for a beginner to take in hand as an experiment, this plant is always named as one of them. It is easily grown in any warm plant house; it is evergreen; it flowers freely; its blossoms have at times a delicate perfume; they are solidly wax-like in texture, and endure fresh and fair to see for from two to four months. This Lycaste is, moreover, one of the very few Orchids which may be used to decorate the drawing-room or a warm sitting-room when in flower, the plant being at rest or nearly so; hence no injury results from this usage. That it naturally flowers during the winter and early spring months is an additional advantage in its way. Lycaste Skinneri was introduced long ago from Guatemala by the late Mr. G. Ure-Skinner, and speedily became a great favourite with the Orchid growers and amateurs of the time. Its popularity, like that of other beauties, is in some sort indicated by the number of its portraits painted and published from time to time in books botanical and otherwise. In a list now before me I see its picture appears in no fewer than nine works devoted to plant portraiture, to say nothing of its use as an accessory to Mr. Skinner's own portrait, which once upon a time graced the council room of the Royal Horticultural Society at South Kensington, or of that graceful sketch in colour by Mrs. Gould, which was so beautifully reproduced in Gould's work on "Humming Birds." The annexed illustration shows the rosy stained typical species, and also the far more rare and costly, even if not more beautiful, form having nearly pure white blossoms. Large importations recently sold have yielded many varieties, ranging from pure white through all shades of rose until a rosy purple variety having dark crimson markings on the lip is reached. Some of the pale rosy forms are really very lovely in shape and colour, while the darkest varieties serve to show up by contrast the extreme delicacy of the white and palest of flesh-tinted kinds. Imported plants are now so cheap at auction sales, that the humblest florist who possesses a warm greenhouse may attempt its culture at a very moderate outlay. As we have already said, the plant is easily grown.

* Drawn in Mr. B. S. Williams' nursery, Upper Holloway, January 6.



A compost of fibrous peat and charcoal, to which a little Sphagnum Moss is added, suits it exactly if pressed quite firmly upon a well-drained base. When growth is in progress a plentiful supply of moisture is essential, and the plant should never be allowed to become quite dry at the roots, even when at rest. Well-grown plants in 6-inch pots will produce from ten to twenty flowers; and as to their beauty, should there be doubts on that head, a glance at our coloured illustration will at once remove them. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

Sub-tropical garden.—The beds may now be edged and raked down ready for planting, but previous to doing this give such beds as are to be filled with plants that require abundance of manure a good scattering of guano or other fertiliser, which will thus get covered with soil at once. A commencement may then be made to plant out the hardier kinds, such as ornamental shrubs, Australian Dracænas, Eucalypti, Hemps, Funkias, Fishbone Thistles, and also the hardier edging and groundwork plants, such as Cerastiums, Ajugas, Sedums, Veronicas, and Harrison's Musk; the last is a fine groundwork plant for large growing dark-leaved plants in the way of Gibson's Ricinus and Canna Van Houttei, and the partial shade which these afford seem to be just what is needed to keep the Musk in continuous flower from early in summer until late in autumn. The tender section of plants will still need attention indoors; it will not be safe to plant them out till quite the end of the month, and some of them not till June. They should not be allowed to get rootbound, but be grown on freely, being given plenty of space and air. A single plant well grown affords more real satisfaction, and does as good service when planted out as do a dozen that have been huddled together in heat. Tobacco, Chilian Peet, Love-lies-bleeding, and Perilla do best when planted in a very young state: they will now be ready to prick out into boxes, which when filled place in frames, and keep them rather close till the roots have begun to work in the new soil, then give air freely, and plant out in the last week in this month.

Mixed borders.—These must now be furnished for the summer. Asters, Stocks, Marigolds, Larkspurs, Zinnias, and indeed all kinds of annuals may be utilised for filling up vacancies. They should be planted in clumps containing five or seven plants each, taking pains to have the taller growers at the back part of the border; not that uniformity of height in such a border is desirable—far otherwise, but simply that the arrangements may not look too lop-sided, owing to the tallest plants being too much in juxtaposition with the shortest. The commoner kinds of plants may still be sown for late flowering, viz, Delphiniums, Pyrethrums, and Dielytras. Tall Veronicas will now need tying up, in doing which endeavour to avoid a bunched-up, broom-like appearance. On the contrary, tie them as loosely as is compatible with their freedom from injury by wind or heavy rains. If continued gaiety of the borders be desired, and time can be devoted to the matter, many of the earliest kinds of spring flowers, such as Primroses, Daisies, and Arabis, that have now done flowering, may be taken up and planted in the reserve garden, and their places filled with any of the annuals mentioned above, or with ordinary kinds of bedding plants, such as Pelargoniums, Calceolarias, Petunias, and Verbenas; single and double Dahlias, Hollyhocks, Marvel of Peru, and any spare Cannas and Castor-oils that there may be will look well at the back part of the borders.

General work.—Weeding and, after rain, rolling walks and mowing with the scythe for the first time lawns formed last season. These will now need attention. Get vacant beds in readiness for the reception of bedding plants. Transplant spring flowers and bulbs to the reserve garden, and at the same time increase the stock of desirable kinds by division and offsets. Clear Roses of green fly by syringing the plants with soap-suds, and in bad cases with tobacco water. Tie up climbing Roses, and direct the growth of recently-planted climbers, such as Ivy, &c., by tacking in the principal shoots.

ORCHIDS.

East India house.—Sufficient instructions have lately been given as to shading this house and the best positions for the different sections of Orchids. It may, however, be well to again allude to the Angræcums. They require a warm, shady position, and a constant watch must be kept for thrips; they get into the axils of the leaves, and are often not seen until traces of their work are observed on the leaves. It is a good plan to have a small vessel filled with diluted Tobacco water placed in the house, and a small camel's-hair brush at hand with which to apply it to the leaves whenever traces of the insect are to be seen. If it is possible to fumigate the house, that may be done on successive evenings; it will kill both thrips and aphides. In our case there are plants in the house that will not stand Tobacco smoke strong enough to kill thrips, and therefore we must be content to dip or wash them. Plants of Odontoglossum Roezli in this house have been much infested with thrips. They ought now to be clean, for the flowers just opening will be injured by dipping; even flower-buds are injured by the operation, and do not open well. We also grow our Calanthes in this house, although one 5° lower would probably be better. The evergreen section, such as C. veratrifolia, Masuca, and Dominii, were surface-dressed with good loam and rotten manure nearly two months ago, and thick, healthy white roots are now running up into the loam. If not already surface dressed, that operation may yet be performed, and as the flower-spikes are well advanced (indeed, in some cases the flowers are open), it is necessary to watch them in order to destroy any of the yellow aphis, which sadly mars the beauty of the pure white blossoms. We remove the pest with a camel's-hair brush, but it ought to be destroyed by dipping in some solution before the spikes are seen above the foliage. The temperature of this house should not fall below 65° at night, and often it will be 70° at 10 p.m, falling perhaps a few degrees before morning.

Cattleya house.—Some grow Cattleyas with scarcely any shade at all; but we are still of opinion that the safest way in which to grow Orchids of any kind is to shade them from the sun, but we would let them have as much light as possible. Cattleyas, such as C. Mossiæ, Warneri, Mendelli, &c., are pushing rapidly into bloom, and ought to be in a light position near the glass, so that when the flowers open they may be good in substance and colour. The only way by which C. gigas may be flowered satisfactorily is to suspend it near the glass in baskets. Large specimens ought to be raised in pots, so that the tops of the leaves may not be more than a foot from the glass. Odontoglossum Phalænopsis should now be in flower. This is a very desirable species, and one which lasts long in perfection, but it seldom does well unless suspended near the glass. It requires to be dipped frequently in weak Tobacco liquor to destroy red spider, which attacks it, and often does much mischief before it is observed. The Anguloas are now coming fast into flower, and as roots are being formed at the same time, they also require considerable supplies of water. See that no yellow aphides are lurking in the wrinkles of the leaves. As large importations have recently been made of Dendrobium Wardianum and crassinode, those who have plants requiring to be potted should use small shallow pans. They are light and can be easily suspended from the roof; as soon as roots are emitted from the base of the new growths, watch for slugs and give water freely.

Cool house.—With hardly any artificial heat the thermometer seldom falls in this house below 55° at night, unless perhaps an hour or two before daybreak, when the thermometer is low outside; under these circumstances it is desirable to remove any cool house plants that have been wintered in the Cattleya house to their summer quarters in the cool house. Such Masdevallias as M. tovarensis and all those of the Chimæroid section, also M. Wagneri, &c., would now do better in the cool house. Indeed, our plants of M. tovarensis were removed long ago, as we found, by trying half of them in the cool house and the other half in the Cattleya house, that they did best where they were coolest. It may be, if the winter was more severe, that they would succeed best in warmer quarters. Numbers of plants of the M. Chimæra section of Masdevallias have been recently imported, and all of them, except the true Chimæra, which produces its flowers from an upright stem, should be potted in baskets, the flowers being produced from the base of the plants, the flower-stems having a downward tendency. They like a position near the glass, but require a moist atmosphere, and, like the rest of the Masdevallias, plenty of water at the roots. The cool house is now gay with flowers of Odontoglossums, and the earliest-flowering Masdevallias, such as M. Veitchi and M. Chelsoni, are in flower, and form a striking contrast to the wealth of white, blush, and variously spotted forms of Odontoglossum cirrhosum, Pescatorei, and Alexandræ. While there are so many plants in flower we are anxious to keep them in good condition as long as we can, and are careful not to sprinkle too much water about at night. The flowers do not damp off so much when there is a little heat in the hot-water pipes as they do when these are quite cool. A circulation of air night and day promotes the health of the plants and tends to the better preservation of the flowers.

INDOOR PLANTS.

Boronia elatior.—This is such a profuse-flowering subject and so easily managed, as to make it deserving of general use wherever a greenhouse or conservatory exists. It will last in flower for over two months, and from its graceful habit of growth it is a pretty object even when not in bloom. As soon as the plants have done flowering they should be slightly cut over, shortening the last season's shoots about one-third their length; if this is done the plants will keep for years without getting straggling or too large for ordinary purposes.

Hydrangeas.—A sufficient stock of cuttings of these should, if not already put in, be seen to at once, using the young shoots, which the spring-flowering plants usually produce freely. If the cuttings are kept moist, close, and in a little heat, they will root in a fortnight. More plants intended to bloom should be pushed along to precede those that have been retarded, giving them plenty of manure water as growth progresses. Quick-growing, gross-feeding plants such as these are only seen in their best condition when liberally supplied with nutriment. Dip them in tobacco water or fumigate as soon as aphides appear.

Achimenes, Gloxinias, and Gesneras.—Achimenes started some time back should not be allowed to make too much growth before they are transferred to the pots or baskets in which they are to bloom. It is well not to overcrowd them; if this is done, their flowering will be comparatively short-lived, and the leaves will be almost certain to have a sickly yellow colour. Few summer-blooming plants are so bright and effective as these when well managed; where it is desirable to have them in bloom over as long a season as possible, they ought to be started into growth in succession, or else a portion should be subjected to less warmth than the rest, but they are heat-requiring subjects, and will not do well if deprived of a sufficiency of warmth during the early stages of their growth. Gloxinias that were started early will now be pushing up their flowers, and need all the light that can be given them so as to keep the foliage stout and give strength and substance to the flowers and the stalks on which

they are boroe. The flabby, weak, half-prostrate condition in which these plants are often found destroys the character of both the foliage and flowers. The solid-tubered species and varieties of Gesnera, such as G. Cooperi and others, are beautiful and most useful summer-flowering plants, not nearly so generally grown now as they deserve to be. They succeed with moderate stove heat, and occupy comparatively little room; and where sufficient quantities of them are grown a succession can be kept up. G. Cooperi will flower twice in the course of the season if well treated, the second crop of shoots yielding a head of bloom little inferior to the first. The variegated section is handsome both in leaf and flower, but unless means are taken to keep them free from such pests as mealy bug and thrips, their leaves soon lose their beauty, the means that have to be employed to rid them of the insects destroying their velvety, lustrous appearance.

Lilies.—As the shoots of these extend, keep the pots well up to the glass; for the summer and autumn-flowering kinds a cold frame in a light position, with the lights off in the daytime, will favour stont, sturdy stems much more than if kept in a plant house. If the stems are at all drawn up quickly the lower leaves will be proportionately thin in texture, rendering it impossible to keep them on until the plants bloom. As the earliest will now be growing freely, supply them regularly with manure water, so as to get them strong, as on this to a great extent depends the quantity of flowers which they produce. It is the nature of some Lilies to form a quantity of roots from the lower joints of the stem above the bulb; means should be taken to preserve and encourage these by adding soil, so as to cover them, or by potting them lower in pots a size larger; these stem-roots may not assist the growth of the bulbs, but they have a marked influence on the flowering.

Chrysanthemums.—Late-struck cuttings should at once be placed in 5-inch or 6-inch pots, and treated so as to get them on, stopping the shoots of those that are intended to be grown bush fashion. Do all that is possible to keep them sturdy; if they are at all drawn up in their earliest stages it is useless to expect the lower leaves to stand until blooming time. To this cause quite as much as to inattention in the way of giving with water through the summer is attributable the naked condition these plants get into before flowering.

Camellias and Sparmannia.—Camellias that flowered earliest will now be in active growth, and if at all deficient in vigour through want of root room, soot water should be given once a week; this will speedily show its effects in the increased size and deep colour of the leaves. Sparmannia africana is another plant easily grown, and one of the freest of free bloomers. Its white flowers, set off with quantities of singular filaments, have a distinct appearance unlike anything else, and, being produced during a considerable part of the winter and spring, render the plant doubly useful To secure large specimens of it, cuttings ought to be struck in the usual way in a moderate heat about the beginning of March, and grown on with plenty of room, as required in summer. For such plants 12-inch pots will not be too large in which to bloom, but cuttings put in now will make good flowering examples in 8-inch or 9-inch pots. Ordinary sandy loam will suit them, and they like plenty of light, the foliage standing more sun under glass than that of most things.

Forced shrubs and bulbs. As has before been pointed out, the too common practice of allowing shrubs, such as Andromedas, Lilacs, double-flowering Plums, Ghent Azaleas, Laurustinus, and Rhododendrons, after having been forced to remain comparatively uncared for, is wasteful. Although such plants usually require a second season to bring them up to the condition they were in previous to forcing, it is well to recollect that in most cases the warmth to which they have been subjected has caused them to make a quantity of young growths in addition to their roots also being set in motion, and unless they are gradually inured to the open air before being turned out of their pots, they suffer so much as to be reduced to all but a state of worthlessness; whereas, if duly cared for, with, after blooming, a year's rest, they will again do good service. The course of treatment they have undergone tends to check all inclination to exuberant growth, in place of which a disposition to flower profusely is secured. If the latest bulbs, such as Hyacinths, Narcissi, Tulips, Crocuses, and Scillas, which will have bloomed without much forcing, are similarly well cared for by being turned out in the reserve ground and sufficient water given, they may be made useful in different ways, as all but the Hyacinths will, after an interval of a year, bloom in the open ground as well as if they had never been subjected to pot culture.

FRUIT.

Cherries and Plums.—Examine the trees and fumigate if necessary before the fruit changes colour. Green fly may easily be eradicated, but the black and brown aphis often give a great deal of trouble, and it is not always convenient to cut off and burn the points of the shoots; but if taken in time, regular dipping in tobacco water will soon clear the trees. As the ripening period approaches, see that the roots are in nice condition and properly mulched to keep in moisture. Go over the trees and stop all superfluous shoots at the fourth leaf, tie in leaders, discontinue syringing, and protect from birds by banging fishing-nets over the ventilators. If trees in pots are too thickly set they may now be thinned. Feed well and mulch to keep the surface moisture in the pots and to prevent the constant use of water. Syringe Plums twice a day with soft water until the fruit begins to ripen, thin well when stoned, and feed with liquid at every watering. Plums will stand more heat than is good for Cherries, but nothing is gained by its application. Fumigate for fly. Keep the trees pinched and tied in, and see that Golden Drop and other late kinds intended to hang are not distressed by overcropping.

Melons.—Where the pot system is followed the first batch of plants will soon be ripening off their crop of fruit, and, time being an object, see that another set is thoroughly established in fruiting pots ready to take their place. Although cleansing after the first crop is not absolutely necessary, cleanliness is an important item in good culture, and always pays for the small outlay in quicklime and sulphur. When the fruit is succession houses has attained the size of duck's eggs, select the fittest for swelling away evenly together, cut off duplicates and all lateral growths, top-dress with heavy loam, bone dust, and dry cow manure, and feed liberally. Avoid wetting the foliage at the morning syringing, but damp all paths, walls, and surfaces; ventilate freely until noon, and syringe overhead after closing for the day. Pay particular attention to plants in pits and frames, and carefully avoid producing a check by stopping or cutting during the time the fruit is setting. Fertilise all female blossoms, and at the same time draw them up above the foliage to the influence of solar heat and light. When a good set has been secured, pinch two joints beyond the fruit, elevate those intended for the crop on inverted flower-pots, and trim away all surplus growths. If the bed of soil has been made between two planks placed 2 feet apart, the advantage of the plan will now be discovered in the facilities offered for top-dressing, ramming, and feeding. Melons in pits and frames should never be shaded, neither should the soil at the outset be enriched with manure, but food of the richest quality may be given to them during the time they are swelling their fruit.

Hardy fruit.—Seldom perhaps have fruit trees of all kinds broken away in a more satisfactory way than they have done this spring: but Plums and early Pears on pyramids and bushes have been much injured. Currants, too, have suffered, but Gooseberries, where protected by their leaves, seem to have escaped, and trees on walls are mostly safe. Disbudding will soon require attention, but, considering that we are not long out of April, the little-and-often system of taking off a few shoots at a time should be strictly adhered to; and although the trees may be the better for having the covering removed, it should be kept within easy reach, and temporary copings should remain on the walls for some time longer. Give regular attention to the thinning of Apricots, which are a tolerably good crop, and wage incessant war with the active grubs, which soon do serious mischief, particularly where the trees are heavily cropped and there is a dearth of foliage. Wash the trees well with clean water when the days are mild and cloudy. Mulch the borders with good rotten manure and old lime rubble, as calcareous matter will be in great demand at stoning time, and water copiously to ensure its reaching every part of the soil in which the roots are embedded. Take the foreright growths off Peaches, also the small fruit from the shoots. Wash well with clean water, and always have the usual insecticide ready for application to parts affected on the first appearance of green fly. Examine the borders and see that the recently root-pruned or old trees do not suffer from the want of good mulching and feeding. The usual mode of training a Peach tree against a south wall or within a few inches of a glass roof, so as to expose every leaf to the sun, is a most trying position, and unless a liberal supply of water is given to the roots and foliage, insect life will soon be abundant, and heavily cropped trees will ripen their fruit prematurely if they do not cast it when stoning. Look over Cherries and Plums on walls, destroy the grub by pinching the points of the shoots, and dip or syringe with Tobacco water on the first appearance of black or brown fly. The latter soon paralyses the young growths, and the grub makes very short work of a crop of Cherries; hence the importance of thoroughly cleansing the trees and walls when the trees are unnailed in winter. Maiden Strawberry plants from which the current year's supply of runners is to be obtained may be divested of their flowers, well mulched and watered if necessary, and autumn-planted beds may be made very firm by treading when the ground is dry. If fresh stable litter is plentiful and at hand, all the fruiting beds will be the better for a good covering after rain and before the flowers and foliage get too forward. In due time the rain will carry the ammonia down to the roots; sun and wind will bleach the litter and render it equal to new wheaten straw long before the fruit is ripe.

Cucumbers.—Where the Cucumber house is divided into several compartments, those in which the plants have been longest in bearing should be cleared in regular succession to make room for young plants, which come into bearing in a very short time, and the necessity for constant fire-heat having ceased, a clean, healthy growth will be secured throughout the summer. It will be necessary to clear away all old soil and plunging material prior to scalding, cleansing, and washing with quicklime; otherwise the usual pests—spider, woodlice, and worms—will soon re-establish themselves. Make the hills or ridges for summer use as far as possible from the top-heat pipes, and endeavour to secure a steady, lasting bottom-heat from fermenting materials in preference to having constant recourse to firing, for, much as the Cucumber can and does often yield good crops for a time under high pressure, all practical growers are agreed that a top-heat ranging from 70° to 85°, with air when draughts can be avoided, and a bottom-heat of from 80° to 90° will keep them vigorous and fruitful as long as daily details are properly attended to. If old plants cannot be dispensed with, cut them over and ply the syringe well, using water at the temperature of the house at the time of closing. Shade for a few days, and let the heat on fine afternoons run up to 90° to economise night firing. Avoid the use of solid manure for the roots, but feed well with tepid liquid and earth with rough fibry loam from which the fine particles have been separated, and a liberal mixture of old lime rubble, which will absorb and give off moisture

when most needed by the foliage. Spring-sown plants in pits and frames will now be in bearing and in some danger of being overcropped. Dress over as often as the weather will permit, peg out the young Vines, and carefully guard against getting the foliage too gross by constant stewing in a vapid atmosphere, but keep it stout and healthy by giving a little back or front air, according to the direction of the wind, on fine mornings. Shut up about three p.m. with a flush of sun-heat and moisture, and let it gradually descend to 70° for the night. If all the heat is obtained from fermenting materials, renovate back and front linings alternately. Cover well with dry mats, and provide for the escape of noxious gases by giving a chink of air after covering up for the night.

MARKET FRUIT GARDEN.

Where the ground has been roughly dug during winter, as is the custom, many strong rooting weeds will now be pushing up strongly, even though they have been buried for months. Colts-foot, Docks, Couch Grass, &c., will find their way to the surface if only buried one spit deep, and experience proves that in stiff soil, unless spring and summer cultivation are strictly carried out, the land soon gets into a foul condition, as in autumn, owing to the press of work connected with harvesting the fruit, the weeds generally make rapid headway, more especially if the season be wet. At the winter cultivation it is therefore difficult to clean the ground properly. It is dug as roughly then as possible, so that the frost may act on the lumps of soil and pulverise them. Now, therefore, is the time when workmen, armed with stout three-pronged hoes like little forks set on a handle like a rake, proceed to pull over the lumps just named, and work them down to a fine tilth, bringing as the work proceeds the large weeds to the surface, when in their blanched state they quickly wither up. When quite dry they are collected and put in heaps to burn; this thorough stirring destroys all the seedling surface weeds and renders the work of destroying succeeding crops a light matter, as with a well pulverised surface hoeing with draw hoes is performed at a trifling cost per acre, and when the bushes or trees are wide enough apart, the horse hoe and harrow are used instead of manual labour.

Gooseberry caterpillar.—A sharp look out must now be kept for Gooseberry caterpillars, for if allowed to get established, they not only spoil the crop, but the bushes as well. In this locality acres of bushes divested of foliage last year are looking very weakly and are bearing very light crops, while those carefully cleared of caterpillars are heavily cropped. There are many remedies for this pest and many ways of applying them, but the general plan is to dust powdered hellebore on the bushes when the first signs of caterpillar appear. The hellebore kills all it touches, and if followed up a few times, will usually keep the bushes quite clean. Tin canisters with holes made in them, like flour-dredgers, are employed for dusting the trees, and as the caterpillars usually start from the centre, and clear the leaves off the tips of the shoots, it is necessary to lift up the outer branches and carefully inspect the centre of the bushes, for they multiply so rapidly, that if allowed to remain many days undisturbed, their destruction is almost hopeless.

Grafted trees.—All kinds of grafted trees will now need frequent inspection, as the occasional showers we are now experiencing will loosen the clay coverings, and if not replaced quickly, the drying intervals between the showers act most injuriously on the graft, and that, too, at the most critical stage of its existence. Any coverings that have given way must therefore be replaced at once, and those that are cracked must have some fresh clay worked into the fissures, as the more thoroughly air is excluded, the more certain will be the success of the grafts.

Recently planted trees must be kept firmly staked and tied to prevent wind-waving, for as the leaf gets heavy, the strain will be even greater than it now is. See that they do not get chafed; put plenty of soft material round the stems before tying, as unless the top is kept steady, the young freshly formed rootlets get broken, and the tree thereby considerably checked. Look to top-dressings; see that they are not only ample, but also frequently stirred. In the case of old orchards on Grass, this is a good time to remove Nettles, by forking them up by the root, also Docks, Thistles, and other coarse-growing weeds. Keep an extra supply of sheep grazing under the trees now, as in addition to the abundance of Grass there is usually green garden crops that can be spread in orchards to supplement their food. All kinds of the Brassica tribe, such as Cabbage stalks, winter greens, &c., when running to seed are far better put into the orchard for the sheep than on the rubbish heap, as the little they leave of the hard stalks can be raked up and burned when dry. The season for gathering green fruits will soon set in. About here vast quantities of Gooseberries are picked green, and those who get them forward enough for the Whitsuntide market usually get a high price for them. See to the stock of baskets, packing paper, labels, sticks, &c., so that when required no delays may arise. Many of these can be prepared on wet days when outdoor labour is at a standstill, and the profits of fruit growing demand that economy of time as well as of other resources be practised if the cultivator would live by his labour.

KITCHEN GARDEN.

Tomato plants ought now to be in 6-inch pots. They will be showing flower, and when planted by the side of south walls, will begin fruiting. President Grant and similar monstrosities are not what is wanted, either for exhibition or private use. Tomatoes should not be large; on the contrary, about six to a pound is about the right size. Speaking of Tomatoes, we may add that the green fruits gathered in autumn, and laid on shelves under the glass to ripen, certainly become red, but as regards flavour it can only be compared with that of box fruit from our neighbours across the Channel. English Tomatoes fetch from 2s. to 2s. 6d. per lb., while French ones only realise from 1s. to 1s. 6d. Hoe between all growing crops whenever the weather is suitable. Plant double rows of Lettuces on the top of Celery ridges. Keep a sufficient quantity tied up in the winter quarters to meet all demands. Sow successional crops of Turnips, Lettuces, Radishes, Mustard and Cress, &c. Now is a good time to thoroughly clean walks, cut Box edgings, and finish by putting a little gravel on the walks, so that all may be smart and trim for the summer.

PROPAGATING.

GREENHOUSE RHODODENDRONS FROM CUTTINGS.

At this season of the year, when the beauty of greenhouse Rhododendrons is still fresh in the memory, the question, How am I to propagate them? naturally arises; a few words, therefore, regarding their propagation may not be out of place, especially as the most suitable season for striking cuttings of them is just at hand. All the different hybrids of Edgeworthi, ciliatum, Veitchianum, and formosum, such as fragrantissimum, exoniense, Forsterianum, Nesterianum, Countess of Derby, Princess Alice, and others, as well as the original species, can all be readily propagated by means of cuttings, as can also the small Correa-like R. Thibaudieose, Blandfordiæflorum, and retusum. The larger Himalayan species are generally increased by means of seeds or grafting on allied kinds, yet most of them may be struck from cuttings, though they are by no means the easiest of subjects to deal with. I have struck by means of cuttings R. Nuttalli, Falconeri, Hodgsoni, barbatum, fulgens, Andersoni, calophyllum, Dalhousiæ, and the different tube-shaped sorts, such as jasminiflorum, javanicum, Lobbi, and the various hybrids raised therefrom, viz.: Princess Royal, Taylori, Princess Alexandra, Duchess of Edinburgh, and others, besides those first mentioned. My greatest success was cuttings formed of the young shoots taken when in a half-ripened condition, *i.e.*, soon after losing their succulent character and before becoming woody. A good deal as regards success depends upon taking the cuttings just at the right season; if too soft they are liable to decay, while on the other hand if allowed to become very woody, they take a long time to strike, and owing to its being necessary during the whole of that period to keep them in a close propagating case the leaves are liable to be attacked by thrips, which play sad havoc with them; therefore, the quicker they strike and are removed to a less confined atmosphere the better. The larger kinds I prefer to put singly in small pots, while those of more slender growth do well inserted half-a-dozen or so around a pot 4 inches in diameter. The soil used should be one half fine peat and the other half broken crocks, charcoal, and silver sand, the whole being thoroughly mixed together. Regarding crocks and charcoal, I find that Rhododendron and Azalea cuttings root much quicker with these in the soil than without them. The same remarks hold good in the case of many other subjects; indeed, the Cape Silver Tree (Leucodendron argenteum) refused to strike root in ordinary soil, but did so in a mixture into which was freely introduced crocks, charcoal, and silver sand.

Returning to the Rhododendrons, it may be safely said that the weaker shoots root more readily than the strong ones, and if possible the whole of the current year's growth should form the cutting, as roots are produced more readily from the base of the young shoot than from any other part thereof. Of course, if the young growth is too long, this cannot be done, as generally speaking nothing is gained by putting in very long cuttings. In any case the base of the cutting should be formed by a sloping cut, there being then a greater surface for the emission of roots than if made level. Perfectly clean pots should be used for propagating purposes, and thorough drainage must be secured, but in the case of the large kinds only a few broken crocks can be put in the bottom of the pots employed, as, the cutting being large and the foliage on it heavy, a considerable length of stem must be buried in the soil in order to keep it in position, and this could not be done if many broken crocks were put in the cutting pots. For smaller sorts, of course, more crocks must be used; a good general guide is to place in the pots drainage sufficient for the base of the cutting or cuttings when put in to rest on. We put in the cuttings firmly, then give them a good watering, and after that they are placed in a close propagating case.

The case in which the cuttings are put is in a house kept at an intermediate temperature, as the slight rise above that in which the cuttings have been grown greatly assists the formation of roots. A moist atmosphere must be maintained in the case as far as possible without undue wetness, which will tend to decay. The cuttings are at first placed on the fibre in the case, when in a couple of months many will be rooted, but as a matter of course some will not at that time have reached so forward a stage; if, therefore, the latter are then plunged in a little bottom-heat it will greatly assist the formation of roots. One point regarding these cuttings I have several times noticed; it is this, that occasionally a cutting or two will stand for months after being callused without forming roots, but if taken out of the pot and replaced in some fresh soil, it will strike root quickly. The long tube-flowered class strike quicker than the others; indeed, I have frequently taken cuttings of Princess Royal, Duchess of Edinburgh, and Princess Alexandra containing a flower-bud which opened out either in the propagating case or soon after being removed therefrom. So well did these flowers expand, that I selected several more and struck them with the same result, the little plants in 4-

inch pots, but a few inches high, bearing each a large head of blossoms. Seeds of most of these different hybrids ripen freely even on small plants if fertilised either with their own pollen or that of some other kind, but as a matter of course the plants must attain a good size before they flower, while those raised from cuttings flower at once. Those increased by this latter method, however, perpetuate only the kind from which they were taken, while among seedlings a great variety may be expected, which, though perhaps in no way superior or even equal to the parents, yet their gradual development furnishes a source of interest. Plants of the large growing Himalayan Rhododendrons, propagated by means of cuttings or grafts, flower when in a much smaller state than those raised from seeds, which latter as a rule require many years to reach a flowering state. We sow the different kinds in pans filled with sandy peat, just sprinkling a small quantity of dry sand over the seeds after they are sown. A pane of glass is then laid over the pan or pot, when the seed quickly germinates. A good plan is to give the soil a thorough watering before sowing, as the seeds then adhere to the damp surface, and are not moved by the covering of sand, nor by subsequent waterings, unless carelessly done. Care must be taken not to sow too thickly, which, taking into consideration the minute character of the seeds, can be easily done. The young plants, soon after making their appearance, are very liable to damp off, and if damping prevails to any great extent, they must be pricked off into other pans. In doing this great care is needed not to bruise the young plants, which are so delicate that the least squeeze will be fatal to them. For this reason they should be allowed to attain as large a size as possible before they are pricked off, as the smaller the more liable they are to be bruised during the operation. T.

INDOOR GARDEN.

LATH BLINDS.

EACH year as the sunny season comes round the question of shading materials is revived with opinions differing as wide as the poles as to the merits or demerits of the different substances recommended for use in this way. Mr. Cornhill says I am unfair in condemning lath blinds at sight, urging that no one can judge of the merits of a garden appliance without trying it. With an equal show of reason it might be said that experience went for nothing in garden matters of all kinds. A knowledge that plants are benefited by the greatest amount of light that can be given them one would imagine was reliable data on which to reject blinds, that even those who advocate their use admit do not let as much light through as some materials do. Those who have seen the Parisian market growers' places know that some of them use these blinds, but the fact of their being in use there and by Messrs. Sander does nothing to prove that dark blinds are as good as light ones. I know another authority in Orchid growing, Mr. B. S. Williams, Holloway, who now uses the thinnest material he can get for shading his Orchids in place of the thicker which he used to use. It would be difficult to instance any practice connected with the cultivation of plants that has ever become known that some one or other has not taken to, and is ready to stoutly maintain its merits, and this blind question is no exception to the rule. The defects in these lath blinds are inseparable from the material they are made of; to make them so as to last and stand the wear and tear of use for any time, the laths must necessarily be made of a breadth that keeps out the light much more than canvas of the right description does, unless the laths were so far apart that the sun would injure the plants through the interstices, and beyond this there is the important matter of cost. I have before me a circular wherein these blinds are offered at 6½d. per square foot, 4s. 10½d per yard, with for fittings to each blind a further charge of from 3s. to 5s. Imagine Mr. Ladds, of Bexley Heath, with his fourteen acres of glass, going in for these blinds. I think he would find them to cost considerably more per yard than his Pitch Pine and 21-oz. glass houses do, heating included.

I had a thin darkish-coloured canvas, which when engaged in plant growing I found much the best shading material I ever met with, both as to durability and admission of light. It is made of flax without any mixture of jute, to which is attributable its durability; the threads, both warp and weft, are no thicker than thin brass wire. In the weaving of this material the interstices between the threads are in the proportion of two to one to the thickness of the threads. In these French made blinds, as shown in the illustration in the circular, the light admitting space between the laths is only one in four. Until Mr. Cornhill and those who recommend these blinds can make out that light admitted by them in the proportion of one-fourth is as good for the plants as the two-thirds they receive through the canvas I recommend, most people who know the value of light will continue to prefer the canvas. It does not shrink or the threads thicken from wet when in use. As will be found, the threads are so strong, that they require an unusual strain to break them. It is unbleached, but soon gets whiter when exposed to the weather. I have had a sample by me for a dozen years; it used to be procurable from several of the large wholesale Manchester houses. It has frequently occurred to me that it would be possible to make blinds of an imperishable character composed of thin iron wire links, connected together in the way of the old chain purses, galvanising them after they were made, which latter operation could, I fancy, be done in a way to connect the ends of the wire of which the links were formed so as to do away with the necessity for soldering. Will any enterprising wire-worker try to work out this idea? If a sufficiently cheap article was forthcoming it would be likely to meet with an extensive demand. T. BAINES.

Grevillea Manglesi.—This new Australian shrub which Mr. B. S. Williams has been exhibiting this season promises to prove a useful plant for decorative purposes on account of its elegant habit. Its leaves are much divided, the numerous leaflets being small and set on slender stalks that recurve gracefully. It was much admired at the last show at Regent's Park, where it obtained a first-class certificate.

Begonia insignis.—This is the most valuable Begonia for flowering late in autumn and during winter of which I have ever had any experience. Cuttings of it rooted now and grown on throughout the summer until they are in 6-inch and 7-inch pots in autumn will be found to be beautiful bushy plants 18 inches or so in height and as much through, and these when in flower will be one mass of lovely pink blossoms which are most attractive either cut or uncut. An intermediate temperature suits it best when young, and also when budding and blooming.—J. MUIR.

Bignonia unguis.—This curious, handsome, and interesting warm-house trailer from the island of Martinique (which has been described by Von Siebold under the synonym of B. æquinoctialis) is also described from life and illustrated by a woodcut in the current number of the *Revue Horticole*. It seems to be a plant well worthy of the attention of horticulturists, and of much more extensive culture than it at present enjoys, being seldom if ever met with out of botanical collections. The flowers are said to be of a beautiful golden yellow colour with long tubular throats, and are succeeded by extraordinarily large chestnut coloured fruits which exceed a foot in length. Its roots also display a most curious and abnormal development resembling small Mangold Wurtzels in shape, the largest of the five produced by the plant figured measuring over 2 feet in length by 9 inches in circumference, and the weight of the five tubers amounting to over fifteen pounds. Compared with these abnormally developed root-tubers, the stems of this plant are extremely light and weak in structure, but it is said to be a quick grower, and as the leaves are provided with tendrils furnished with suckers at their extremities, which adhere even to glass wherever they touch, it is likely to be useful as providing a welcome shade in summer for plants growing underneath. It should be planted out in a temperate or intermediate stove, where a dry rather than a moist temperature prevails, as it requires but very little water at any time. It is also said to be liable to the attacks of none of the insect pests which render the successful culture of so many of our stove climbers so difficult and troublesome. It requires plenty of light and only ordinary soil of rather a stony nature, if possible, and is easily increased by cuttings, which bloom the year after rooting, or from seed, which produces more vigorous plants, which, however, will not bloom till they are four or five years old.—W. E. G.

Culture of Lachenalias.—On turning over some old correspondence I came upon a letter written by the late Rev. John Nelson on the culture of Lachenalias, which may not be uninteresting at the present season. "I grow," he said, "my Lachenalias in a room with a bay window, and they flourish to my entire satisfaction, except that they become a little too much drawn. I pot in a compost about half loam and the other half equal parts of leaf soil and peat with a good dash of sand. When growing I give them a good deal of water and they like it. I go on watering not only till the leaves turn yellow, but until they quite wither; then they remain dry in the pots till repotting time, say the middle or end of July, when they are naturally inclined to start. I think many persons mismanage bulbs in pots by putting them out of the way, under stages or elsewhere, when they cease to be ornamental, and so they come to grief from want of perfecting the foliage."—P. BARR.

FERNS.

NEW MAIDEN-HAIR FERNS.

ALTHOUGH every successive year brings forth fresh additions to Ferns, it is not often that novelties of such sterling value as those which form the subject of the annexed illustration make their appearance. It is, indeed, questionable if since the time when A. farleyense was first brought into notice anything approaching the new Adiantums of this season has been introduced. Both are sports or natural hybrids obtained from species already known by Mr. F. Bausé, from whom Messrs. J. Veitch, who are now sending them out, have bought the stock. The most distinct in character is unquestionably A. rhodophyllum, which is about intermediate between A. Victoriæ, itself a so-called hybrid and one of the supposed parents, and A. scutum. Of the vigorous and free growth of the latter it partakes to a great degree, although always more compact in habit than that kind, being nearer in that respect to the other parent and vastly superior to either of them; in fact, it has been stated on good authority to be "one of the most ornamental of Maiden-hairs yet obtained." Its lovely bipinnate fronds, deltoid in outline and spreading, are produced in great profusion from a single crown and form densely crowded tufts; they attain a maximum height of about 15 inches and are borne on slender and exceedingly black shining stems of a gracefully curving habit. The main attraction, however, which this new Fern possesses is the remarkable diversity of colours peculiar to its many fan-shaped and finely dentate pinnules during the different stages of their growth. When first developed they are rosy purple or crimson in tint, stronger and brighter than in any of the many other coloured Adiantums already in cultivation. That colour with age changes to a rosy fulvous green, and, after passing through various shades of a coppery hue, finally assumes a soft pale green tint, which is retained until the fronds are quite mature, when the pinnules measure fully an inch or more across. A.

rhodophyllum is a plant which requires a cool stove or warm greenhouse temperature in order to properly develop its handsome foliage, which acquires much brighter colours if kept close to the light.

In A. cuneatum deflexum we have another illustration which goes far to support the views of those who believe in and advocate the process of artificial fertilisation in the case of Ferns, for this, like the preceding, is a supposed hybrid whose given parents, A. cuneatum and A. Bansei, are also a species and a garden variety. The distinctive characters of the two sorts just named are so unmistakably shown in the new plant, as to place it exactly intermediate between them, and they are so gracefully blended as to render a most interesting and at the same time a very decorative and useful kind. Its compact habit, which, in every respect is as good as that of the popular A cuneatum, is in itself sufficient to recommend it, for it is equally evergreen, and its numerous tri or quadripinnate fronds elegantly arched are densely produced from a single crown, and they possess a most peculiar appearance on account of their pinnules, which are wedge shaped, as in the species, having the crenature of their margins obtusely rounded in a conspicuous way and being singularly deflexed like those of A. Bausei, though much smaller and of a much darker and richer colour. A very striking aspect is also produced by the hanging position of the pinnules, which are shown off to perfection as the plant gains strength. It rarely exceeds 10 inches in height, and on that account will be found most valuable for decoration, inasmuch as it thrives remarkably well in a cool house.

Quite distinct from the above is the curious A. cuneatum strictum of Mr. B. S. Williams; in fact it is entirely dissimilar to any of the several forms which during the last few years have made their appearance in various places. It is a comparatively dwarf tufted evergreen Fern of slender and curiously erect habit, seldom attaining more than 8 inches in height. The fronds, which are abundantly produced from a single crown, besides being upright as a whole, have their pinnæ also directed upwards and springing directly from the rachis. Although of a somewhat stiffer appearance than the parent, it will doubtless prove a valuable addition to the genus, in which it will occupy a special place through its pinnæ being spirally arranged in a most peculiar way. The pinnules, which are cuneate in form, are about the usual size of those of A. cuneatum, with the exception of the terminal one, which generally is trapeziform, and all have the upper margin shallowly lobed. Its texture is very tough, and it does well under cool treatment.

From Continental growers only one new kind has been received this season. It is, however, a very meritorious one, and likely to take a prominent place in all good collections. A. digitatum is its name—a strong growing kind and bold in habit. It has beautifully arched quadripinnate fronds, often measuring 4 feet in height, and they are borne on long and stout ebony-black stalks which have a peculiar bluish tint. The pinnules, which are as large as those of a good form of A. scutum, are deeply crenate and loosely set, which give the plant a most graceful appearance. This plant, which is of a delightful pea-green colour, succeeds best under cool treatment. S.

Adiantum rhodophyllum. *Adiantum cuneatum strictum.*

Filmy Ferns—Will anyone who has grown these successfully kindly say which kinds I could grow in an unheated greenhouse? I want to grow some against a wall which is quite shaded throughout the day.—FILICES.

UNHEATED FERNERIES.

The generality of houses devoted to the cultivation of Ferns have until lately been mostly structures provided with heating apparatuses which are not only more expensive, but also more difficult to manage than unheated houses. Therefore a house which can without the help of fire-heat be kept interesting at all seasons of the year is obviously a step in the right direction, and a house of this kind can be had at a trifling cost compared with that of heated structures. Ferns, as a class, are most accommodating, and if properly treated will thrive where even other plants would refuse to live. In many instances, therefore, houses comparatively useless for other purposes have been converted into capital ferneries. Shade and moisture are indispensable to the health and comfort of Ferns, and therefore it behoves us when any attempt is made at appropriating any special structure to their use to bear this fact in mind; first of all, select if possible a spot naturally, possessing the required conditions, that is to say, a place laying at a comparatively low level, and at the same time not exposed to the direct rays of the sun. Such a house devoted entirely to the cultivation of Ferns from temperate regions is at all times of the year, but particularly in summer, a delightful retreat, and one combining endless attractions with an absolute sense of comfort. This remark is specially applicable to suburban ferneries, for it is the city man who most enjoys the beauties of an evergreen vegetation after the day's work is done, and a cool fernery is of all houses the best adapted for his wants. A suitable spot having been secured, the next consideration—also one of great importance—is the selection of materials to be employed in its erection, and in that of the rockwork which is intended

to become the main attraction of the building. Too great a quantity of stone or metal is a mistake, as that alone produces an atmosphere the harshness of which is quite uncongenial to the growth of Ferns. The house itself, which would be all the better if built entirely of wood, should be sufficiently large to allow plenty of space for the full development of the most gigantic growing kinds, which are only really ornamental when they attain their full size. Although when properly treated these plants will thrive in any aspect, provided the house be a spacious one, still a span-roofed structure with sides facing east and west is undoubtedly the most suitable for their culture. In erecting such a house a perfect knowledge of the Ferns intended to fill it is indispensable in order that the interior may be at once arranged to accommodate plants of robust growth, which are needful to give the place an established appearance. The most effective arrangement consists of winding walks and undulating surfaces with naturally formed rockwork suitable for the accommodation of the plants. A point on which too much stress cannot possibly be laid is the

BUILDING OF THE ROCKWORK itself, which should be made of brick burrs or tufa only; these are the most porous materials, but, nevertheless, care should be taken not to use too much of them, the object in view being the making of a fernery in which plants are to grow, and not, as is too often the case, a mere rockery. In a well-constructed house the quantity of stone used should be greatly less than the amount of earth, which naturally keeps moist and maintains a properly balanced atmosphere, a result unobtainable where stone predominates in the shape of prettily designed grottoes and cavern-like recesses, interesting though they be. Ferns endowed even with the strongest constitutions cannot possibly exist under such unfavourable conditions. The brick burrs or tufa should be held together by Portland cement, and not placed loosely on the ground, as is sometimes done in private establishments. They must be set on a thoroughly firm basis after making a solid bed of clinkers, coarse gravel or any other rough material which will ensure a good drainage. The first layer of brick burrs must be made evenly, as it is on that layer the whole of the fabric will have to rest; then continue to build until the superstructure reaches within 15 inches or 18 inches from the glass. The rockwork should be much wider at the base than at its summit, so as to give the plants all the light possible. The pockets must be well drained, and the water from the upper ones must not drop on to the plants below. When the building is completed sufficient time must elapse to allow the cement to set properly; when that happens, which will be in a few days, all sticks and props used to hold the stones in their places may safely be removed and planting commenced. The soil to be used in the majority of cases should consist of a coarse mixture of two parts of peat and one part of loam with a good dash of silver sand. In filling the pockets and placing the Ferns in them, only press the compost gently round them, for it will be found to get sufficiently close of its own accord through subsequent waterings. Some Ferns must also be set on jutting boulders. Woodwardias, Polypodiums, &c., require to be fixed just on the very edge of projecting pieces of rock, such a position being the only suitable one to show off their elegant habit to advantage. This is a somewhat tedious operation, as it must be done very carefully and by slow degrees; the only way to do it, so as to produce anything approaching a natural appearance, is by means of placing thin layers of fibrous peat repeatedly over one another and skewering them together with wooden pegs; press the first thin layer firmly on to the stone and shape the accumulated peat to it, then ram the whole into a solid mass, and finally skewer the plants and peat together with long wooden pegs. In this way a satisfactory result will be obtained. It is in

PLANTING that the greatest skill is required to render the arrangement effective; the plants should be well contrasted as regards foliage and habit, and by way of heightening both, a few fine foliaged Begonias, the spotted-leaved Farfugium, Ophiopogon, Carex, &c., may be introduced, especially the Begonias, which produce very large leaves of a beautiful silvery tint. A few pieces of variegated Aspidistra dotted here and there also improve the appearance of the house, and if some of the very interesting Saxifraga sarmentosa can be planted here and there in the upper parts of the rockwork, even where there is hardly any soil, it will soon take possession of the stones and become very attractive. When the planting is finished it is indispensable for the general appearance as well as for the well-being of the plants to have the surface of the soil covered either with Selaginella denticulata, which, when pricked off in small patches, soon spreads all over the place, or with layers of thin Moss, such as is generally found growing wild either on walls or at the foot of trees, and which can easily be fastened to the soil with small wooden pegs. A gentle watering with a rosed can will then be required to settle all down firmly, and for a few days a daily syringing over the Moss, taking care to keep the foliage of the plants dry, will induce it to grow luxuriantly; after that but very little attention will be needed, a general watering not being necessary more than once a week, even during summer, and it should be gradually reduced to about once a month in autumn and winter. Not being heated, the house during cold weather must be kept comparatively dry; there being nothing to counterbalance the effects of too much moisture, the fronds of the most tender kinds would soon show signs of decay. A fernery like that just described may be seen in Messrs. Veitch's nursery, Chelsea. The main part of it consists of brick burrs only, which show the plants off to advantage; a narrow passage connects it with their new Cattleya house, and this, being necessarily of restricted dimensions, has been built wholly of tufa and planted with small-growing Ferns of hardy constitution. Though unheated, this fernery has an inviting appearance the whole year round, particularly in autumn and early winter, when the Lapageria rosea, which covers part of the roof, and which every season becomes literally crowded with handsome festoons of bright flowers, hanging gracefully among the foliage of the tallest Ferns, may be seen.

ROOF CLIMBERS.—It is not advisable to have the roof of a rockery covered with strong-growing climbers, which in such a shaded situation seldom flower and often prove troublesome through the numbers of insects which they harbour; but if one climber be more adapted than another for that purpose it is undoubtedly the Lapageria, requiring as it does a cool and shady place, well supplied with water in which to grow and flower abundantly. It possesses, too, the advantage of being a naturally clean plant. The darkest recesses, provided they are low down and snug, are well suited for the culture of Todeas, Trichomanes, and a good many forms of Hymenophyllum, which delight in such a situation. In ferneries of large dimensions, but in these only, a stream of water may be introduced with good effect, and a little lake may be made beautiful with aquatic plants, such as Aponogeton angustifolium and A. distachyon, Huttonia palustris, Myriophyllum spicatum, Pontederia cordata, Trapa natans, Vallisneria spiralis, and hardy Water Lilies. A fernery built and treated as just recommended cannot fail to give satisfaction, and after the first year it requires but little labour or attention, as the majority of the plants by that time will have become well established. In spring, plants that have overgrown the room allotted to them should be lifted and replanted where they can have more room, an operation which often improves the general appearance of the house. This should be done between the middle of March and the middle of April, after which time the growth of the plants is too far advanced to allow of their being disturbed. Even where Ferns are not replanted they should be surfaced about that time with fresh soil. Those of a climbing habit must not be disturbed, but the others will all benefit by being taken up every two years; some of the old soil should then be shaken from their roots and they should be replanted afresh in the compost recommended above. Besides some of the best forms of British Ferns of evergreen habit, such as crested or otherwise ornamental varieties of Scolopendriums and Polystichum, or the ever interesting Asplenium marinum, Adiantum Capillus-veneris, Ceterach officinarum, Asplenium fontanum, &c., the following species and varieties will be found to be best adapted for a cool fernery. Those marked thus * are of dwarf habit, the strong-growing kinds being preceded by a †, while those to which no special mark is affixed are of medium growth.

* Acrophorus hispidus
* chærophyllus
* Adiantum assimile
* Capillus-veneris
* C.-v. magnificum
* fissum
* daphnitis
* fulvum
* pubescens
* reniforme
* venustum
* Asplenium Adiantum-nigrum
bulbiferum
* Colensoi
† dimorphum
* ebeneum
* flabellifolium
flaccidum
* fontanum
* lanceolatum
* marinum
laxum pumilum
* Ruta muraria
* Trichomanes and vars.
* viride
† Balantium Culcita
Blechnum lanceolatum
occidentale
* gracile
* Spicant and vars.
† Cyathea dealbata
† medullaris
† Cyrtomium anomophyllum
falcatum
Fortunei
Davallia canariensis
* Mariesi
* M. cristata
* Novæ-Zelandiæ
tenuifolia stricta
marginalis
† Dicksonia antarctica
† Berteroana
† fibrosa
† squarrosa
Selaginella cæsia
denticulata
helvetica
Dictyogramma japonica
variegata
* Doodia aspera
blechnoides
* caudata
* media
† Gleichenia flabellata
semivestita
* Gymnogramma triangulare
* Hymenophyllum cruginosum
caudiculatum
* crispatum
demissum
flexuosum
* nitens
pulcherrimum
* tunbridgense
* venosum
* Wilsoni
Hypolepis distans
Lastrea atrata
aristata
a. variegata
decomposita
decurrens
† erythrosora
Lastrea marginalis
opaca
* prolifica
quadrangularis
Sieboldi
† Standishi
varia
Litobrochia pentaphylla
† vespertilionis
† Lomaria chilensis
discolor bipinnatifida
falcata
* fluviatilis
* Patersoni
zamiæfolia
Lygodium scandens
palmatum
† Marattia fraxinea
† elegans
Selaginella Douglasi
involvens
japonica
Mertensi
Microlepia anthriscifolia
strigosa
Mohria thurifraga
achilleæfolia
Nephrodium hirsutum
Nephrolepis tuberosa
* Nipholobus Heteractis
Lingua
* L. corymbifera
* rupestris
Onychium japonicum
Osmunda palustris
javanica
* Platyloma atropurpureum
falcatum
rotundifolium
Polypodium vulgare
cambricum
cristatum
elegantissimum
omuilaceratum
* pustulatum
Polystichum angulare and vars.
aculeatum
lepidocaulon
Lonchitis
* mucronatum
muuitum
parvissimum
setosum
tripterum
Pteris cretica
c. albo-lineata
† Ouvrardi
hastata
longifolia
* scaberula
serrulata
s. cristata
s. c. variegata
† s. c. major
Todea arborea
† Fraseri
pellucida
superba
Wilkesiana
Trichomanes radicans and vars.
reniforme
† Woodwardia radicans
r. cristata
† orientalis

S.

Boronia megastigma.—This is an easily cultivated and excellent cool greenhouse plant. It grows from 2 feet to 3 feet in height, and has twiggy branches, on which during the spring and summer months flowers of a dull chocolate colour outside and yellow inside are borne in great profusion. They are not particularly attractive, but their aromatic perfume makes them great favourites. We had three large plants of this Boronia this spring in a cool greenhouse, and in the morning before ventilation was given and after shutting up in the afternoon the perfume emitted by them was most agreeable. For drawing-room

decoration one plant is sufficient, more emitting too strong a scent. Sprays of it when cut and placed in vases last fresh for several days, provided the water is changed every second morning and a small piece of charcoal put into it to keep it fresh. —Wm. Christison, *Woking*.

ORCHIDS.

ODONTOGLOSSUM ROEZLI.

Some account of the way in which we treat this most beautiful and sweetly scented Odontoglossum has been asked for (p. 398), but the exact treatment which our plants have received may not be different from that practised by other Orchid growers, though, perhaps, not with the same measure of success. "The race is not always to the swift, nor the battle to the strong." I am forcibly reminded of this in the case of Phaius tuberculosus. After this plant was exhibited by Sir Trevor Lawrence at South Kensington, Orchid fanciers were in ecstacies respecting it. It was imported in quantities and sold at very high prices. I purchased half-a-dozen plants and treated them exactly as Mr. Billiald did, the successful grower at Laurie Park, Sydenham. The result of my attempt was a most ignoble failure; the plants laid in the damp Moss for months, some of them for a year and a half, in sound and healthy looking condition, but made no attempt at growing. If I had more plants the treatmeot would have to be the same. Some of the best plants imported I saw in Mr. Lee's collection, and it is certain that no pains would be spared to grow them well, but successful results were not attained. Plants of it went to the most celebrated trade collections, but all to no purpose. The subject of our present remarks is not so difficult to grow and flower; still it is a plant with which many good Orchid growers to some extent fail. When I purchased our plants of it some eight years ago, the vendor told me to grow them in a cool house; this I did, and they made good progress duriog the summer, but as the cold days of autumn set in, and the cool house temperature fell to 40° and 45°, the plants showed signs of distress, and ultimately two of them died. The usually safe guide, the "Orchid Grower's Manual," says: "It is best grown in the Cattleya house." This was tried and still the plants looked unhappy. They were then placed in a light position near the glass in the warmest house, and the three plants that were left very speedily showed how well they appreciated the altered conditions in which they were placed. They made two strong growths from every leading bulb, which flowered well the following season; each of the twin bulbs made two, and so the plants have gone on since.

We purchased a dozen more plants—very small ones—a few years ago, and now each of these small bits, which were in 2½-inch pots and cost 5s. each, have grown into large specimens by a system of, as it were, arithmetical progression. There are many forms, some pure white, others very slightly tinged in the centre, and one with a deep crimson blotch—the deepest colour I have yet seen. When we moved from Loxford Hall to Great Gearies I was fearful that some of the Orchids would not submit patiently to the change of conditions. I cannot say that they have all been improved by the change; at any rate, Roezl's Odontoglossums have not suffered; they are now growing and flowering as well as they ever did. Their treatment is the same in all respects as that given to the cool house O. crispum. They get plenty of water during the growing period, and are kept moderately moist in winter when the plants are at rest. They are potted in equal parts of turfy peat and Sphagnum; the pots are two-thirds full of clean potsherds, and the compost is mixed with potsherds and broken charcoal. I like to encourage a good growth of Sphagnum Moss on the surface of the compost. The only difference in the treatment between this and that given to O. crispum is that the temperature of the house for the latter ranges from 40° to 45°, and for the former from 60° to 65°; our house is seldom over 60° in winter.

Odontoglossum vexillarium.—I am pleased to say that I have been very successful with the culture of this species of Odontoglossum. Our plants are, however, not yet in flower, nor will they be for at least six weeks. Our first plants of this species were rather dear, and we were instructed to grow them in the warmest house. At that time the best Orchid growers were in doubt as to the best system to be pursued with this Odontoglossum. As our plants of it were not growing so well as I thought they ought to do, I sought advice from a noted grower. He said, "Grow them in the warm house by day and the cool house at night." This was tried, but without any good result. They did fairly well with the pots suspended in baskets and the leaves almost touching the glass in the cool end of the warmest house. This treatment suited them best in winter. In summer the ends of the leaves died off, and an occasional decayed spot would appear on some of them. Ultimately they were placed in the Cattleya house near the glass and well exposed to light and air. In that temperature the plants have always grown well, two growths mostly being formed from each lead. The year before last the whole collection had made capital growths, and they were expected to flower proportionately well, but, strange to say, not one plant among them produced even the rudiment of a flower-spike. They have never behaved in this way since, nor did they previously, each well-formed bulb annually producing two or three spikes. The plants are potted much the same as are other Odontoglossums, and they are freely supplied with water at the roots, but never over the leaves. I find that when water is allowed to lodge in the axils of the leaves, that pseudo-bulbs will sometimes decay. O. Roezli may be syringed over the leaves with advantage in hot weather. Thrips are troublesome to both plants, and as tobacco smoke is often injurious, these pests are destroyed by dipping the plants in tobacco water. J. Douglas.

Cattleya Mendeli.—A four-flowered spike of a grand variety of this Orchid has been sent to us by Mr. Fowler, Ashgrove, Pontypool. It is one of the delicately tinted class and the flowers are remarkable for their large size and fine form. They measure fully 8 inches across the outspread sepals, which are of a soft lilac tint and uncommonly broad. The rounded labellum is 2½ inches across, exquisitely frilled at the edges. Its colour is a bright magenta on the lower lobe, while the throat is lemon and creamy white.

Pruned Dendrobiums.—I have watched with interest the discussion on this subject, and hoped that it would terminate satisfactorily, but I see that is not likely to happen. In the gardens here we grow a small collection of Orchids, principally Deodrobes. Last May that coveted prize, the Veitch Memorial medal, was offered for the best specimen Orchid in flower in Dublin. This brought out some fine specimens of Cattleyas, Vandas, and Dendrobiums, and an unpruned Dendrobium nobile sent from the garden here carried it off. It measured 4 feet by 4 feet, and had over 900 open flowers on it. When this discussion began I pruned some small plants of Dendrobium nobile in 10-inch pots, but instead of increasing I find that they are decreasing both in length and size of bulb. I have found that as long as life remains in the old bulb it supports the young breaks, and therefore as the old bulbs in this way do good, why not leave them undisturbed.—H. Keatney, *Montrose, Donnybrook*.

Notes from Wythenshawe Cheshire.—One of your correspondents in The Garden of May 3 recommends that the Pyrus japonica should always be as close to the wall as the neatest Ivy. I recommend him to try it as an untrained shrub. I have one about 6 feet or 8 feet high, and very lovely it is, blooming freely for many weeks, and quite hardy. The bright red Japanese Maple has proved itself to be quite hardy here, and I do not consider this at all a favourable position or climate for tender shrubs. I bought two plants of it about 12 years ago, planted them out in the shrubbery, and they are now about 8 feet or 10 feet high, very conspicuous and beautiful objects, especially when the sun is shining upon them. They are well sheltered from west winds, which are almost as injurious here as spring frosts. I may mention that the lovely Narcissus bicolor J. B. M. Camm is still in great beauty here. I have not seen any Narcissus of its class that excels it in beauty, and few that equal it.—T. W. Tatton.

SUGGESTIONS REGARDING SEED SAVING.*

The great aim of the present day gardening is to secure earliness of produce without too much loss in quality. To secure a vegetable in market condition before the market is generally supplied carries not only profit to the producer, but quick sale. It therefore becomes a pertinent inquiry how we can systematically proceed in order to early (to coin a word) our garden varieties. We have seen but one suggestion as to how this can be done other than the selection of the earliest ripening for seed, and this by Siegert, a German investigator, who is quoted as saying that the sowing of unripe Peas tends to produce earlier varieties. We have made no serious attempts as yet to test this question, but there is so much analogical reasoning in its favour, that we have almost persuaded ourselves to believe that by the repeated sowings of unripe seed we can secure a tendency toward earliness in the produce. In experiments on germination we find that unripe seeds usually germinated earlier than did the fully ripe, and that some seeds would start a growth when not hardened, but in the milk.

In germinating most seeds, we notice that there is a great variation between the individual seeds in their power of germinating. Thus, of 100 seeds of a Radish sown, fifty-eight germinated the second day, one on the eighth day, and then, after fourteen days' interval, yet another; fifty seeds of a Squash germinated twelve seeds the second day, fifteen the third, and two on the twenty-first day; 100 seeds of Onion germinated one the first day, thirty-five the third day, one the thirteenth day, and then, after ten days' interval, yet another; 100 seeds of a Musk Melon germinated seventy-eight on the second day and one on the twelfth day; 100 seeds of a Savoy germinated forty-nine the first day, thirty-nine the second day, and one each on the fifth and ninth days. When we consider that in practice some one plant grown by us will exceed all the rest in earliness, we cannot but suspect a connection with the seed, and that perhaps if we should plant the seeds that germinate earliest, in comparison with those that germinate latest, we would secure earliness of crop in one over the other. We trust that this hypothesis will receive trial by those who are rightly circumstanced. We find that Tomato fruits vary not only in size and smoothness, but also in the number of cells they contain. As a universal observation of varieties we find that the smoothest Tomatoes are usually those with the fewest cells. If, then, we would secure smoothness in our varieties, it would seem wise to select those with few lobes from which to take seed.

The position of a seed upon a plant seems to exert a marked influence. Thus in Peas, as regards earliness, as much as five days was found in favour of the lowest or earliest maturing pods of the Tom Thumb variety, as compared with the higher or later formed pods. In the Sunflower plants from seeds taken from auxiliary flowers had narrower leaves, and were of a lighter green than other plants from seed taken from terminal flowers. In the Red-top Strap-leaf Turnips the seeds from the terminal blooms were distinctly larger than those from the lower branches. In Sorghum the seed ripens from the summit of the plume downward, and from germination trials we may infer that through selecting terminal seed for successive plantings increase of earliness would be obtained. In Maize the tip kernels

* Extract from a paper read before the Western New York Horticultural Society.

showed greater vigour and prolificacy and a finer ear in the crop than did the butt or central kernels of the cob. Experiments in this direction are well worth the attention of the originator of new varieties.

GARDEN IN THE HOUSE.

ROOM PLANTS.

Many people, both in town and country, keep plants in their rooms, and not a few grow them there from one year's end to the other. Of course plants do not thrive so well in dwelling rooms as in the greenhouse, and a very common impression exists that gas is particularly obnoxious to them—that is, gaslight, for the gas itself does not reach the plants. If it did, the rooms would be unfit for human beings as well as for plants. When plants fail it is, however, put down to the gas, and not a few are dissuaded from attempting the window culture of plants and room decoration for that reason. My conviction is that the gas is often wrongly blamed for the damage. In fact, it is difficult to understand how gas itself can affect anything in a room, because it is consumed as fast as it is discharged from the burner, and never enters the room as gas at all where combustion is complete. That the heat and drying effects of the gas flame does affect plants is probable, but except in degree it does no more harm than the light from a lamp, a candle, or a coal fire. From what I have seen I am prepared confidently to assert that both cut flowers and growing plants may be kept in gas-lighted rooms for a long period if other conditions are right, although of course some species succeed much better than others. My sitting room is well lighted by gas, and there is also a fire constantly burning every day during the winter and when the weather is cold. Yet in this room, even on the mantelpiece above the fireplace, I have kept nearly all kinds of flowers in water for a remarkably long time, and also had plants in pots on brackets quite near the gas for as long a period; among these plants may be mentioned Maiden-hair Ferns, for they stood the room atmosphere almost better than anything else, except Chinese Primroses. These and many other evidences have convinced me that far more blame is put upon gas than it deserves, and that no one need be afraid of attempting the culture of plants in rooms lighted by it, provided they will attend to the wants of the plants in other ways. In a small cottage I know of two Acacias that have been growing on the window-sill for about five years, and only about 2 yards from a gas burner. They are put out in front of the window in summer for about two months, but during all the rest of the year they are in the room and do well.

What really destroys room plants is mismanagement and want of light and air. No plant, not even the Killarney Fern, will thrive long unless it has light and air: in rooms far from the window no plant can be expected to exist, let alone grow, for any length of time. Let anyone try the experiment of growing their room plants near the window, watering and potting them with some care, and they will find that they will both grow and flower. One thing is, however, undoubtedly against them in well-lighted apartments, and that is the light itself, which keeps up a certain amount of excitability in the leaves and flowers, which is exhausting. Wherever possible, it would be advisable with window plants to shut them out of the room when the shutters or blinds are closed, keeping them outside of these whenever danger from frost is not apprehended. A good deal, of course, depends on the size of room, no matter how it is warmed or lighted; but the larger and loftier it is the better, as the worst effects of the fire or lamp are only felt a few feet or yards distant. Rooms heated by means of hot-water coils and pipes are the worst, as, no matter where the plants may be placed, the pipes being as a rule equally distributed throughout, the dry air from them soon injures them, and their foliage shrivels and dies. In fact, the dry air of dwelling rooms is their worst fault, so far as plant life is concerned, and cultivators know well that, but for the light and heat and moisture they are able to command in such structures, glass houses would be no better than dwelling rooms. Another point is that the higher the stand is for plants in a room the worse for the plants, as the nearer to the ceiling the hotter and drier and more vitiated the air is; for in dwelling rooms it is rarely any adequate outlet is provided for the foul air to escape. Room plants should therefore be set as near the floor-line as possible, and when they are tall they look much better set low than high, and are better seen. They also receive the rays of the sun better through the window.

During night the room fires should be allowed to burn quite out, so that the room may be cooled before morning, and if it can be ventilated at the same time all the better. As a rule, the first thing done in the morning is to open the doors or windows wide, no matter how cold or windy it may be, and the plants are injured by cold or draughts; the ill effects of this they soon show, and it is at once put down to the gas, which had really nothing to do with it. J. S. W.

Phlox amœna.—For the past fortnight this has been one of the brightest little gems of the herbaceous border. With me it is the earliest of all the Phloxes, far earlier than P. procumbens (P. prostrata), which it resembles. The colour, too, a soft bright pink, is perhaps one of the rarest at this time among hardy spring flowers. I got a small piece of it from Mr. Burbidge about two years since, and though I had an idea that it was not perfectly hardy then, I have found it to be quite so, and not only that, but decidedly a most persistent bloomer. Last year bloom after bloom appeared for fully nine months, and this year the little favourite will not be less precocious. A small collection of this and P. setacea in variety, P. Nelsoni, even dwarfer, &c., would almost bridge the year in a floral wreath.—J. Murphy, *Clonmel*.

Trees and Shrubs.

THE PEPPER TREE.
(SCHINUS MOLLE.)

The annexed engraving represents the Pepper tree, or Peruvian Mastic, as Schinus Molle is sometimes called, as it appears in various parts of South America both in a wild state and when cultivated as an ornamental tree in many of the villages and towns of the temperate regions of the New World. Introduced into the gardens of Spain soon after the conquest of Peru by the Pizarros, the Pepper tree, as well as many other South American plants, soon became established there and in other parts of Europe, where it is still cultivated largely as an ornamental shrub or small tree. In Italy and in South France, especially along the sea coast, Schinus Molle is one of the most common of introduced plants, the warmth and humidity of these places being favourable to the existence of this handsome tree. Strangely enough, however, the height of the European representatives of the Pepper tree seldom exceeds 12 feet, whereas in many parts of South America it attains the height of 30 feet, and the dimensions of our Mountain Ash. The accompanying engraving represents a Schinus in South America, and suggests a tree of much larger proportions than our knowledge of cultivated Pepper trees would warrant. In England our winters prevent the cultivation of this tree in any out-of-door position, and under glass the specimens with

Old tree of Schinus Molle (the Pepper tree).

which we are acquainted fall far short of what one might expect, close confinement being doubtless distasteful to a tree which luxuriates only in the elevated regions of Chili and Peru.

The genus Schinus is included amongst Anacardiads, an order which is remarkable for the valuable economical properties of almost every one of its members. Medicines, edible fruits, varnishes, and many woods of great value to cabinet makers are yielded by the various plants of which the order is composed, the Mango, Rhus, Pistacia, Spondias, and Anacardium being more or less familiar examples. Schinus Molle contains in its pinnate foliage an oil of very fragrant odour, which is used for diseases of the eye, &c. The Currant-like red berries, which are borne in panicles on the ends of the shoots, are both ornamental and useful. From their pulp a wine-like drink is made, whilst the peppercorn-like kernel may be used as a substitute for pepper; indeed, it is said that in some of the islands of the West Indies the Schinus fruits are frequently mixed with those of Pepper (Piper nigrum) as an adulterant. From the bark of this tree a gum is freely exuded, which is employed in strengthening the gums and in various other ways. The foliage, if bruised and thrown into water, moves rapidly round and forward in the most astonishing manner, and to the uninitiated appears to possess the power of spontaneous movement. The cause of this is to be found in the large quantity of essential oil contained in every part of the foliage, and it is the escape of this oil in globules from the bruised leaves that propels them through the water. It is amusing to watch a number of bits of foliage racing round and round as though chasing each other, and we have astonished numbers of people by their performance. The flowers of Schinus Molle are small, greenish white, and are produced freely during the summer. B.

ORNAMENTAL MEDLARS AND QUINCES.

As fruit trees these are not extensively grown or highly appreciated in this country. They are, nevertheless, deserving of more attention than is generally bestowed upon them were it only on account of their great beauty when in bloom, which is such as to entitle them to a place in the shrubbery border, or even as ornamental standard trees upon lawns. As regards Medlars (Mespilus germanica), they will succeed in almost any kind of soil, being of a free, drooping, and somewhat irregular style of growth; but by attention in the way of pruning during their early stages they may readily be made to assume any form desired. The flowers, which are large and showy, are generally produced in great abundance, and, expanding somewhat late in the season, escape late spring frosts, which not infrequently produce such havoc with other fruit crops. The result is generally therefore abundant crops of fruit, which is by some highly appreciated. There are three distinct varieties of this fruit—viz., the Dutch Medlar, which is very large and somewhat coarse; the Royal and the Nottingham, the latter being the best flavoured, and consequently best for dessert. The fruit of all of them is, however, unfit for use until it has undergone a change and ripened, or, as it is sometimes expressed, become rotten. The Medlar requires a long season in which to thoroughly ripen its fruit. It is not apt to fall from the tree, and may generally be allowed to hang until the leaves show indications of dropping. The fruit should then be carefully gathered when quite dry and spread thinly on a shelf in a dry fruit room, or some other suitable situation should be selected for it until the necessary change or ripening process is completed, and it is fit for use. Medlars are frequently manufactured into an exceedingly delicious conserve or jelly, resembling that made from the Guava, but by many considered to be greatly superior to the latter.

As regards the Quince (Cydonia vulgaris), its chief value may be considered to consist in its forming a stock on which to graft the finer kinds of Pears, so as to induce a more early and free fruiting habit. For this purpose the plants are generally raised from seed; they are also sometimes raised more expeditiously from layers or cuttings, but seedling plants are nevertheless considered to make the best stocks. In all cases where Pears are grown in pots or tubs as orchard house trees the Quince is found to be the best stock on which to work them. When planted out on rich and heavy land most varieties of the Pear are found to succeed upon this stock and to come into a bearing condition at an earlier period than when the same varieties are worked upon the more free-growing Pear stock. But, on the other hand, on poor and light land the use of the Quince as a stock for the Pear should by all means be avoided. There are three distinct varieties of the Quince grown in this country; these are chiefly distinguished by the form of their fruit, and are known as the Apple-shaped, the Pear-shaped, and the Portugal. The fruit of these is only used for culinary purposes, such as the flavouring of various dishes and in the formation of a kind of marmalade.

As an ornamental tree the Quince is worthy of being more extensively grown than it is, as very few flowering plants can present a more beautiful appearance during the months of May and June, and even in autumn fine specimens or groups of this plant when loaded, as is generally the case, with rich-looking golden-yellow fruit are exceedingly interesting. Like the Medlar, the Quince is by no means particular as to soil or situation; indeed, it will succeed almost anywhere, and with the exception of a little attention in the way of giving the desired form to the tree by judicious pruning during its early stages, and the occasional removal of superfluous branches, it needs no further cultural care. P. G.

Red-leaved Maple.—What a beautiful object this is in the landscape when it is unfolding its leaves! Its vermilion-red hue is sufficiently distinct to make it conspicuous. It has two distinct seasons when it assumes this striking colour—spring and autumn, but I think the tone of red is brighter in the autumn than early in the year. It is to be regretted that the particular variety to which I refer is so scarce in the form of large trees, for not many deciduous trees are more ornamental.—J. C. C.

Limonia trifoliata.—This singular shrub, when studded with its small white blossoms, is by no means unattractive. It forms a much-branched bush, furnished with, as its name implies, trifoliate leaves, but these latter do not expand till the beginning of summer, though the plant is during the winter nearly as attractive as an Evergreen, owing to the deep green colour of its branches and of the large spines with which it is thickly provided. This shrub is nearly allied to the Orange, and though smaller, its blooms greatly resemble Orange blossoms; indeed, by some the plant is regarded as a Citrus, and by others as Triphasia trifoliata. It is a native of China and fairly hardy in this country, but not sufficiently so to be employed as a hedge plant, for which, from its appearance, it would seem to be well suited, as the branches intercross each other in all directions, and with their formidable spines would be almost impenetrable. It may be readily propagated by means of cuttings made of the half-ripened wood put in towards the end of summer or early in autumn in a frame, or, better still, in gentle heat.—ALPHA.

SHORT NOTES.—TREES AND SHRUBS.

Gum Cistuses (p. 382).—I think if Mr. G. F. Wilson consults Messrs. Backhouse's lists for the last few years he will find as good a collection of Cistuses as he is likely to get in England.—J. C. L.

Pyrus Maulei.—Will "J. S. W.," who gave us such an interesting account of the growth of Pyrus japonica the other day (May 3), kindly give some particulars as to the treatment required by Maule's Quince if he has had any experience in growing it?—E. A. G.

**** Maule's Quince will succeed under the same treatment as the Pyrus and other members of the same family. Leave as much of the annual growth as ripens perfectly, and thin the remainder clean out; trust to natural spurs or buds and not to those produced by pinching too much.—J. S. W.

Large Lincolnshire trees.—The following are the measurements of a wild Cherry tree, now a most beautiful sight, covered with blossom: Height, 76½ feet; circumference of trunk 4 feet from the ground, 8 feet 4 inches; ditto 8 feet from the ground, 9 feet 1 inch; length of trunk to branching, 8½ feet, where three arms grow out, at an average length of 17½ feet each; circumference of arm No. 1, 5 feet; ditto No. 2, 3 feet 7 inches; ditto No. 3, 3 feet 3 inches; width through the head of the tree, 53 feet; width in opposite direction, 39 feet. It stands in the grounds here, but rather in a bad situation, and surrounded with other trees, which, however, may have saved it during the great gales this winter, as it is beginning to lean over. Close to the Cherry are two fine Larches, the largest 80 feet high, and the circumference 8½ feet at 4 feet from the ground. These also survived the gales, which brought down all the fine Cedars about the place, and completely cleared a large wood of Fir trees about fifty years old.—L. M. T., *Panton Hall, Wragby*.

NOTES OF THE WEEK.

Royal Horticultural Society.—Under the superintendence of Mr. A. F. Barron a list of awards of the floral and fruit committees at South Kengington and Chiswick has been compiled, extending from the year 1872 to February 12, 1884. This list was much needed as a supplement to the one previously issued, which contained all the awards from the commencement of the committee meetings to 1872. To all interested in the subject this present list is most valuable, as it contains the name of every plant certificated during the past twelve years. The list has been admirably compiled—no easy task, and credit is due to Mr. Barron, and also to Mr. J. Barry, his assistant, for the way in which it is done.

Effects of the frost.—I am glad to see so many of your correspondents stating that after all the severe frost did but little harm. We had 12° of frost at Eastcott, and I send you a few specimens of the results. These include Clematis montana, white Weigela, Spiræa Aruncus, Japanese Maples, Rhododendron blooms, Arenaria balearica, Lilium auratum, Lilium candidum, Lilium longiflorum, all more or less damaged. I could have added (I am sorry to say) dozens of other kinds, including early planted Gladioli, Polygonum Sieboldi, &c. This is a melancholy exhibition; nevertheless the garden is not altogether destroyed—in fact, it looks rather well just now.—A. KINGSMILL, *Eastcott, Pinner*.

Gardeners' Royal Benevolent Institution.—The following circular, signed by the treasurer (Mr. Tidswell) and Mr. John Lee, chairman of the committee of this institution, has been sent to us: "Referring to our letter of December 15 last, we beg to remind you that the committee have had under their consideration for some years past the question of augmenting the pensions by the sum of £4 each, but before this desirable object can be carried out, they consider it necessary that the reserve fund should be raised to £20,000. For the last three years they have caused collecting cards to be issued among gardeners, nurserymen, and others interested in horticultural pursuits, and the result has been that the sum of £2400, including the Arthur Veitch Memorial Fund, has been subscribed. A further sum of £2250 is required before the committee can recommend the proposed increase of the pensions. The sum of £1312 was distributed in pensions last year. A gentleman (who for the present wishes his name withheld) has promised that if the sum of £1750 be raised before the end of the year, he will give the munificent sum of £500 to complete the amount required. We have had a legacy of £500, and we have at the bankers the sum of £150; with these amounts in hand, only £1100 remains to be secured. Under these special circumstances, we take this opportunity of bringing the matter prominently before the subscribers, feeling assured that those who take an interest in

the institution will second, to the best of their ability, the exertions of the committee in their endeavours to alleviate the distress and minister to the comforts of old and deserving horticulturists. To the affluent and generous lovers of horticulture we appeal with confidence, and to gardeners we also appeal, in the hope that they will assist their poorer brethren. The secretary will gratefully acknowledge any contribution, no matter what may be its amount." Since the foregoing was issued, which was early in April last, £100 has been received in response; among other friends, Baron Schroeder has given £50 with the promise of more if others can be found to second him in small donations, in order that the £1000 required may be secured before the end of the year.

Floral photographs.—We are pleased to note that further honours have been accorded to Mr. Henry Stevens, of King Street, Covent Garden, for his photographic productions. Recently he was desired to exhibit a series of flower photographs, consisting chiefly of Orchids, at Brussels, before the Association de l'Photographie Belge. The exhibits were considered to possess such high merit, that the largest possible award was made to Mr. Stevens, and the photographs were greatly admired. Moreover, as a further proof of the interest with which the association regarded the photographs, the president took it upon himself to exhibit them at the large exhibition at Liege in connection with the Société Royale d'Horticulture. At this exhibition Mr. Stevens was also awarded the highest prize, consisting of a silver-gilt medal. Mr. Stevens' latest photographs are extremely fine—finer even than those of the portraits of Orchids, which we noticed last year. He now does them life-size, hence they are valuable as facsimile representations of particular varieties. Mr. Stevens is now turning his attention to landscape photography. He has already photographed numerous places, among them being the residence of Sir William Marriott, The Down House, Blandford. The avenue of Scotch Firs at this place is one of the finest in the country. Mr. Stevens' photograph of it is uncommonly good, and we hope to reproduce it in The Garden.

Societies.

ROYAL HORTICULTURAL.

May 13.

This being the first flower show at South Kensington since the opening of the Health Exhibition, an effort was made to produce a good display of flowers, and Mr. Barron was certainly successful in bringing together a very attractive and varied exhibition in the conservatory to which the visitors to the Health Exhibition have free access. The half of one side of the conservatory was taken up by a glorious display of forced Roses, both pot plants and cut blooms, from Messrs. W. Paul's Waltham Cross Nurseries. These Roses, it need scarcely be said, were the centre of attraction, so fine were they in every respect, and so thoroughly representative as regards varieties. Besides these there were large groups of Narcissi and other flowers, and some of the market garden growers made a brilliant show with Calceolarias and other showy plants. There was, moreover, an unusual number of novelties submitted to the committee, who were very liberal in awarding certificates First-class certificates were awarded to the following:

Odontoglossum crispum Ballantinei.—One of the most strikingly beautiful among the multitudinous varieties of this popular Orchid. The flowers are above the average size, with broad overlapping sepals; these are white, and marked with unusually large blotches of chestnut-brown, thus rendering the flowers very attractive. From Baron Schroeder's garden, The Dell, Egham.

Phalænopsis sumatrana purpurea.—A variety possessing much more bright colouring in the flowers than the original. The sepals and petals are barred and blotched with brown upon a white ground, and the lower part of the labellum is of a vivid purplish magenta. Exhibited by Sir Trevor Lawrence.

Cattleya Mendeli selbornensis.—An exceedingly fine variety, remarkable chiefly for its superb colouring. The flowers are not very large, but finely formed. The broad sepals are of a deep rosy lilac; the large dilated labellum is of a glowing carmine-magenta in the lower part, while extending to the throat of the lip is a mixture of citron-yellow and white. The beautiful frilling to the lip adds much to its attractiveness. The plant—shown by Mr. W. Lee, Downside, Leatherhead—bore four flowers on one spike.

Cypripedium grande.—A noble Lady's Slipper Orchid of the Selenipedium section, having for one of its parents either C. longifolium or C Roezli. The leaves are very long and broad, and the growth is altogether much finer than that of any other Lady's Slipper Orchid. The flowers are much larger than those of C. longifolium, though somewhat resembling it as regards colour and aspect. A very finely flowered specimen was shown by Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking.

Saccolabium curvifolium superbum.—A variety of a well-known East Indian Orchid remarkable for the large size of the flower-spike and brighter colouring than that of the original. The spike on the plant shown by Mr. Woolford, from Mr. Lee's collection, was a fine one, fully 6 inches in length and of proportionate diameter.

Acer japonicum aureum. — A Japanese Maple, the foliage of which differs from that of the type in being of a golden hue, which renders it highly ornamental. Shown by Messrs. Veitch from their Coombe Wood Nurseries.

Brassia antherotes.—A curious, yet attractive, Orchid, possessing the same peculiar attenuation of the sepals which characterises most all other Brassias. The flowers are of a yellowish green, upon which are large blotches of very deep olive green. The long tail-like sepals give the flowers a strange appearance. The plant, which is either new or very rare, was exhibited by Mr. B. S. Williams, Upper Holloway.

Odontoglossum crispum Delliense. — A pretty variety, with rather small though admirably formed flowers. The colour is white, copiously spotted with cinnamon-brown. The spike, moreover, is compact and well set with bloom It was shown by Mr. Ballantine from Baron Schroeder's garden, to whose rich collection it is a good addition.

Pelargonium Belle Nancienne.—A double zonal variety, remarkable for the very large and dense truss of flowers it produces. The flowers are perfectly double and of a peculiar shade of salmon-pink colour. The habit of growth, too, seems to be all that can be desired in a double Pelargonium. Exhibited by Messrs. Laing, Stanstead Park Nurseries, Forest Hill.

Masdevallia Chelsoni.—A pretty hybrid variety, the result of crossing M. Veitchiana and M. amabilis. The flowers are intermediate between the parents both as regards size, form, and colour. Being more floriferous than M. Veitchiana, it is a valuable addition to garden Orchids. The plant shown by Mr Baxter from Sir Trevor Lawrence's garden bore a dozen flowers and buds.

Asplenium horridum.—A bold-looking Fern, with long pinnate fronds, which gracefully reflex on all sides of the plant. The fronds are of leathery texture and a deep green, a native of the Sandwich and adjoining islands. Exhibited by Mr. B. S. Williams, Victoria Nurseries, Upper Holloway.

Acer septemlobum elegans purpureum.—One of the numerous Japanese Maples having its much divided leaves of a rich reddish crimson colour, which in contrast with the tender green and other tints of kindred varieties has a telling appearance. Shown by Messrs. Veitch.

Phlox setacea Vivid.—An alpine variety, one of the numerous seedlings raised by the late Rev. J. G. Nelson. The plant forms a dense cushion-like tuft, which at this season is profusely studded with blossoms about the size of a sixpenny piece, of a bright salmon-pink colour. Exhibited by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

Carnation Mrs. Maclaren.—One of the tree or perpetual flowering section, and among the most beautiful and distinct that have yet been raised. The flowers are uncommonly large and full; the colour is a pale pink flaked with various shades of crimson. It is called a crimson bizarre. It was admired by all who saw it. Exhibited by Mr. Turner, Royal Nurseries, Slough.

Second-class certificates were awarded to

Mimulus moschatus Cloth of Gold.—A very dwarf and dense growing variety of the common Musk, but with flowers fully twice the ordinary size, while the odour of the foliage is in no way diminished. Shown by Mr. R. Dean, Ealing.

Calochortus Benthami.—A veritable gem among bulbous plants. It belongs to the Cyclobothra section of the genus and resembles the better-known C. elegans, but the flowers are of a bright yellow and plentifully produced. Shown by Mr. T. S. Ware.

The show included an unusual number of miscellaneous plants, which rendered it most interesting. Among the more noteworthy was a magnificent flower spathe of the new hybrid Anthurium ferrierense, which measured fully 8 inches in length and some 6 inches across, by far the finest that has been seen in this country. This was the produce of Sir Trevor Lawrence's garden—a clear proof that its culture is understood at Burford Lodge. Another Anthurium, a variety of Scherzerianum named giganteum, was also shown; it came from Messrs. Lucombe and Pince's nurseries, at Exeter. It is truly a gigantic variety as the spathes are about 8 inches in length. Amongst a few novelties from Mr. Williams' nurseries were the Begonia gogoensis, a handsome peltate-leaved species; Aralia reginæ, one of the most elegant of Aralias; a new Selaginella named viridangularis, a most graceful plant with large and finely cut fronds; and a new Rhododendron called Kaiser von Russland, which seemed to attract everyone's attention, inasmuch as it is so distinct from other hardy varieties. The flowers are open and bell-shaped, of a carmine-rose colour most copiously spotted with black; it is very floriferous; even the small plant shown carried several trusses and numerous buds. It is not often that Todea africana is shown in a young state; on this occasion, however, Mr. Barron sent some from the Society's garden at Chiswick; it is a very elegant form when so small. Some monster tuberous Begonia flowers were shown by Messrs. Laing, who are evidently endeavouring to surpass the much-talked-of flowers that were produced measuring 6 inches across. There is a danger of these Begonias becoming really too big, which gives them a coarse and gaudy appearance. Mr. Divers showed a pretty bedding Pansy called Golden Bedder. The raiser claims for it all the qualities of a first-rate bedding variety. Some splendid flowers of various kinds of Clematises came from Mr. Noble's nursery at Bagshot, one very large white being greatly admired, but as none of the names were given, we are unable to say which sort it was.

New Gloxinias formed the chief of Messrs. Veitch's exhibits in the way of flowers. These new sorts, about half-a-dozen in number, were all first-rate—the cream of Messrs. Veitch's unsurpassed strain of these lovely stove flowers. The names were Clytis, white, copiously spotted with carmine; Brunette, a rich deep purple; Stella, a vivid crimson; Acme, a brilliant scarlet; William Goldring, very large and of a bright carmine shaded to a lighter hue; and Purity, pure white and remarkable for its extreme floriferousness. These were all of the erect-flowered section, and were perfection in every way. A basketful of plants of the pretty Boronia elatior showed what a charming greenhouse plant it is for spring flowering.

Orchids were more plentifully shown than usual. Besides the numerous kinds certificated were several others worthy of note. Sir Trevor Lawrence showed a good specimen of the rare

Masdevallia rosea with some half-dozen expanded blooms upon it. It is a pretty plant when grown so finely, though it must be admitted that it falls into the category of over-estimated rarities. A lovely variety of Odontoglossum citrosmum was shown by Mr. Vanner, of Chislehurst. It was labelled "Vanner's form of the roseum variety." It is certainly very beautiful, the contrast of the rosy purple lip with the waxy-white sepals being very fine. A few choice Orchids came from Baron Schroeder's garden besides the two superb Odontoglossums which received certificates. Among them were some exceptionally fine spikes of Vanda suavis and V. tricolor varieties, all large and numerously flowered, some carrying eighteen blossoms. It is satisfactory to see that these noble East Indian Orchids are not being discarded altogether to give place to the more easily grown cool-house Orchids. There was also a plant of Odontoglossum citrosmum from the Baron's garden bearing fifteen flowers. A splendid variety of Cattleya Mendeli named Wallacei was exhibited by the New Plant and Bulb Company, Colchester. It has a large broad-sepalled flower richly coloured, and possesses the singularity of having a band of deep lilac on each of the sepals. Mr. B. S. Williams sent some choice Orchids among other interesting plants. These included the grandest Cattleya Mossiæ we have ever seen, the labellum of the flowers being twice the ordinary size, and the flower is altogether abnormally large. The colour, too, is very rich and attractive and devoid of those whitish markings which somewhat detracts from the beauty of some forms of C. Mossiæ Mr. Williams also showed O. crispum splendens, a large-flowered purple flushed variety; Coelogyne elata, a rare species with smallish flower, pure white save the yellow blotches on the lip; Lælia purpurata Nelisi, an extremely pretty variety, as the flowers instead of being of a deep purple are rosy purple, a colour which renders it at once distinct and pleasing. This variety is so seldom seen in bloom, that it possessed a particular interest for Orchid growers.

THE ROSES, as we before remarked, constituted the main feature of the show, and rarely have we seen a finer display from the Waltham Cross Rose Nurseries. The collection numbering over half a hundred huge pot plants and hundreds of cut blooms—included, besides the best of the leading sorts, numerous new varieties, some having been raised by the exhibitors, Messrs. W. Paul & Son. One of the finest among the new sorts was, we consider, that named Inigo Jones; it is a large and full flower of perfect shape, with bold, thick petals, and of a most lovely carmine-rose. It will, we predict, live among the best of Mr. W. Paul's Roses. We hope to see this on several occasions during the coming season. Among the other novelties was a hybrid Tea variety, named Antoine Mermet; its flowers remind one of those of La France, except that the colour is several shades deeper. Perle d'Or was shown also, but it cannot be highly spoken of if no better than the plants shown. It seems to lack the qualities of a good Tea Rose. Madame Bertha Mackart was another new one which did not captivate us. The main collection—for which Messrs. W. Paul were appropriately awarded a gold medal—represented some of the finest of the standard sorts. Those that we singled out as being particularly fine were Captain Christy, Masterpiece, Crown Prince, Comtesse de Oxford, François Michelon, Paul Verdier, Queen of Queens (one of the late new Waltham Cross novelties), Pierre Notting, Duke of Edinburgh, Merveille de Lyon (a lovely new white Hybrid Perpetual), and Madame Montet Among the cut blooms were Madame Falcot, Maréchal Niel, Solfaterre, Souvenir d'un Ami, Niphetos, Boule de Neige, Louis Van Houtte, and a very dark crimson seedling, which promises to be a good one. Calceolarias were shown extensively by Mr. H. B. Smith, of Ealing Dean, and Mr. H. B. May, Dyson's Lane Nursery, Edmonton, to both of whom a silver Banksian medal was awarded. Both groups were composed of plants of a fine strain, large in bloom, and rich and varied in colour. Mr. May showed his collection off to advantage by intermixing Maiden-hair Ferns and edging it with Isolepis gracilis.

HARDY FLOWERS were again shown admirably by Mr. Ware from his Hale Farm Nursery, Tottenham. Besides a representative assortment of the better known hardy perennials now in season, there were numerous rare and new plants. These included Heuchera sanguinea, an extremely beautiful saxifragaceous plant, quite unlike any other Heuchera in cultivation, inasmuch as the flowers are of a lovely pink colour. They are small and bell-like, and are strung profusely on slender spikes. The plant shown bore a dozen spikes. Other noteworthy plants from Mr. Ware were Houstonia cœrulea, a charming little North American plant not often seen so well flowered as the specimens shown. Viola pedata and the two rare varieties, the white alba and bicolor, both of which are among the prettiest of hardy flowers. There were also fine panfuls of the Alpine Phloxes and P. amœna, which is a gem among rock garden plants. A selection of the best perennials Mr. Ware showed would include Ranunculus amplexicaulis, white; Dodecatheon splendidum, the finest of the American Cowslips; Anemone alpina sulphurea, with sulphur-yellow blossoms; A. sylvestris; Erigeron aurantiacus, a new species with orange-red flowers, very showy; Myosotis Surprise, with striped flowers; Iberis gibraltarica, Pinguicula grandiflora, Iris iberica, and various bearded Irises. A collection of varieties of late-flowering Tulips was included in Mr. Ware's display; also a great many late-flowering Narcissi, particularly N. poeticus, and numerous sorts of Moutan Pæonies, representing some of the finest yet raised. One of these, named Impératrice Josephine, was remarkable for its distinct colour—a kind of cherry-rose tint. A silver Banksian medal was awarded to Mr. Ware.

NARCISSI formed the principal flowers in a large group shown by Messrs. Barr, Covent Garden, to whom a silver Banksian medal was also awarded. We were surprised to see so many varieties of Narcissi in such fine condition; even the mid-season varieties were shown as fresh as they were a month ago. These were no doubt the produce of late-planted bulbs, and probably the flowers had been protected from the sun, as they were not tarnished in the least. The most prominent of the sorts shown were N. bicolor maximus (the latest of the large bicolors), Horsfieldi, Ajax Shirley Hibberd, Barri conspicuus, double incomparabilis (Codlins-and-Cream and Eggs-and-Bacon), various kinds of N. poeticus, notably grandiflorus, poetarum, recurvus (the latest flowering form), and poeticus verus, a charming flower like ornatus, but smaller; it is the gem of the race. There was also a new Leedsi variety named Mrs. Langtry, of a lovely creamy white in the way of Gem, but a better variety, and flowers of the rare Ajax abscissus with a long trumpet cut off straight at the rim. Other flowers shown by Messrs. Barr included Anemone fulgens and coronaria, among the latter being the new white variety named The Bride. A good selection of varieties of the Spanish Squill (Scilla campanulata) also added to the interest of Messrs. Barr's display.

NEW TREE CARNATIONS were shown by Mr. Turner, of Slough, numbering some two dozen sorts, all beautiful, but some better than others. A selection included Mrs. Llewelyn, deep rose: Julietta, rose-pink; Rufus, bright scarlet; Firebrand, also bright scarlet; Negro, blackish crimson; La Perle, delicate blush, sweetly pretty; and Lord Rokeby, crimson. These, besides a large collection of alpine Auriculas and a new decorative Pelargonium named Bridal with spotless white flowers, rendered Mr. Turner's display highly interesting. Plants of Mr. Goldsmith's new bedding Iresine formosa were shown by Mr. Webber, Quarry Hill Nursery, Tonbridge, who is distributing it. We have before alluded to the distinctness and beautiful foliage of this Iresine, and it seems to improve each successive season it is shown.

JAPANESE MAPLES were shown in variety by Messrs. Veitch from their Coombe Wood Nursery, where probably the finest collection of varieties exists. The elegance of their leaves and their delicate tints render these shrubs the admiration of all who see them. On this occasion several new were shown besides the two which were certificated. A variegated-leaved Japanese Dogwood (Cornus brachypoda variegata) was also shown by Messrs. Veitch, as well as a basketful of small and profusely flowered plants of Azalea rosæflora, which is quite a gem among greenhouse shrubs. A small group of Japanese Maples was also exhibited by the New Plant and Bulb Company, Colchester, who are also making a speciality of these beautiful shrubs.

Fruit and vegetables—The chief exhibit among these were several large and fine fruits of a new Melon from Mr. E. H. Wood, Newbold Road, Rugby. It is a cross between Conqueror of Europe and Scarlet Gem. It is round, netted, red fleshed, and of fair flavour for an early sort. A cultural commendation was accorded to Mr. Wood for such fine produce at this early date. Mr. B. S. Williams also showed fruits of a new early Melon called Basing Park Hybrid. It is a round, netted fruit with thick red flesh of good flavour. Messrs. Lane, Berkhamstead, sent samples of their new Prince Albert Apple to show what an excellent keeper it is. The fruits were as fresh and plump as in October. A capital dish of Winter Pearmains were shown by Mr. Turner, Slough, and Galloway Pippin was also shown by Messrs. Lane. Mr. Divers, Wierton House, Maidstone, showed a dish of Ashtop Fluke Potatoes, which he states is one of the best late Potatoes, as well as a first-rate early one. He also showed a collection of Rhubarbs. Three sorts of Cauliflowers were shown by Mr. Ham, Hillborough; these included Cattell's Eclipse and a new sort raised by the exhibitor, and named Ham's Selected. It is evidently a first-rate sort, and the committee recommended it to be tried at Chiswick. An ingenious Asparagus bundler was shown by Mr. Eldridge, Saffron Walden.

Scientific committee.—Dr. M. T. Masters in the chair.

Aloe ferox attacked by death-watch beetle (Anobium striatum)—Mr. Maclachan showed a piece of stem from Kew. The beetle apparently confined itself to the exterior dead wood, and was therefore presumably not injuring the living plant within. Kerosene was recommended as the best thing to apply.

Larvæ of Lepidoptera—He also showed some very remarkable "cases,' some exactly resembling a Helix or Cyclostoma elegans, others like that of the Caddis worm. They were made by species of Psychidæ, and came from Mpwaipwa, about 100 miles from Zanzibar.

Potatoes growing in the dark.—Mr. Houston exhibited some Potatoes in which the sprouts were short, and producing a dense mass of coral-like branches instead of developing into elongated shoots. It was probably due to pressure under confinement.

Canker in Service tree.—Mr. Grote exhibited a bough of Pyrus Sorbus or P. domestica sent by Mr. Frere, of Roydon Hall, Norfolk. As the cause was not apparent Mr. Grote will acquire more information and report upon it.

Plants exhibited.—Mr. Loder showed the following: A fine spike of Fritillaria Thomsoni grown in a cold pit; Primula dolomitis, Muscari latifolium, and M. atlanticum (?), Scilla nutans var. bracteata, &c. Those with doubtful names were referred to Kew.

Dictes bicolor (?).—Col. Clarke forwarded a blossom, as it was doubtful if correctly named. Mr. Ridley undertook to report upon it.

Cankered Rose.—Mr. Plowright sent a branch of a Rose, requesting if any insect agency was present. Mr. Maclachlan could detect none, and the cause was apparently not fungoid.

Cœoma Laricis and Œcidium Pini.—He also sent specimens of these fungi. The former, Mr. Plowright observes, is new to this country. "It is very abundant at Lynn at the present time, hardly a Larch I have yet examined being free from it; but it is never very abundant in point of quantity." The Œcidium Pini he describes as

being fairly abundant, and that it is the subsequent condition of Coleosporium senecionis.

Puccinia suaveolens on Carduus arvensis.—Mr. Plowright sent specimens of this sweet-smelling fungus.

Rhododendron lanatum.—Several fine trusses of this Himalayan species were sent by Mr. W. Farrant from the Isle of Man. The blossoms were larger than those figured by Hooker. Mr. Mangles observed that he only knew of five large plants in this country, but the flowers sent were exceptionally fine. He also sent a trnss of the sweet-smelling R. Fortunei and some of R. niveum.

New race of Carnations. Carl Vogt, in one of his lectures as president of the National Institute of Geneva in 1869, said: "No one in Europe at least dares to affirm the independent and spontaneous creation of species." The meaning intended to be conveyed by this is that all are hybrids, and the result of natural and successive crossings. But as Nature has eternity before and behind her, she has been and is still slow in her proceedings; and as the human race most likely was not the first to appear on our little globe, and also very probably its mental powers were very slowly developed, it is not astonishing that we should know so little about the transformation of all living beings, and particularly in the vegetable kingdom. A new proof of the accuracy of Carl Vogt's assertion has lately sprung up in the horticultural world. A new perpetual hybrid has been created by Alphonse Alégatière. He has crossed Dianthus plumarius (Pink) by Dianthus Caryophyllus (Carnation), and had tried the artificial fertilisation of both for five years without success. Still he persevered, and in 1881 he obtained from 1500 artificial fertilisations one single seed-pod, containing three seeds, one of which germinated and produced a hybrid, which is a perpetual bloomer. From it by artificial fertilisation by perpetual Carnations he has lately obtained ten varieties, all perpetual bloomers, and being in their habit rather Pinks than Carnations. He has thus created what is commonly called a species. These ten varieties are at least for amateurs a grand acquisition. They will replace the old Pinks as border plants, possessing over these the great advantage of being constantly in bloom, and they will also be suitable for bedding on account of their variety of colours and differences of growth. They will not only interest all who love flowers, but also all who reflect and study the contingencies of the laws of Nature. JEAN SISLEY.

Monplaisir, Lyons.

QUESTIONS.

5198.—**Gloire de Dijon Rose.**—Will any other Rose, besides Maréchal Niel, do well if budded on this? We have a vigorous three year-old plant on the seedling Brier and its own roots planted out in a greenhouse, which will have to be thrown away unless it can be used as a stock.—LADY C.

5199.—**Fortune's Yellow Rose.**—In THE GARDEN of the 10th inst. "J. C. C." mentions this Rose in a cool greenhouse. Having one on a pillar of 10-feet growth and two years planted, which I cannot get to flower, a hint from "J. C. C." would oblige me. How should it be pruned?—T. C. H., *Edinburgh.*

5200.—**Stocks.**—Will some of your readers kindly tell me how to have a good display of Stocks in May? What are the best varieties, and when should they be sown, and how treated? I do not care how tall they are, but I want them double, and at their best in May. An answer to these questions will greatly oblige.—AMATEUR.

5201.—**Alpine Wallflowers.**—I once possessed a beautiful flower, known by the name of Alpine Wallflower. It grew low and bushy, bore pale primrose-coloured blooms, which smelt sweetly of Hyacinths. I have tried to obtain it from various seedsmen, but am always disappointed in the results. Can anyone kindly tell me where I am likely to find it?—A. G.

5202.—**The Tamarisk used in Paris gardens.**—Will any reader of THE GARDEN kindly tell me the correct name of a standard Tamarisk which I saw in flower about this time last year (perhaps a fortnight later) in the Tuileries Gardens, Paris—the part which was formerly the Emperor's private garden? I would like to plant it among Rhododendrons to relieve the monotony of their outline near the house.—L.

TAR DRESSINGS.

Some few months ago a discussion took place regarding the merits of gas tar as a winter dressing for Vines, and various opinions were expressed more or less favourable on the side of tar dressing. I was therefore induced to give it a pretty extensive trial. I had several houses filled with good strong Vines, but from having been used as store houses for stove plants affected by mealy bug they had become badly overrun with that pest. Therefore the question resolved itself into one of kill or cure, for I need hardly say that Vines, if badly affected by mealy bug, may as well be destroyed if they cannot be cleansed, for their produce will be worthless. The plan adopted was the same in each case—viz., as soon as the Vines could be pruned they were commenced on in rotation, for if left until the buds got excited injury would be the result. After being pruned every particle cut off was carried to a furnace and burnt; the old bark was then peeled off, going very carefully into every crevice of the knots and around the spurs. After that the rods were scrubbed with dry hard brushes, to remove any insects that were lurking about them, and then they got a good washing with a strong dose of soft soap. The rods were then tied down at the bottom of the house, and the roof, rafters, and walls were thoroughly scrubbed with soft soap dissolved in warm water; when thoroughly dry they were then painted with pure paraffin oil, and the walls thickly coated with fresh slaked lime.

Having thoroughly prepared the Vines for the tar dressing, we proceeded to mix the ingredients as follows, viz, 2 quarts of gas tar were put into a large pail, and some clayey loam, baked over a boiler until it was as dry as dust, was sifted and mixed with the tar so as to thoroughly disintegrate it as far as possible. It was then mixed with hot water until it was of the consistency of thick paint, adding clay and water until we had four gallons of the mixture ready for use. Before using it we, moreover, took the precaution to skim off the oily substances that floated. We then proceeded to apply it to the Vines with stiff paint-brushes, filling up every crevice around the knobs and spurs with the mixture. The young last year's wood was only thinly coated, especially over the buds. The Vines were then as soon as dry enough to handle tied into position and left without syringing until they started into growth, merely damping the paths to get the desired humidity in the atmosphere; as the season advanced they all started into growth regularly and strongly, not a single gap occurring from buds failing, and thus far I have not seen a trace of reappearance of the pest. The only thing I noted was that the young shoots were extremely brittle, and that if any attempt was made to tie them down they were sure to snap off far more readily than I had ever observed them to do before; but to overcome this difficulty I let the main rods down an extra 6 inches from the trellises, although the latter are further from the glass than the majority of trellises are fixed. I am no advocate for tight-lacing fruit tree shoots of any kind, and, except to support the bunches, we shall not tie the side shoots down at all. Tar dressing is objectionable to some on account of its dark colour, and therefore some use it mixed with lime to alter the colour, but I like the dark stems, for if mealy bugs reappear they are more readily observed on the black ground than on a light one.

I may add that the success of any kind of dressing depends mainly on the care with which it is applied. The cleansing the Vines by scraping, scrubbing &c. (which is, I believe, thoroughly useless, and liable to do more harm than good if the Vines are free from insects), must be carried out to the minutest detail, *i. e.*, if the bug be well established. In the mixing and application, too, of this or any other compound strong enough to kill bug, great care is necessary, but I feel sure that when intelligently applied the worst case of attack by this pest may be cured by tar dressing without injury to the Vines. I have at various times and places tried many destroyers and seen most of them now before the public tried more or less extensively, but I never had such a clean sweep of the bug follow from one dressing as from gas tar. J. Groom.

Gosport.

OBITUARY.

Mr. A. J. Maule, of the Stapleton Road Nurseries, Bristol, died on the 5th inst., aged sixty-three. Some quarter of a century ago few nurseries were more important than those belonging to Mr. Maule, but of late years the town has sadly encroached upon them. They were at one time well stocked, both out-doors and under glass—the former especially with Conifers, and the latter with Orchids and other tender material—and they have from time to time been the birthplace of many novelties, one of the most recent being Pyrus Maulei. This, both in flower and fruit, is a grand acquisition, and one which, in conjunction with Cypripedium insigne Maulei, will hand Mr. Maule's name down to posterity better than any other monument that could be raised to his memory. He was a man well known and much respected.

The death, at the age of fifty-four, is also announced of Mr. Henry A. Bright, a member of the well-known shipping firm of Gibbs and Bright. He was educated at Cambridge, and was the author of a charming volume entitled "A Year in a Lancashire Garden." This was followed by "The English Flower Garden," an expanded version of an article in the *Quarterly Review*. Mr. Bright was a member of the Roxburghe Club and of various other literary societies, for which he more than once edited biographical rarities. He was a relative of Lord Houghton, was widely known in society, and being a great letter-writer was in correspondence with a large number of eminent people, English and foreign.

Mr. T. Cranston (of the firm of Cranston and Sons, the large Rose growers, of Hereford) while driving from Pembridge Fair to his home, was thrown out of his conveyance on Thursday last and was killed.

Name of Apple (*E. Sumner*).—New Rock Pippin is correct. It is an old sort, having been shown in London as long ago as 1821.

Cyclamen (*A. Bardet*).—The bloom sent arrived in such bad condition, that it was impossible to form any opinion as to its merits.

Orchids (*H. H. Chesshire*).—The flowers were so much withered when they reached us as to be scarcely recognisable. The stalks of the flowers should be wrapped in wet Moss and enveloped in waterproof paper in order to arrive in good condition from the Continent.

New explosive scarecrow (p. 384).—I saw this exhibited at one of the agricultural shows at least twenty years ago. It therefore cannot be new.—A. R., *Windermere.*

The St. Petersburgh Exhibition.—The Horticultural Exhibition and Botanical Congress, which was deferred last year owing to the coronation of the Czar, was opened on May 5. Mr. H. J. Elwes, F.L.S., of Preston House, Cirencester, was requested by the Science and Art Department to attend as the delegate on behalf of this country, and has been accredited.

Names of plants.—*K. A. S.*—Anemone sylvestris; Horminum pyrenaicum; Primula cortusoides; tree is one of the Elms; send leaves later on.—*G. C.*—1, Galium elatum; 2, Symphytum officinale; 3, Tulipa sylvestris.—*N. B.*—1, Amelanchier canadensis; 2, Ribes speciosum; 3, Guaphalium lanatum; 4, next week.—*O. N.*—Scilla campanulata alba (white Spanish Squill)—*H. M. H.*—The true form of Odontoglossum citrosmum roseum.—*F. R. S.*—The yellow is Dendrobium densiflorum; the other appears to be D. Farmeri, not D. thyrsiflorum—*D. Dowdeswell.*—1, Polygala vulgaris; 2, white variety of No. 1; 3, Pedicularis sylvatica; 4, Geum urbanum.—*J. S. Stirling.*—1 Euphorbia Lathyris; 2, Helonias bullata.—*A. D.*—Oncidium Marshallianum (good variety).—*A. Elder.*—1, Geum urbanum; 2, Geranium sylvaticum; 3, Saxifraga muscoides; 4, Arabis alhida.—*A. P. H.*—Spiræa confusa.—*J. S. T. (Loch Ard, Perthshire).*—A rare Alga figured in Cooke's "British Algæ," part 7, under the name of Nostoc pruniforme.—*W. H. T.*—Vallonia, the name given to the large Acorn cups of Quercus Ægilops.—*W.*—Double-flowered Jonquil Narcissus (N. Jonquilla fl.-pl.)—*J. C. L.*—A poor specimen, but apparently the green flowered Columbine (Aquilegia viridiflora).—*E. A. G.*—The blue Cranesbill you speak of is no doubt Geranium pratense.

Hose-in-hose Primroses (p. 380).—For "variety read "rarity."

No. 653. SATURDAY, May 24, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ODONTOGLOSSUMS AT ST. ALBANS.

THE crowds of admirers that clustered round a little group of Odontoglossum Alexandræ which adorned one of the banks at the Regent's Park show on Wednesday last clearly indicated the fascinating influence which this lovely Orchid has even upon those who do not know an Orchid from any other flower. The little gathering in question was in truth most charming—quite an exhibition in itself—and it admirably exemplified what beauty can exist in a group of only one kind of flower if skilfully set up. The arrangement of this group was not only tasteful, but unconventional. The usual way is to show no plants but those on which there are fully expanded flowers. In this case there were not only spikes of widely opened blooms, but spikes of ruddy tinged buds that would not unfold for a fortnight or so to come, and from this incipient stage to that of the fully expanded spike there was every gradation, which not only showed the flowers in their most beautiful phases, but also displayed with peculiar grace the appearance which this Orchid naturally presents. The spikes were tossed about in all directions, as it were, and underneath was a luxuriant carpet of Maiden-hair Ferns, which much enhanced the appearance of the group.

Those who saw this little floral feast provided by Messrs. Sanders will be able to form some idea of the magnificence of the display that exists in their Odontoglossum houses at St. Albans at the present time. Here may be seen the gathering we have just attempted to describe magnified a hundred times or more, there being several thousands of flower-spikes in full beauty, the produce of some hundred thousand plants of this one Orchid alone, to which several houses are wholly devoted—houses, too, not far short of 100 yards in length. From this may be gleaned some idea of the grandeur of the exhibition of Odontoglossums which for some weeks to come may be seen at St. Albans. The houses are literally white with blossoms, so profuse are the spikes which fall so elegantly over the sloping stages. Those who have only seen small groups of this Orchid can hardly realise the grandeur of the effect produced by it *en masse*, unmixed by varieties possessing other colours, clearly showing the advantage of grouping plants of one kind only in order to obtain from them the fullest expression of their beauty. In such an exhibition as this where thousands upon thousands of imported plants are flowering magnificently side by side all the variation which one species of Orchid is capable of producing is displayed, though it is a noteworthy fact that out of the immense number in flower in these nurseries there is a total absence of what are regarded by orchidists as "poor types," *i.e*, flowers with narrow and widely separated sepals. It therefore seems as if Messrs. Sander's collectors have hit upon the haunts of the type with large broad-sepalled flowers such as those so well figured in Bateman's work illustrating the genus.

In going through the St. Albans collection it is apparent that the majority of the flowers fall into two or three distinct sections into which it is convenient to group them. Thus there is one set of varieties in which the flowers are heavily blotched more or less copiously; sometimes the spotting is disposed over the whole face of the sepals; in others, such as in one form exhibited at the Regent's Park show, the colour is concentrated in one huge blotch in each of the outer sepals, leaving the petals spotless. This form is extremely rare, and Mr. Sanders assures us that it does not turn up among ten thousand imported plants; hence it is very rare and much sought after by connoisseurs. This spotted flowered group is now known as guttatum. A second group is that in which there is a more or less rosy purple tinge in the flowers. Of this beautiful section the major part of the St. Albans collection is composed. In some plants there is but a faint tinge, while in others it is of a bright red-purple, and some are beautifully spotted upon the rose-coloured ground, and one plant we noticed had flowers exactly the colour of O. vexillarium, with scarcely any spots upon the sepals. Then there is a group in which the flowers are spotless save the blotch of golden yellow on the crest of the lip. This is a rare and very lovely type, and one that is eagerly watched for at St. Albans, though very few occur even among thousands of plants. This type is known as virginale. Of course there is no definite line of demarcation between these types, but it is convenient in describing individual forms to class them as near as possible under one of these sections. Then there is a whole host of hybrids that are continually cropping up among the importations of Alexandræ, and at St. Albans they are always numerous. As soon as these flower among the main bulk they are singled out and placed in a group by themselves. This hybrid group represents a wonderful diversity of form and colour, and is a perpetual puzzle to those who attempt to give names to every individual that flowers. This is impossible, and the nearest that can be done is to class them into sections, taking as the type some well-known hybrid, such as Ruckerianum, Andersonianum, Wilckeanum, baphicanthum, mulus, and the like. At the present time there are numbers of hybrids in flower, some exceedingly beautiful, and probably unique.

Some are almost, if not quite identical with the original plants of the named hybrids, while others differ widely from them. Among the hybrids we made special note of was a profusely spotted Ruckerianum, the baphicanthum pallens, with canary yellow flowers sparsely spotted; a highly coloured Wilckeanum and prionopetalum, which has distinctly saw-edged sepals, heavily blotched on a pale ground. Among species were Halli, with its two varieties, the white-lipped leucoglossum and the yellow-lipped xanthoglossum. We have before described the method by which the Odontoglossum is brought to such perfection at the St. Albans Orchid Nurseries. There is no secret in the method; it simply resolves itself into three or four conditions, these being properly constructed houses, abundance of light and air and moisture. These conditions adhered to, this Orchid will grow like a weed and never fail to produce abundant crops of bloom. Everyone who understood Orchids seemed to notice the ruddy tinge of the plants in the group at the Regent's Park. This tinge is a sure indication of sturdy vigour in the plant brought about by proper treatment, and particularly by submitting the plants to plenty of light and air in order to harden their tissues, without which the plants will not flower well.

PLANT CULTURE IN MOSS.

A NOVEL feature, and one that attracted some attention at the Regent's Park show on Wednesday last, was some baskets of plants said to have been grown in prepared Moss and entirely without soil. The exhibitor was Captain Halford Thompson, who claims to have discovered a new method of thus growing plants. Some time ago a Frenchman of the name of Dumesnil patented a kind of fertilising Moss for the purpose of growing plants without soil. With this production of M. Dumesnil, Captain Thompson states that he made several experiments, which resulted in his considering it open to serious objections, and was by no means certain in its results. These defects Captain Thompson has endeavoured to remedy in a new preparation with which he has experimented, and by means of which he states he produced the luxuriant plants which he exhibited on Wednesday. Having found that by Dumesnil's Moss it was quite possible to grow plants without soil, he set to work to prepare a fertilising substance which would enable plants to be grown in it without the precautions necessary in using Dumesnil's Moss, and he thinks that he has been perfectly successful in his endeavours. He states that "plants in full bloom can be taken out of the ground or out of pots, and after all the earth has been carefully washed off, planted in Moss which has been previously prepared with fertilising fibre. They never even flag, but grow more luxuriantly than in soil." The plants shown by Captain Thompson fully bore out his statement, for it would be difficult to imagine more luxuriant plants than those he showed. They consisted of tuberous Begonias, variegated Vitis, Gardenias, Fuchsias, Tradescantias, and others. All were furnished with healthy foliage and were for the most part carrying flowers. The advantages of this method are stated by the inventor to be twofold; first, the extreme lightness of a number of plants when grown together in one basket; another is the portability, an advantage which renders plants grown in this way particularly suitable for the embellishment of rooms and windows. No doubt to those who live in towns, where potting soil is not easily procured, this Moss would be a special boon, on account of its lightness, portability, and cleanliness; but in the country, where mould is readily obtained, it would probably be less trouble to grow plants in the usual way, and we presume that Captain Thompson's invention commends itself to townspeople. In a small pamphlet the method of applying this Moss is explained as follows:—

"Take the plants you wish to put into the basket, carefully wash off all earth from the roots with tepid water, taking care not to injure the roots in doing so; then plant them in the ordinary way in the Moss, which should be previously well wetted; if possible, keep the basket in a warm place free from draught for three or four days. The plants can, if wished, be transplanted from earth when in full bloom; they will not feel the check. After two months the upper layer of Moss should be removed, and a similar quantity of my Moss put in its place. If Selaginella is grown on the surface of the Moss (as in some of the baskets shown before the Botanical Society), it should be carefully removed first and replaced after the

Moss has been changed. The baskets do not require watering oftener than plants grown in earth do. The weight of the baskets will show if they want water."

ORCHIDS.

PRUNING DENDROBIUMS.

Mr. Keatney (p. 417) gives practical proof that pruning Dendrobiums does not, at least in his case, answer. Since I began to grow Orchids there have been many innovations; experiments numerous and costly have been tried; some of them have come to a successful issue, others have resulted in failure. The value of the system of pruning-off the growths cannot be tested in one year. It is one of those experiments that will need successive seasons of culture to settle whether the plan is right or wrong. To those who may feel inclined to prune their Dendrobiums in the hope of improving them I would recommend caution. Let us take D. nobile as an illustration. It is one of the hardiest of the genus, and will submit more patiently to bad management than any other Orchid with which I am acquainted; whether, however, it will submit to hard pruning for ten or twenty years in succession has yet to be proved. That it can be grown into a very large specimen that will flower profusely every year without pruning has been proved times without number. A very small plant of this species was entrusted to my care twenty years ago. It now forms an immense bush, which has been exhibited publicly in our collections of Orchids, and has been favourably commented on by the gardening press. Two men can with difficulty move it. Besides this, it has been the parent of a dozen plants, most of them good specimens. Not an old bulb is cut out of these plants until they decay. Why should I remove all the bulbs from these plants? Are my twenty years of successful practice to count for nothing? Could such a specimen be formed on the pruning system? D. Wardianum also succeeds well without interfering with the old bulbs. It goes on making good growths year after year, and the same remark applies to other Dendrobes. In Messrs. Veitch's collection of Orchids at Chelsea, large specimens of both deciduous and evergreen Dendrobiums are crowded with flowering spikes; yet there are no pruned Dendrobiums there, and I see none anywhere where Orchids are well grown. No one seems to think of pruning them. My belief is, that in a few years pruning will end in disastrous failure.

I can remember the time when we were told that the right kind of house for Orchids was thought to be a double-roofed one. Its advocates had proved it and obtained the most successful results from it. It was tried in Messrs. Veitch's nursery and elsewhere with disastrous results, and so the matter ended. Then we were told that Cocoa-nut fibre was the right medium in which to place Orchids, and a few exchanged good peat and Sphagnum for that material, in the hope that success would be the result, but instead of that many valuable Orchids found their way to the rubbish heap. The latest notion, or at least the latest with the exception of pruning, was to pot the plants in coir fibre, a plan of which an enthusiastic amateur was the originator. At his request, I tried a few plants in it, and they did succeed well at first. I mentioned coir fibre to one of our best growers, and told him I thought it might supersede peat and Sphagnum. "Well," he said, "I will believe you are right when Orchids grown in coir fibre are brought to our exhibitions and beat those grown in the usual way." We tried it yet a little longer, and my verdict now is, no more coir fibre for me—at least in the Orchid houses.

Some may say, What has double-roofed Orchid houses, Cocoa-nut fibre, or coir fibre to do with pruning Dendrobiums? Nothing; but "bide a wee," as the Scotch say. Those who like experiments can go on pruning their Dendrobiums year after year, and if they beat the results of non-pruning, we may then be induced to adopt the plan; but no Orchid pruning for me until the authors of it show us the results of their practice after several years' trial. I can well afford to wait.

Great Gearies, Ilford. J. Douglas.

—— About a year ago I received among others a plant of Dendrobium Wardianum which had its growths of the previous year nearly severed, through rubbing against a pot or some other hard substance about 2 inches from their base. It occurred to me under the circumstance to try "J. S. W.'s" plan of pruning; the result is, the plants not pruned have done fairly well, but not the pruned plant, which has only made weak attenuated growths of scarcely a foot in length, and this season it is still suffering from the effects of the knife; therefore I say, let those prune who like to do so; I have seen sufficient of it not to try it again myself.—E. D.

Vanda cristata.—This old, but pretty little species from Nepaul is now finely in flower in the Royal Horticultural Society's Gardens at Chiswick, where there are several small plants of it, and each bears two spikes, consisting of two or three rather large flowers. The sepals and petals, which are spreading, are of one uniform yellow-green; the lip, which is large, has a very short spur at its base. Its upper surface, which is crested, is pale yellow, rich and velvety, marked with blood-purple longitudinal streaks.—F.

Dendrobium thyrsiflorum Walkerianum.—A glorious spike of this Dendrobe from Messrs. Thomson's nurseries at Clovenfords, Galashiels, shows what a distinct and superior variety it is compared with the ordinary D. thyrsiflorum. The spike is without exception the finest we ever saw. It measures 14 inches in length and carries no fewer than 75 flowers, having pure white sepals and golden lips. Three such spikes were borne on one plant and must have been a lovely sight. We have frequently heard of the distinctiveness of Walker's variety, but we had not hitherto had such good proof of its superiority. The genuine form is, we believe, as yet scarce, and is always eagerly sought after.

Cattleya Mossiæ and Mendeli.—A very fine series of varieties of these two variable Cattleyas has reached us from Messrs. Thomson and Son's nurseries, Clovenfords, Galashiels. Among them are some forms of exceptional merit, particularly a variety of C. Mossiæ, the darkest we have yet seen. The colour of the sepals is a very deep lilac-purple, faintly grained with a light tint, while the large dilated lip is of an intense magenta with yellow in the throat and frilled with lilac. It is in truth a superb variety and must be very rare. The other forms of C. Mossiæ sent are rich and good in colour and of large size, but all pale before the one we have attempted to describe. Among the C. Mendeli forms are some very fine flowers, from which we single out one, remarkable not only for large size, but for distinctness and beauty of colour. The sepals are pale lilac, broad, and of good substance, and hold themselves out firmly. The lip is parti-coloured, the lower half being a brilliant crimson, the upper half pure white, except the throat, which is flushed and pencilled with yellow. Among other Orchid flowers sent from Clovenfords is the form of Lælia purpurata, called alba, a lovely Orchid at once distinguishable by the broad and flat pure white sepals and gorgeously coloured lip.

Hardy Orchids.—Amongst our native species the first to claim attention is Orchis mascula, which although badly treated by the cold east winds of April—not March, as is usually the case—is now in full bloom, and can favourably compare in point of floral beauty with any other species, either native or Continental. The brown Man Orchis (O. fusca), now almost extinct in Britain, is another handsome, portly plant, the dense spike of brownish purple flowers being thrown well above the broad green leaves. This plant deserves extensive cultivation, being easily managed and highly ornamental. Another beautiful and curious native species now in flower is O. tephrosanthos (the Monkey Orchis), which is certainly well named, as the flowers not inaptly resemble a monkey. Amongst foreign hardy Orchids, O. sambucina is one of the best for early and profuse flowering; the blooms last a long time and have a scent similar to that exhaled by our common Elder. Nearly approaching this species both in habit and colour of flower, which in all three is of a rich yellow more or less spotted with pink, is O. pauciflora and O. provincialis, two plants that deserve a shady corner in gardens where hardy flowering plants are grown. The North American Habenarias should be banished from nurserymen's lists, for they are beyond cultivation in this country. Of Cypripediums, I notice C. acaule, C. pubescens, C. parviflorum, and our native C. Calceolus showing well for flowering. Some half-a-dozen flower-spikes of the rare Italian Orchis, O. Stabiana, are now jutting up from amongst the rich, lustrous foliage for which this plant is so much admired. I find Italian Orchids to be, as a rule, not suited for our climate; I will therefore in a future note give a list of those with which I have been most successful.—A. D. Webster.

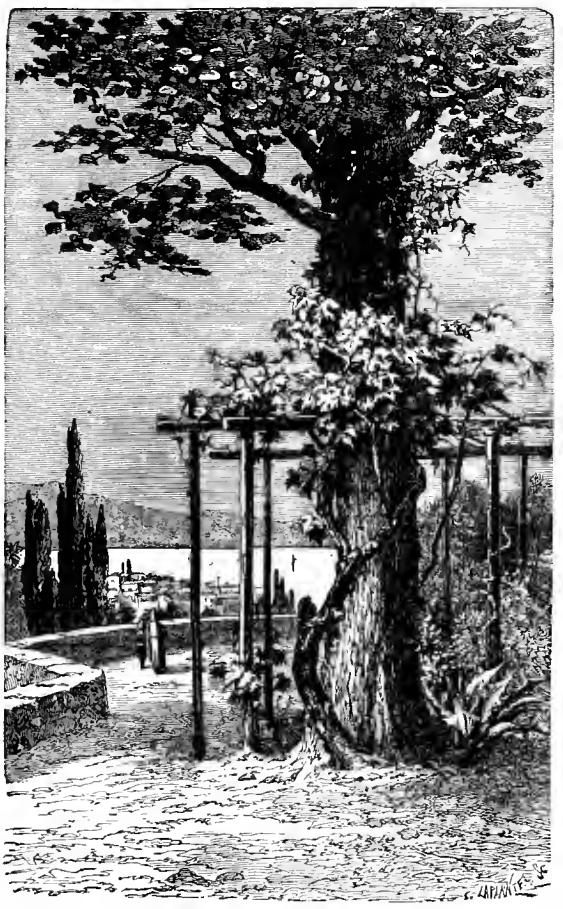
ROSE GARDEN.

Marechal Niel Roses.—I was pleased to see that Messrs. Cooling, of Bath, had forwarded blooms of this Rose for your inspection. I saw them at the Bath Spring Show, and, in common with many other admirers, expressed the opinion that they had rarely if ever been equalled. When you say (p. 402) "they are, without exception, the largest and finest flowers we have ever seen of this Rose," it doubtless means that they are the best ever grown. Mr. Cooling informed me that they had this season cut 7000 fine blooms in the same house which, if I remember rightly, is a small span-roofed structure covering a space of ground about 30 feet by 15 feet. This is a wonderful achievement, and unless the Messrs. Cooling take the hint, and kindly enlighten us on the subject, I shall make it my business when next in Bath to endeavour to ascertain further particulars regarding their treatment of this most popular and valuable Rose.—W. I. M.

Rosa rugosa.—One of your correspondents inquires about Rubus rugosus; but Rosa, not Rubus, must be the plant about which information is wanted, there being no species of Rubus to which the name rugosus has been applied. Rosa rugosa is suitable both for the shrubbery and rock garden. The following description will give a good idea of the main characteristics of this Japanese plant: Habit shrubby; height about 4 feet; branches thickly clothed with spines, which become brown with age; leaflets oval in shape, deep green, the upper surface rough or fluffy to the touch, the under side densely tomentose; flowers single, 3 4 inches in diameter, the petals of good substance, and white or rose coloured. The fruit is large, larger, perhaps, than that of any other Rose, and when ripe is of a beautiful bright red colour. As has been well said of this Rose, "Out of flower it is effective and striking with its bristly stems and bold rugose foliage, and in flower few Roses surpass it for beauty and continuity of bloom. In fruit it has scarcely a rival." Although a native of China and Japan, this Rose is perfectly hardy even in the coldest part of this country. Being a true species, it may be propagated by means of its seeds, or it may be increased by cuttings put in in the autumn. The advent of the original single-flowered types of popular garden plants in which doubleness was until recently considered the acme of perfection, has already brought to the fore many beautiful flowered subjects, and amongst them single Roses have not been forgotten. The fruits of many of the species of Rosa are scarcely second as regards ornamental effect to that of the flowers. Unfortunately, birds sometimes make a raid on them, but not always, and we were never more agreeably surprised than when on a visit to Kew last autumn we came upon the collection of Roses and found many of them thickly laden with brilliant coral-like fruit.—B.

CLIMBERS ON TREES.

Given a plant possessing beautiful flower or foliage, whose normal growth extends to 20 feet or 30 feet, there are better ways of using it than nailing it to a wall or house. The North Italian scene here engraved reminds one of the many ways in which trees and climbing plants may he grown together to the great increase of beauty in the garden landscape. Throughout Lombardy the Vines are commonly trained to grow through the white Mulberry trees that supply the food for silkworm culture. Their long branches form graceful garlands, wreathing tree to tree, much as on a smaller scale we see in our Hop gardens an occasional garland from pole to pole. The Chasselas de Fontainebleau, a good hardy Vine, might so he used in England; its leaves turn a rich



Vines on tree stems in North Italy.

glowing yellow in October, as if they had stored up the summer's sunlight in order to give it out when it was growing scarce. The dark-leaved Claret Vine and the Parsley-leaved Vine, with its richly cut pale green foliage, would be graceful climbing ornaments to many trees. To recall a few examples. In a cemetery garden at Montrenx, Lake of Geneva, a white climbing Rose has grown up into an old Cypress; the Rose has taken its own way —no training, pruning, or tying—and hangs out of the dusky tree disposed in perfectly arranged clusters and masses—the white flowers, not a hard white, but toned with barely perceptible warmth of colour and by the light and shadow of the half-double blossoms, being in perfect relation to the colour of the sombre foliage. In an English garden there is an old Acacia, wreathed about with a Wistaria of many years' growth. The climbing plant has travelled into the upper part of the tree and the masses of lilac flower and old grey trunk and branch, seen at a considerable height, form a beautiful and surprising picture. Clematis montana and its large-flowered variety are excellent tree-climbers, and are seen to their greatest advantage among dark evergreen foliage, such as that of Yew, Cedar, or Arbor-vitæ. Clematis Flammula is suited for smaller trees, such as Junipers I know a copse where the wild Traveller's Joy (Clematis Vitalba) has grown into some Elms, running up to a great height, and clothing their trunks and branches with such fantastic ropes of stem and wreaths of foliage and flower, that one wishes the whole group could be transported into some worthy garden. On the lawn of a garden lately made in a piece of heath land its chief ornament is a Holly about 25 feet high, with a wild Honeysuckle growing through it, and throwing out of the very top a massive crown of its sweet flowers. Another such natural combination was a gnarled old Elder with a wild Rose rambling about it, the foam-white blossom of the tree and the wreaths of pink Roses making a charming picture both of form and colour. Some such happy effects may be seen in any stretch of wild forest land, and in hedgerows among plants of humbler growth—lessons whose teaching may serve us well in practical gardening. G. J.

Vaporised Tobacco juice *v.* **fumigation.**—Allow me to confirm the remarks made by M. Godefroy Lebeuf (p. 372) on the evaporisation of Tobacco juice in plant houses. I was pleased to see the plan advocated by one who knows its real value, and consider that no one can speak too highly of it as an insect destroyer. Its cleanliness, too, and the ease with which it can he applied, go a long way in its favour in comparison with paper burning, and it does no injury to even the weakest of plants—Ferns or Orchid flowers. We use it in every house. We take an earthenware pan or pitcher for the Tobacco juice, put it on a small lamp (with what is called in England methylated spirits), stir it up occasionally, and the results are highly satisfactory.—Howard H. Chesshire, *Rue du Havre, Havre.*

OUR CLIMATE.

In what way is the climate of Great Britain deteriorating? Is it growing colder, the summers shorter, winters more severe, and the mean temperature lower? In what does the change consist? When Mr. McNab wrote his paper some years ago, he was understood to mean that the climate was growing colder, but the statistics at Greenwich and elsewhere did not corroborate that view, nor do the periods of flowering of trees and grasses or the maturation of crops indicate any change in that respect. Still, the climate may be changing for all that, although one cannot regard isolated examples of reputed failures of certain garden crops recorded from memory, or the mere impressions of individuals as to the weather long ago, as good evidence on such a subject. One seldom meets an "old inhabitant" anywhere who is not ready to avow that "the weather is not what it used to be in his young days." There can be no doubt, however, about the deterioration of the weather during the past dozen years or so, for that has been abundantly proved by both the thermometer and bad harvests. Still, that is too short a period to go by. If there has been any change, I agree with Mr. Turnbull in thinking that it has consisted in the greater prevalence of cold and east winds in spring and early summer, and I am inclined to think the evidence of that in this part of England, at least, has been of a very unmistakeable kind, and that it has been going on for a long period, as the following

Facts with regard to trees seem to show. There are other causes than climate at work in this part of Yorkshire tending to injure trees, but the examples I am about to relate seem to be due to climate more than to anything else, because the trees affected grow at such an altitude as to be beyond the influence of the smoke, &c., which does the injury in the valleys. Sherwood Forest once extended over this district, and there are still many fragments of it left in the shape of ancient Oaks as large as those in Sherwood proper of the present day. I am speaking of the same locality and the same trees that Sir Walter Scott alludes to in the opening chapter of "Ivanhoe" as "that pleasant district of merry England which is watered by the river Don, where extended in ancient times a large forest, covering the greater part of the beautiful hills and valleys." Many of these old Oaks grow about 1100 feet above the sea, and are quite exposed, growing, as they do, on the very top of the cliffs. One tree has a trunk 7 feet or 8 feet in diameter, and the others are only a little less in size, and what strikes one now is how they ever reached such dimensions—produced such trunks and far-spreading giant boughs, if the climate had not been more favourable then than now, for—and this is the point—trees of much younger date are mere scrubs, and look as if fairly beaten down by the force of the blast. They are small, stunted trees not many feet high, and with trunks not much thicker than one's leg, yet they are probably from eighty to one hundred years of age. It is impossible, judging from their past growth and present appearance, that they can ever reach the same dimensions as the older trees, whose progeny they are, I daresay, naturally sown. The condition of these trees has puzzled many. It is the same with Yews, which at one time must have been plentiful here, judging from the remnants left—many dead—all dying—all having been large, fine trees—and none are coming up to take their place. One of the finest examples stands about 1000 feet above the sea and far above the general level of

the locality. There are several near it, some quite dead, and every tree presents exactly the same appearance that some of the Conifers do here that have been killed or injured by cold winds in spring, having all their dead twigs, and even leaves on some, upon them still—withered, as it were, to death. The same effects are observable on much younger trees of the same kind, growing under much more favourable circumstances, and which ten years ago were in fine health to their topmost boughs. During recent years the east winds in March have been so trying that they quite killed to the ground tall Rhododendron bushes probably forty years old or more, and the Yews mentioned had their tops killed at the same time, and their higher branches much injured, so that they look much thinner than they used to do. Close to the soil the branches are in better condition; in short, the very same causes seem to be operating on trees lower down the slope that killed those higher up in times past, and, I doubt not, they will go in the same way in the end. Whatever truth there may be in this supposition, it is certain, at all events, that, within recent years, in my own time here, unusually

Severe spells of east winds have occurred and left their mark on Conifers and other Evergreens. Never, so far as I can learo, has the hardiest of the exotic Conifers here—the Deodar—suffered so much. Some have lately died outright, and we could more than once have shown trees of this species entirely destitute of leaves in May, having lost them after those severe east winds alluded to, the extremities of the branches never recovering. I believe none of the Deodars here ever had to have so much dead wood cut out of them these last forty years as they have had during the past few years. The injury done by these periodical cold winds affects the trees the whole season afterwards, enfeebling them and rendering them less able to withstand the next attack, and so years go by, leaving their mark behind, as in the case of the Oaks and Yews before-mentioned, and to which I attach most significance, for side by side may be seen Oaks of giant proportions stunted, weather-beaten now in their branches but that have grown up freely at some former time; and comparatively young trees that do not look as if they would ever attain to the most moderate tree size, however long they may live. As regards indications of change of climate generally, I think the woodman and farmer are far more likely to note changes than the gardener, as trees and farm crops are more likely to indicate such changes than exotic and artificially circumstanced subjects of the garden, which one can understand deteriorating in constitution from other causes than those of climate. J. S

THE GARDEN OF THE CAPUCHIN MONASTERY AT SYRACUSE.

Leaving the island of Ortygia and the great harbour, so renowned in history, by a road which passes by the ancient Forum (now a grass-grown common with a single pillar standing, and other broken shafts and capitals piled up in a sort of trench), you enter Achradina, once called the Outer City. A further drive of nearly a mile, and you cross the railway and approach the deserted convent of the Capuchins, situated on a slight eminence. There is nothing particularly interesting in either the church or monastery. The vast corridors, long untenanted, re-echo to the stranger's footsteps as he wanders through them, noting the sentences from Holy Writ or from profane authors inscribed over the doors of the empty cells. The loggia, a roomy apartment, looks down on a garden to the right, while on the other sides are visible the church and convent of Santa Lucia, the great harbour, the blue sea, the gleaming white buildings of the island, and the soft grey of the distant, but far-stretching hills. Descending the stairs leading out of the loggia, an attendant unlocks the gate which leads to the celebrated Latomia; you follow her down a somewhat steep incline bounded by an old wall hung with Ivy and other creepers, where the bright little lizards dart in and out among the loosened stones. A little further and the end of the descent is reached; you find yourself in a vast garden covering many acres, and more than 100 feet below the level of the entrance. The Latomia (as its name imports) was once a stone quarry, excavated by the labours of Carthaginian and other captives. The stone it produced was employed in remote times in the construction of the temples, walls, and fortifications of the ancient city. It was also used as a prison, for here after the defeat of the invading Athenian army under Nicias and Demosthenes 413 B C, a number of the vanquished, roughly estimated from 6000 to 8000, were cast into a living grave, where they suffered from cold and heat with a scanty supply of food and water insufficient to sustain life; and thus, worn with disease, broken-hearted from disappointment, and maddened by despair, they died by hundreds. I follow the narrative of Grote, who in his turn faithfully copies the account given by Thucydides. He says some of the survivors were afterwards released or sold into slavery. Some procured their freedom from the compassion of their masters, touched (it is reported) by the way in which these Athenians sang or recited the verses of Euripides, and some wandered back to Greece. Symonds calls the Latomia "the Gethsemane of a nation." Escape was clearly impossible without the connivance of their gaolers, as the almost perpendicular sides of the vault could not be scaled even if sentinels had not been posted at the top. Who can realise this ghastly story as he sits under the shade of the Orange and Lemon groves, while overhead the larks are singing, and the blue sky flecked with passing clouds canopies the flowery vault?

Protected within this enclosure from all cold winds, the trees attain great size. One Lemon tree I noticed was as large as a moderately sized Oak. The Japanese Medlar flourishes here. It is one of the most beautiful of shrubs. Its shape is remarkably elegant, and the colour of its leaves (a soft green) contrasts well with the golden fruit hanging in graceful clusters. The size is that of a Wheat Plum. It is very juicy, and has a fine acid taste and delicate flavour. It contains three brown kernels. Let no one judge of the quality by the specimens served up at hotel dinners or sold on fruit stalls. To be eaten in perfection it must be freshly gathered. Part of the Latomia is devoted to the culture of the Pomegranate planted in rows. The foliage is of a bright glossy green with here and there a russet tinge, and the scarlet buds were ready to expand into flame-like blossoms. Here and there some shrivelled fruit of last year still hung from the branches. Figs, violet and green, were nearly ripe; many of the young trees seemed to grow out of the interstices of the great blocks of stone. Almonds were nearly full grown, and promised to be ripe by the middle of May, while Apples and Pears were in blossom. At intervals, a melancholy Cypress reared its proud head aloft. The planting of the fruit trees had been most carefully managed. They are arranged in beds which are deeply trenched, the soil being of a dark rich loam. Part of this vast garden composes a labyrinth most difficult to thread. Once inside, you may retrace your steps over and over again without finding the outlet, though on the heights above you see the farmhouse with its garden, and can even catch the voices of the family who inhabit it. The way out seems to be blocked by enormous masses of stone cunningly contrived to conceal the opening. The sides of the quarry are fringed with Cacti of different kinds and the prickly Pear. The flowers must not be forgotten. Great bushes of scarlet and pink Geraniums (some of the double variety), Heliotropes, Roses and Fuchsias abound. The walks are neatly kept and in some places bordered with thick Box. The Mesembryanthemum, with its star-like blossoms of dark crimson, hangs in festoons from the rocks. I may say, in passing, that in no other country have I seen this grand creeper in such perfection. It carpets the sides and banks of the railways in Sicily for many miles, particularly the line between Castro Giovanni and Catania, and again between Catania and Syracuse. The straw-coloured variety is equally beautiful and luxuriant. The embankments are thus a blaze of brilliant colour, while thick hedges of Geranium extend in like manner for miles. The gardens of the wayside stations are often patterns of neatness and beauty. The trees planted in the more marshy parts of the country are the different sorts of the graceful Eucalyptus, and in more healthy situations the Carouba, which excites the admiration of the traveller from northern lands. But to go back to the Latomia. The amazing fertility and beauty of this favoured spot is due to the ingenuity and enterprise of the monks of other days, who by their unremitting industry converted this quarry into a fair garden. It must have been a herculean task when we consider that the soil had to be carried there. Those patient toilers have departed. "The old order" as regards Italy and Sicily is rapidly changing. The monasteries have been for the most part dissolved, their houses and lands confiscated. It is impossible to give in words a just idea of this wonderful spot. There are other Latomiæ near Syracuse, one called "del Paradiso," a very lovely garden, but on that of the "Cappucini" the principal interest is of necessity centred. The pencil of the artist is equally at fault with the pen of the writer, though one would think, on looking at the curious effects of light and shade and the wild luxuriousness of the vegetation, that some sketch might convey to the mind a dim idea of the garden's loveliness. Two of our party (no mean artists) essayed this task, but gave it up in despair. Neither do photographs give any just notion of the changing lights and weird shadows, or of the lavish beauty of Nature—here in one of her wildest moods. Let those who would behold one of earth's most wonderful sights go and visit it themselves,

> And, home returning, soothly swear
> Was never scene so sad and fair.

I say nothing of the other objects of interest by "the Ortygian shore." They are varied and most interesting. A recent writer says, "Greek theatres and Roman amphitheatres you may see elsewhere; nowhere anything like the quarries of Syracuse." One of our friends, in whose mind the story told by Thucydides had taken deep root, wished to find out if any legend concerning the place had survived the "wrecks of time" So he questioned the dark-eyed little girl who had been patiently knitting during the time we had wandered about. She got up and solemnly presented each of us with a bunch of Lemon flowers, and, turning to her questioner, replied: "Signor, nothing has happened here that I ever heard of, and I have lived here all my life. My father says the monks made the garden and planted the Orange trees, but they have long been gone, as the Signor knows. It never was a prison in my time, and I have never heard it called anything but the Latomia dei Cappucini." W. N.

Double Primroses and Polyanthuses.

—From the Sunnypark Nursery, Aberdeen, Messrs. Cocker have sent us a beautiful gathering of flowers from their very complete collection of double Primroses, Polyanthuses, and Auriculas. Indeed until we saw this large assortment of double varieties, we hardly suspected that so many existed; there are no fewer than twenty-one in all. Among them are some that we do not remember to have previously seen, their colours being quite distinct from the older sorts. Several of the sorts are unnamed, but among the named kinds the following are the most noteworthy: Of whites there is the old Double White, as beautiful as we have ever seen; then there is another white called the Large Double White which is superior in size to the old sort and quite as pure in colour. One named Double Peach is very lovely, the colour being so soft and pleasing. Besides the now tolerably common Cloth of Gold there is the Double Sulphur also, a charming yellow sort, large and perfectly double. The old Crimson Red is the best of all in its colour, the peculiar velvety shade being unsurpassed; a crimson sort is noteworthy, likewise one in the way of platypetala, but called Lumillon. Among the Polyanthuses, King Theodore, with blackish crimson flowers, is very fine,

and so is an unnamed sort with an exquisite frilling of gold to the crimson petals. A black Auricula called Othello is perfectly double, as is also a fine double yellow. These flowers are in the highest perfection in the north, whereas in and about London they have long been past their best.

FLOWER GARDEN.

ANEMONES FROM SEED.

THESE are undoubtedly among the most valuable of early spring flowers, and yet only a few here and there grow them. A. coronaria is one of the most popular, under whatsoever name it may be known, whether Dutch or French, or Poppy Anemone. In the case of a mild winter like that through which we have just passed, this group of Anemones blooms with almost unbroken succession; and could a cold frame be filled with them in early autumn, the flowers would be more certain and larger, and better finished, owing to such shelter. This has been well named the Poppy Anemone, and really the flowers of the improved strains now in cultivation greatly resemble Poppies in their size and striking colours; and it can be said of this Anemone that if the roots are taken up in early summer, after they have done flowering, and replanted in autumn, they will bloom early in the spring. As it is so easy to raise seedlings, and, farther, as they produce such fine flowers, lovers of this Anemone should, as far as possible, raise them. Sow the seed as soon as it is ripe, and if the soil be good, the seedlings will come up strongly the same season, and the next season the bed will be a mass of beautiful flowers. It is really astonishing what fine blooms the small roots will produce, and as to varieties, they are plentiful—light blue to purple, rose to intense crimson, through all the various shades, and some mottled, variegated, and margined most beautifully. Not a few of the flowers are finely double, but we prefer the single forms, though both are intensely beautiful. The best way to commence a collection is to buy a few dry roots of the best imported Dutch varieties in autumn, plant them, and save seed from the best colours and finest flowers. The florists of forty years ago, who used to make much of the Anemone, looked forward to a time when this flower would become as double as the Rose, and as full of stout rounded petals. But this is still an achievement to be looked for in the unknown future. Up to this time we have not got beyond flowers with two rows or so of rounded petals, and a centre of small petals. It has practically ceased to be a florist's flower, and the collections of named varieties grown years ago by Carey Tyso and others have ceased to exist. The double and single scarlet so much grown by some come under the head of A. coronaria. Mr. Ingram, of Belvoir, has in his reserve garden a form of the double scarlet of great size and richness of colour, that has been improved by a local grower, who makes a good market of the flowers. What a lovely flower A. fulgens is on the warm slopes at Belvoir! Mr. Ingram uses it with striking effect; also A. apennina and A. blanda. The latter may be best described as a large-flowered form of the former and deeper in colour. Both make charming tufts, and the wonder is that gardeners who have to supply large quantities of cut flowers do not attempt to naturalise A. apennina in their gardens. Imported roots can be bought at quite a cheap rate in the autumn when in a dry state, large quantities being imported to this country. There are many semi-wild places where a patch of roots could be planted with great advantage, and especially on the fringes of shrubbery borders. A. hortensis is so far eclipsed by the fine varieties of A. coronaria, and A. stellata and its varieties by A. fulgens, that they are not nearly so much grown now as formerly; but in old-fashioned gardens they can be met with. They are very attractive in spring, and deserve a place in the mixed border. There are both double and single forms of A. hortensis and of A. stellata. A. ranunculoides is a very pretty dwarf yellow-flowered species, charming in early spring. This will grow freely, and establish itself among rockwork, making the spring-time gay with its nodding flowers. Then there is A. nemorosa, common in woods. This should be naturalised in cool, shady spots of a semi-wild character, over-canopied by trees. If anyone will go into a wood rich in these Anemones, they will find that there are not a few diversities of colour, some deepening to rose; and double forms can be met with also, white and rose alike, and both very pretty. A. Robinsonia is a fine rose-coloured form of A. nemorosa, and well worth a place in any garden. R. D.

SINGLE DAFFODILS DOUBLING.

WHEN the adversaries of a certain great astronomer triumphantly (as they thought) refuted his opinion that the earth moved round the sun, he could not at the moment of his condemnation refrain from the remark that for all that the earth did move. So it seems to be with the single Daffodils—they go on doubling, however stoutly some folk may refuse to believe it.

There seems to be two grounds for this unbelief. Some gardeners will not believe the thing because it never happens in their own gardens. Others, taking a larger view of the question, say that it is improbable from what we know of the nature and usual behaviour of bulbs. Incredality on the former ground is certainly unscientific; and to those who take the latter and apparently more scientific standpoint, I would suggest that there may be many more things strange, but true, to be discovered in the world of plants than are as yet dreamt of in our philosophy.

And then how about the evidence—the overpowering abundance of evidence with localities and dates and names of living men who are prepared to stand examination? For myself, I never felt sure that I could safely reject the widespread tradition which from childhood I have here and there and now and then met with, that certain flowers "go double" sometimes in cultivation. And now the long and carefallly compiled list of instances collected and kindly entrusted to me by Mr. Wolley Dod has made me feel that I cannot help believing that our common typical wild N. Pseudo-narcissus does in certain gardens become double and of a major form; in short, turns into the ordinary N. Telamonius plenus, which is the oddest part of the transformation and has especially provoked incredulity. As to this point, I can only repeat that flowers, single and double, have been freely sent for inspection, and strict investigation invited by persons of unimpeachable character.

Mr. Brockbank opposes to this a theory that such bulbs of the single Daffodil as have suffered this change are really degenerate bulbs of the double variety. But I would point out to him that if he accepts the accumulated and still accumulating evidence of the change actually taking place—which I think he will soon be forced to do—and accounts for it on this "degenerate bulb" hypothesis, he is acknowledging that N. Telamonius plenus commonly degenerates to a form which is absolutely identical with the typical wild N. Pseudo-narcissus, or, in other words, that these two are really one and the same plant. I am curious to see how Mr. Brockbank and others get over this difficulty. It certainly appears to me quite as remarkable that a Daffodil should degenerate into a form seemingly so very distinct as that it should "double" into it.

Mr. Barr, I fear, must, on his own showing, be classed with those who will not believe because they have never seen the change take place in their own gardens or in gardens to which they have themselves had access.

Mr. Brockbank "cannot see how it is likely that a bulb can be made to produce double flowers by culture." There is a more scientific way of treating the subject than either of these—namely, by collecting and sifting evidence and making actual experiments. Possibly some light might be thrown upon the matter if at Kew or elsewhere bulbs of Pseudo-narcissus were planted in small beds of artificially-prepared and different soils. I may add that in one or two of the alleged instances of this change having taken place I suspect the presence of iron in the natural soil.

Appleshaw, Andover. G. H. ENGLEHEART.

THE DOUBLE POET'S NARCISSUS.

MR. PETER BARR tells us that the single form of this has yet to be found, and that it certainly is not the large Poet's Narcissus at present in flower. Mr. Barr is a great authority on all subjects connected with Daffodils, but I think he may be wrong in this. When I came to Edge sixteen years ago, I found two kinds of Poet's Narcissus growing in the garden like weeds—the double Poet's Narcissus and the common single form, called by Mr. Barr recurvus. These have been transplanted from all parts to all parts of the garden in very different soils, but I have never observed or even suspected any change from single to double or from double to single. The double, though not very full double, never become single, and never (as they no doubt have done in many places this year where the soil is poor) make blind spathes owing to cold drought in early spring. The single also invariably keep their character, though they do not flower so freely as the double. Mr. Barr might infer from this that they are equally constant to form in all gardens, but besides many indefinite statements about single Poet's Narcissus turning double, I have evidence from at least two gardens that a few years ago there were no Poet's Narcissus in the garden. That many single bulbs were planted; that these produced all single flowers for one or two years, and then began to become double, and that now every flower of the species in the garden is double. Now, this is a kind of evidence which of course Mr. Peter Barr is at liberty to reject, but if we disbelieve everything which is not proved by our own experience, our stock of knowledge will advance slowly. I hope to prove in two years that the double Post's Narcissus is nothing more or less than the double of the common single garden form named in catalogues recurvus. There are slight structural differences which might easily take place in the passing from single to double. The white petals of the single form are reflexed and doubled inwards longitudinally, and are rather longer and more acute, but the most important difference is in the tube. In the single flower the tube is twice the length that it is in the double flower, exclusive of the seed-pod, which in the double is entirely absent; but this suppression of the seed-pod which takes place in doubling may account for the change in the tube. It would be interesting if others who have observed the change from single to double in the Poet's Narcissus would record their experience. I have observed that the more double the flower the shorter and thicker the tube becomes, and in two or three semi-double flowers I find the vestige of a seed-pod and a comparatively long tube. C. WOLLEY DOD.

Edge Hall.

RAISING GLADIOLI FROM SEED.

I HAVE found in practice that quite as good results are obtained by sowing Gladiolus seed in the open ground as by any system of coddling under glass that can be adopted. I do not say that if I had a two-light frame to spare I would not place it over the seed bed, to enable me the better to shade the bed, so as to keep the surface moist until the seedlings came through; but I would not use it after that time, as I find the young plants grow stronger without any protection than with it. In raising seedling Gladioli, the principal points to observe are, not to sow the seed too early, and to have a fine rich soil and a warm, sheltered position for the bed. It is of the greatest importance that the soil be rich and broken up into fine particles. Where the soil is lumpy and hard, it should be sifted, so that there is a depth of 4 inches of good material for the roots to work in. The seed should be sown in drills half an inch in depth and 4 inches apart, and be lightly covered with fine earth. Thick sowing should be avoided, for if the plants stand

too thickly in the rows the bulbs will be small. As a matter of fact, it all depends on the first year's treatment whether the bulbs will flower the second year or the third. If grown thinly in a good soil, in a warm position, many of them will flower the second year; but if the plants are crowded in the rows, they will not get large enough to flower until the third year. The summer management of the seedlings is a simple matter. All that is required is to stir the surface of the ground occasionally for the purpose of destroying weeds, and to keep them well supplied with water in dry weather. Seedlings, like old plants, must have a sufficient supply of water to make satisfactory growth, and this must be continued up to the end of September if the weather should be dry. The behaviour of young seedlings is very different from that of young plants raised from the young bulblets The seedlings will keep on growing as long as mild weather lasts; but those raised from bulblets will begin to die away early in September, and no amount of coaxing will stop them from going to rest; in mild winters I have known seedlings to keep green up to the middle of December, and while there is no danger of severe frost, there need be no anxiety concerning them, as they are better in the ground than out of it; but to obviate any risk they had better be taken up by the middle of December. Directly they are out of the ground the bulbs should be buried in dry sand, with the green tops left on them. At one time I laid out the young stock to dry on the floor of a loft, but I found that the air shrivelled up the young bulbs more than was good for them. I now store the roots away in dry sand, and a fortnight later cut off the stems and leaves to within an inch of the bulbs. The stock is then laid out on the bottom of some shallow boxes, and a layer of dry sand put over them to keep the air from them. In order that they may be as cool as possible I place the boxes on the damp floor of a shed, from which severe frost is excluded, and as the bulbs of Gladioli, whether old or young, suffer by being kept too long out of the ground, they should be replanted by the middle of March, or as soon after that as the state of the ground will allow. A warm position and a rich, strong soil are necessary in order to secure vigorous growth. J. C. C.

THE GREAT WELSH CHALICE FLOWER.

(NARCISSUS INCOMPARABILIS SIR WATKIN OR JAMES DICKSON.)

THIS accidental seedling, raised fifteen or sixteen years ago by Mr. William Pickstone (who then resided in Merionethshire), is without a doubt the finest variety of all the Peerless Narcissi, or Chalice Flowers. This is saying a great deal, but it is true. Its origin, like that of nearly all other seedling Narcissi, is buried in obscurity, and speculation as to what its probable parents may have been reminds us of the genealogical discussion indulged in by a couple of negro philosophers. "Can you tell me," said Sambo, "who am de mudder of de chickens, the hen which lay de eggs or de hen which hatch de birds?" "Oh, dat am easy," rejoined Pete. "De hen dat hatch de chickens, of course." "Well, den," said Sambo, "sposin' dey was duck's eggs?" The plain moral is, let us be satisfied with our new plant, seeing that in the case of this Chalice Flower the results are so bold and beautiful. Mr. Pickstone grew this plant for some years, and during the past season or two he was tempted to dispose of its flowers; hence they have appeared at Manchester, Liverpool, Covent Garden, and probably elsewhere. Fortunately, Messrs. James Dickson, of the Newton Nurseries, Chester, saw the plant, and when I went to read my paper on Narcissi at South Kensington on "Bismarck's birthday" (April 1), my friend, Mr. Douglas Dick, handed me a box which had come for me by post from Messrs. Dickson containing half-a-dozen fine blooms. I showed these flowers to Mr. Barr, Mr. Perry, and Mr. Walker, and to many other visitors and friend, and soon afterwards wrote to Messrs. Dickson telling them, first, that they had obtained a "good thing;" secondly, that the variety was a new and unnamed one; and, thirdly, that as seedling Daffodil names were to be popularised for the future, their variety might be called N. incomparabilis James Dickson, or Dickson's Peerless Narcissus, whichever name best pleased them. Their choice fell on the first one, and on the following Tuesday (April 8), they received a first-class certificate for fine blooms of it exhibited under that name. Its fully-developed flowers measure 5¼ in. in diameter. We have one or two other varieties of N. incomparabilis fully as large, but none having the same breadth and substance in the perianth segments. The colour of the perianth divisions is a rich sulphur, and the deep chalice-shaped cup is bright aureolin yellow, tinged with deep orange-yellow near the margin. Mr. Pickstone, who deserves all possible credit as the originator, or at least the preserver and cultivator, of this fine plant, seems to have "entertained an angel unawares." Its beauty doubtless pleased him, but for 15 years he neither sought name nor popularity for it, that much being left for its now owners, Messrs. Dickson, to do. No sooner had it been named, certificated, and figured, however, than Mr. Pickstone expressed a wish for it to be called Sir Watkin, a name highly honoured among Welshmen of all classes. I am sorry this wish was not expressed sooner, as it would then have been gratified. At the same time, it does not appear who has a better right to the dedication than have its owners, always excepting the actual raiser or introducer of a new flower. It is very pleasant to know that the whole available stock of this fine plant has been secured by Messrs. Dickson, who generously have waived all claim to the name, and who propose to distribute it under the name of Sir Watkin during the coming season; hence this finest of all the Chalice Flowers will soon be a welcome guest in all good gardens where Daffodils are grown. F. W. B.

PRESENT DAY FLOWER GARDENS.

THE aspect of our flower gardens has greatly changed within the past few years. Not much more than ten years ago—a very short period in one's experience—the bedding-out style had just reached its climax, and an advocate of that style then wrote as follows concerning it: "It must, I think, be admitted that the work of the gardener is now much more an art than it was a quarter of a century ago. The office of art is to educate the perfection of beauty; and if detaching objects from unmeaning and embarrassing variety be one of the virtues of art, I think it will be allowed that the present style of flower gardening has a higher claim to that virtue than any that has preceded it." This proposition might do if it had had a more general application; but it only related to the "art" of bedding-out, which not only "detached objects from unmeaning variety," but "detached," speaking within the mark, probably 80 or 90 per cent. of our pretty and most attractive flowers from the flower garden altogether. It failed to "educate the perception of beauty," because it did not admit the best objects of garden beauty within its ken. This was the fatal fault of the style, and it was the realisation of this that dealt the death-blow to the bedding-out system as soon as people were led to see it clearly. Many gardeners of the present generation are not in any way to blame for adhering to the bedding system, for they never knew any other. Last autumn a gardener in a noted place, where the common bedding style has been all in all for years, wrote to me for a list of good hardy plants, confessing that he was "sadly deficient" in the knowledge of these. This was from a gardener in every other way excellent, and it describes the position of many besides him. At the time referred to the horticultural papers teemed with reports of the bedding at this place and the other place, and hardly a word was said of any other kind of out-door decoration. Look at the same papers now! Nothing could be more indicative of the change of taste and style. Every nurseryman now seems to make hardy plants a speciality, and advertises them accordingly; the papers, too, are filled with articles on our old-fashioned hardy plants that had been so long despised and neglected. No one now boasts of his bedding arrangements, but, on the contrary, refers to such topics in a rather apologetic tone. I am not, of course, anxious to prove that the bedding style

Festuca elatior.

will soon be obsolete, nor do I desire that it should be quite abolished, but it has been ousted from the position that it held, and has been replaced by a style which cannot be called a mere fashion, because its scope is so very much wider, and makes us acquainted with an immensely greater variety of beautiful flowers of different and distinct habits, providing a far greater diversity of garden decoration and arrangement, and placing the whole "art" on a much higher level than before, when the said art consisted in combining and re-combining yearly the same subjects on the most monotonous lines. During the bedding craze the mistake which gardeners fell into was the idea that there were only two possible styles—viz., the bedding style and the "old mixed border," which was continually being contrasted with the other. A more familiar acquaintance with hardy plants, however, has shown that the mixed border is only one phase of hardy gardening, and not the best, and that the same subjects can be massed and arranged in an almost endless number of combinations, that would have been quite impossible with the few bedding plants at our disposal in past times. We now see nothing objectionable in a bed of Carnations, Lilies, Phloxes, Delphiniums, Harpaliums, or anything else, and the eye has ceased to crave for those geometrical combinations which were once considered necessary in every flower garden proper. No class has greater reason to rejoice at this state of things than those small gardeners and amateurs who had begun to copy the great gardens in the bedding style, and with anything but success or advantage; while large proprietors see their way now to have plenty

of flowers with less trouble and expense than formerly. It is true, good hardy plants are dear as yet, when much ground has to be filled; but they are getting more plentiful and cheaper every day; and once a stock is established, it is always a stock. The great point in all cases where it is proposed to employ hardy plants is to select with care; and the only way to do this is to make notes of flowers at the different seasons of the year. The nursery is the best place to judge of the suitableness of plants, because there it can be seen which species succeeds best, and which best suits certain soils and localities. S. W.

Tree or Perpetual Carnations.—I was much interested in the beautiful plate of these given last week in THE GARDEN, and in Mr. Douglas's article thereon. In Miller's "Dictionary," 1741, there are four classes, one of which, called Painted Ladies, had their petals red or purple on the upper side and white underneath. Mr. Douglas says that this is a type of Carnation quite unknown to him. It may interest him to know that the old Painted Ladies are not quite extinct. I got one from a package of seed obtained many years ago, and as I then considered it a great curiosity, I managed to preserve it ever since, though it is rather delicate, and never gives me more than one bloom on a stem. I shall send some specimens later on. It is deep reddish purple above and white underneath. During those years I never saw a reference to it before.—W. J. MURPHY, *Clonmel.*

ORNAMENTAL GRASSES.

WE have often some difficulty in reconciling ourselves to the use of Grasses as decorative subjects

Bromus inermis.

either for the lawn, the flower border, or the shrubbery. Many of them are looked upon as weeds, and doubtless weeds they are from a florist's point of view, but it is also true that some of those Grasses now never seen in a garden are worthy of being there for dinner table decoration, to which they would add as much grace as costly exotics. We are far from being in sympathy with those who grow nothing but beautiful flowering plants to the exclusion of those having graceful foliage or feathery heads of various forms and hues, and which, when properly managed, give quite as subtropical an appearance to mixed borders, &c., as do Castor-oil plants, Solanums, and many others more difficult to manage. Until recently the beautiful feathery-headed Pampas Grass and its varieties were seldom seen, even in the best of gardens, and now few are considered complete or too small to have a clump of them. Amongst others, plants of Arundo, Bamboo, Arundinaria, &c., with their peculiar Reed-like habits and modes of growth may be introduced with advantage into shady sheltered nooks, many of which are always to be found in gardens. These plants adapt themselves to the positions indicated admirably, at least in the neighbourhood of London, and even when grown in pots, sheltered during winter in a cool outhouse or shed, and plunged in the open about the end of April or beginning of May, the transformation would be at once agreeable and advantageous. Most of the other Grasses, with the exception of the Eulalias, and of course those just mentioned are strictly herbaceous, dying down in winter, and giving more facility for covering or protecting them from severe frosts or a superfluity of water, the latter being as damaging in its results as the former. Some of the Panicums also, such as P. bulbosum, P. capillare, Erianthus Ravennæ, Polypogons, Stipa gigantea, S. pennata (the Feather Grass), &c., are all very useful, together with many others equally interesting. Some of the dwarfer sorts, among them the Quaking Grass (Briza media), Poas, and Agrostis, are useful, and might be employed with very great advantage in the making of bouquets, wreaths, &c., as they can be dried, and when that is done carefully they may be had nearly as fresh-looking six months after as when cut. The annexed engravings represent three of the many Grasses that could with advantage be utilised in one or all of the several ways just enumerated.

FESTUCA ELATIOR is a native of Britain, where it is found growing in moist meadows and Osier grounds. It is of perennial duration, varying in height from 3 feet to 6 feet. Its leaves are nearly twice the size of those of F. pratensis, from which, moreover, it also differs in having drooping panicles spreading loosely and gracefully in all directions, with sharply pointed oval and less flat spikelets, and having the florets frequently awned, and in the case of strong-growing specimens faintly ribbed. It is to all appearance admirably suited to a moist, clayey soil, in which it is well worth cultivating for its ornamental character. F. flabellata, a fine strong-growing species, often forms dense tufts from 5 feet to 6 feet in height. In the matter of fragrance few, if any, can vie with our sweet Vernal Grass (Anthoxanthum), Hierochloa borealis, and some of the Andropogons.

ARRHENATHERUM AVENACEUM, or Avena elatior (the Oat Grass), is also found wild in this country, frequently in bushy places on roadsides and by hedges. It is of perennial duration, and generally forms bulbs or swollen joints, one directly above the other, from which it throws out innumerable runners, which assist greatly its capability of standing much drought. It grows about 3 feet in height. The flowers, which are produced about the end of June, are very pretty and conspicuous from a distance. It forms long spikes of fine feathery appearance, and should be on every lawn, either isolated or in company with the above.

BROMUS INERMIS is a native of Germany and the south of Europe generally. It is one of the few Brome Grasses that can be used with advantage for ornamental purposes. It grows from 2 feet to 3 feet high and bears erect panicles, wide spreading and slightly drooping and furnished with nearly beardless imbricated florets. The leaves are long, narrow, and smooth to the touch. It is a perennial, and flowers from June to August. It should be grown in wet places near the margins of lakes or swamps. Aira cæspitosa is also a native of our shores and one of the tallest growing of British Grasses; it is perennial and flowers profusely in June and July. It grows

Arrhenatherum avenaceum.

from 3 feet to 4 feet in height; the leaves are very narrow and rough at the edges. The panicles are large, much branched, and of a silvery grey colour; the florets have long hairs at the base, which give them quite a unique appearance. There is also a viviparous variety of it in which the awn is inserted above the middle of the valve, and another having small panicles of pretty purple florets; both are very interesting and should find a place in every pleasure garden or lawn, both on account of their peculiar and ornamental characters. D. K.

Border Carnations. — These now-a-days occupy almost a niche by themselves. They usually receive special culture, and are nursed through the winter with great care. It requires an effort on the part of some people to believe that they are as hardy as the common Sweet William, another member of the same family, but it is so. Border Carnations—by which is simply meant the better growing varieties of florists' Carnations—are propagated by layers or cuttings annually, about July, and these young plants are put out where they are to bloom in spring, the old plants being thrown away. Such young plants, if there be enough of them to plant them thickly on the border, will produce a good effect; but the most that a one-year-old plant can do is to produce one flower-stalk, or two at the very most, and several flowers. This is not a great result; therefore we counsel growers to give up the annual propagation of flowering plants, and to keep the old ones,

layering the shoots if they like, but leaving them on the spot to swell the mass of flowering growth round the parent plant. In this way a large plant is formed by the second year, and it produces a great quantity of flowers, such as it would require a number of young plants to do. In short, the best plan with border Carnations, where quantities of flowers are wanted with the least labour, is to keep all old plants as long as they appear to grow freely, and make up blanks only by means of young stock. I have often seen masses of Carnations that were six or seven years of age, and these had been divided from former masses that had spread and rooted naturally. When beds of Carnations and Pinks are formed in this way they yield by far the greatest quantity of flowers, the latter being of size and substance, just according to the culture which the plants receive. Mulchings of cow or horse manure or good fresh loam are all excellent in their way, and keep the plants in vigorous health. Long and rather straggling kinds may be pegged down to the soil and covered over. It will not check them in any way, and they will root and make independent plants by August or September, when they may be transplanted. No tonguing or manipulation with the knife is needed, and this is the best way to propagate Carnations and Pinks in places where frames and other appliances are not available.—J. S.

Late-blooming annuals.—Where annuals are used to supplement the permanent plants in the flower garden and fill up vacant spaces, April and May are good months to sow for a display in July, August, and September. Many annuals, such as Candytufts, Virginian Stocks, Sweet Alyssum, &c., are soon in flower, and soon over, and hence to prolong their display it is needful to sow twice—in April and June—removing the first sown plants as soon as they run to seed. There can be no doubt about annuals producing a very bright and gay effect among hardy plants when most of the latter have done flowering, and for that reason they should be freely employed—the really good species at least. The striped pot Marigold Meteor is a really fine thing and very enduring; so are both the double and single French Marigolds, Everlastings, Dianthus Heddewigi, and Phlox Drummondi, all species that flower as long and as well as the best kinds of bedding plants. They should, however, be sown early in boxes in a warm pit, hardened off and planted out in May or June. In sowing hardy annuals, it is a bad plan to scatter the seed thickly in patches, as the plants come too thick as a rule, and get starved before they are half grown, hence they never flower well and are soon done. Isolated patches of annuals should be sown in rings, making a shallow furrow in the shape of a large O, and sowing in the furrow only. The plants meet at their tops when fully grown, and the patches are just as full as if all the space inside the circle had been sown, as the roots have more room and more food. Stocks and Asters are, of course, indispensable, and there is no better plan than sowing them early under handlights or in cold frames, and transplanting as soon as they have made a pair or two pairs of rough leaves. Beware of plants out of warm frames, such as are sold in the markets at the beginning of summer. They are handsome and really fine plants, but they need hardening off before planting where they are to grow, or the slugs will soon destroy them. The best plan is to sow in a few inches of fine, light, rich soil laid on hard ground, and simply covered by a glass light of any kind. When the plants have grown a little the light is removed; a few days harden both roots and tops thoroughly, and the plants lift readily out of the fine soil with all their roots attached to them, and transplant successfully.—J. S. W.

Irish Daffodils.—Lately I came upon Capax growing wild in a wood with wild Hyacinths, wild Veronica, Primroses, and wild Violets in clumps numbering many hundreds, and consisting of thousands of bulbs. Pigs and cattle were grazing over them. I have discovered a dwarf Daffodil which blooms in March that is certainly not in Mr Burbidge's book, and that Mr Brockbank, from blooms which I sent to him, says is similar to Dr. Brown's.—W. B. Hartland, *Cork*.

Fruit Garden.

Fruit Culture in the Carse of Gowrie.

The following extracts are taken from a paper read by Dr. Robertson, of Errol, at a recent meeting of the Perthshire Society of Natural Science: The cultivation of fruit in this country, said Dr. Robertson, especially in Scotland, has been sadly neglected of late. In the Carse of Gowrie, as well as elsewhere, many good orchards were allowed to run to waste. There has been a great outcry as to bad seasons, and not without good cause, but bad culture had, I fear, as much to do with failure as bad seasons, or, I should rather say, no culture. Many of the Carse orchards had no digging, no pruning, and no manuring, and yet under such treatment fruit was expected. In many of the largest orchards in the Carse the trees were completely covered with Moss, and the soil exhausted by wild Grass, and that stoloniferous plant known in the country by the name of "Crawtaes" (Ranunculus repens). In October last I had good opportunities of seeing many of the Carse orchards, as I was asked by the secretary of the Dundee Horticultural Society to collect all the specimens of Apples I could find for the Apple Congress at Chiswick. I also visited many gardens as well, and most of the good specimens I got were from gardens, clearly proving what I have always advocated, that good culture is the great secret of successful fruit growing. Collecting specimens was pleasant work, and it gave me a good opportunity of seeing many orchards and gardens at the most interesting season of the year. I sent to the congress over sixty varieties, some of them really beautiful, and large in size. Some of them were from my own garden, but by far the greater number was collected as just stated. One or two of the finest specimens which were particularly noticed, especially for their beauty, were from Gonrdiehill. The Lass o' Gowrie was particularly fine. One thing I particularly noticed in going through many of the orchards was the enormous number of Apples of a small size, quite unfit for market, with no names, or merely local names; many of them just Crabs or wild Apples, not even having colour, as many of the American Crabs have, to recommend them for cultivation anywhere. The only Crab Apple I saw with any pretensions to beauty or symmetry of form was in the manse garden, Pitrodie—a beautiful little round one, of a fine golden colour, tinted with red. I was truly sorry to see so many large orchards in the Carse with so very few of the large growing kinds, Apples that are really worth being sent to market, and likely to be able to compete with those brought from the Continent, and also from America. The Apples from Germany, as a rule, are of a larger kind, and higher in colour than what we grow in Scotland, or even Great Britain, hence the price they command in our markets. To remedy this as far as possible, and with this paper in view, I sent out a schedule of four questions to almost all the head gardeners in the Carse, and some of the most experienced market gardeners and orchard keepers, asking what Apples and Pears grown at present in the Carse orchards are unworthy of being cultivated on account of smallness, bad quality, or bad bearing. Also, what kinds they would substitute in the place of the bad ones, as more suitable for market and home consumption—at the same time asking them to make what remarks they thought proper on the subject. I did this with the view of laying before the members of the society and the general public a synopsis of the pomological lore of the Carse in the shape of a good list of Apples and Pears that are really worth cultivating, and fit either for market or home consumption, and able to cope with foreign importations.

From the returns sent me I learn that a great many Apples and Pears in the Carse that are not worth cultivating have only local names, and many of them no names at all; and the kinds that are worth cultivating are not so very numerous, notwithstanding the vast number of varieties that are grown throughout the length and breadth of the land. In the Apple-voting there were nineteen in all—fourteen head gardeners and five market gardeners and orchard keepers—all men of great experience in fruit-growing as well as fruit-packing and selling. A few of the gardeners have had from forty to fifty years' experience, and some of the orchard keepers have had from five to twenty of the principal Carse orchards under their care. Well, I will now give the result, which I trust will be useful, not only to growers of fruit in the Carse, but also elsewhere, in making a good selection either for garden or orchard:—

Apples.—Lord Suffield, 18; Keswick Codlin, 15; Tower of Glamis, 16; Stirling Castle, 15; King Pippin, 12; Hill's Seedling, 12; New Hawthornden, 12; Dumelow's Seedling, 11; Warner's King, 11; Irish Peach, 10; Yorkshire Greening, 9; Lord Dunmore, 9; Phillips' Seedling (Celini), 9; Lass o' Gowrie, 8; Kentish Codlin, 7; Nonesuch, 7; Early Red Margaret, 7; Manks Codlin, 6; Arbroath Oslin, 6; Ribston Pippin, 5; Kerry Pippin, 5; Irish Green, 6; Grey Leadington, 3; Golden Pippin, 4; Echlinville Seedling, 6; Cambusnethan Pippin, 5; Blenheim Pippin, 4; Revelstone Pippin, 6; Ringer, 4; Strawberry Late, 4; French Red Streak, 4; Baldwin, 3; Cox's Orange Pippin, 3; Eve Apple, 3; Fullwood, 3; Fair Maid of France, 3; Lord Derby, 3; Northern Spy, 3; Paradise Pippin, 3; Strawberry Early, 3; Wallace Cluster, 3; White Captain, 3; Standard, 3; Rock, 3; Alfriston, 2; Adams' Pearmain, 2; Astrachan Red, 2; Astrachan White, 2; Bedfordshire Foundling, 2; Baxter's Pearmain, 2; Beauty of Kent, 2; Blenheim Orange, 2; Dutch Codlin, 2; Irish Codlin, 2; Cornish Gilliflower, 2; Claygate Pearmain, 2; Devonshire Quarrenden, 2; Early Julien, 2; Emperor Alexander, 2; Fillbasket, 2; Green Sweet, or Colville, 2; Grenadier, 2; Reinette du Canada, 2; Maiden, 2; Norfolk Bearer, 2; Orange Pippin, 2; Pott's Seedling, 2; Wadhurst Pippin, 5; Woodstock, 2; Betty Geeson, Calville Malingre, Cockle Pippin, Carlisle Codlin, Dutch Mignonne, Fearn's Pippin, Jolly Beggar, Jenny Lind, Little John, Leyden Pippin, Margil, Nelson's Glory, Norfolk Beefing, Pearson's Plate, Rymer, Royal Russet, Yellow Ingestre, Sam Young, Small's Incomparable, Striped Beefing, Summer Thorle, Waltham Abbey, Winter Greening, Williams' Favourite, Yorkshire Beauty, Green Stoup, Painted Lady, Ashmead's Kernel Improved, Annie Elizabeth, Lady Henniker, Northern Greening, and Winter Pearmain—all one vote each.

Now, by these nineteen voters, about one hundred kinds have been voted in as good, and all deserving to be cultivated. The majority of the kinds I had the pleasure of seeing last autumn, and can bear testimony to the care with which they have been selected. Some of them are not so well known as they should be, or they would have got more votes. I might instance the Lass o' Gowrie, which, although pretty high up in numbers, should have been further up, as it is one of the best early Apples we have. Then there are Annie Elizabeth, Lord Derby, Emperor Alexander, Lady Henniker, and Waltham Abbey, all really first-class Apples, which would be more cultivated were they better known. Lord Suffield, which is highest in the list, well deserves the place it occupies, as it is a free grower, a free bearer, having a hardy and beautiful bloom. The trees are not liable to canker, can be grown almost to any size wanted, and thrive as well on the Crab as the Paradise stock. I know an amateur, about half a mile from Errol, who had them the other year 17½ ounces on a tree grafted by a working man, and on a Crab stock from the woods. I must not omit to mention another new Apple, raised by a great botanical friend of my own, the late John Brown, of Murie Gardens. It was exhibited for the first time at the Dundee show last autumn by his son, the present gardener of Taybank, Errol, and was first-prized for table Apples in the gardener class.

For Pears only seventeen voted—fourteen gardeners and three orchard keepers—and the result is as under:—

Hazel or Hessle, 14; Crawford, 11; Swan's Egg, 9; Galston or Moorfowl's Egg, 8; Williams' Bon

Chrétien, 7; Craig's Favourite, 7; Beurré d'Amanlis, 6; Jargonelle, 6; Marie Louise, 5; Benvie, 5; Beurré Diel, 5; Easter Beurré, 4; Beurré de Capiaumont, 3; Autumn Bergamotte, 3; Dutch Bergamotte, 3; Flemish Beauty, 3; Grey Honey, 3; Josephine de Malines, 3; Citron des Carmes, 2; Croft Castle, 2; Black Auchan, 2; Beurré Rance, 2; Broom Park, 2; Green Chisel, 3; Hacon's Incomparable, 2; Louise Bonne of Jersey, 2; Longville, 2; Souvenir du Congrès, 2; Passe Colmar, 2; Napoleon, 2; Nondescript, 2; Beurré Bachelier, Bergamot d'Esperen, Bishop's Thumb, Beurré White, Black Pear, Catillac, Colmar d'Eté, Cripple Fiddler, Beurré d'Aremberg, Beurré de l'Assomption, Clapp's Favourite, Duchesse d'Angoulême, Drummond, Duncan, Summer Doyenné, Glou Morceau, General Todtleben, Green Yair, Jersey Gratioli, Huntingdon Early, Madame Treyve, Maréchal de la Cour, Pitmaston Duchess, Suffolk Thorn, Thomson's Pear, Winter Nelis, Yat, Aston Town, and Uvedale's St. Germain—all one each.

The last-named has been known to grow 3 pounds in weight. While still speaking about Pears, let me give a list of some I had the pleasure of seeing growing in pots this season, and their weight when taken off: Doyenné du Comice, 17 ounces; Beurré Bachelier, 14 ounces; Beurré Diel, 15 ounces; Fondante d'Automne, 1 pound; General Todtleben, 13 ounces; Glou Morceau, 12 ounces; and Nouvelle Fulvie, 14 ounces. All the above were in one little glasshouse, but with no artificial heat. Here is a list from another garden, and under glass also: Lieutenant Poideven, 16½ ounces; Duchesse d'Angoulême, 12½ ounces; Pitmaston Duchesse, 13 ounces; Madame Treyve, 10½ ounces; General Todtleben, 14 ounces; Maréchal de la Cour, 15½ ounces; and Soldat d'Esperen 12½ oz. This will give you some little idea of the size Pears can be raised to in pots, under favourable circumstances, and well attended to otherwise. Now, you must not go away with the idea that because these fruits were grown under the shelter of a glasshouse, they cannot be grown almost as well outside. If grown in pots, and liberally treated and placed in a sheltered situation, they will grow to an immense size. You will perhaps be surprised when I tell you that I saw some of the same Pears I have already named grown in another garden under glass, but with no artificial heat, some of them in 9-inch pots—pots not larger than you grow an ordinary sized Pelargonium in—with from six to eighteen large Pears, from 12 ozs. to 1 lb. in weight. The finest coloured and largest King Pippin Apples I met with last season were grown in a pot at the edge of the front door of Mr. Wilson's garden, Cuba Terrace, in the village of Errol. I had the pleasure of exhibiting them at a lecture I delivered in Kinnaird in February last on cottage gardening, and they were so highly coloured that some of the audience took them for Oranges.

SETTING MELONS.

An amateur Melon grower told me the other day that he never found any difficulty in growing fine leaves on his Melon plants, but was often wofully disappointed by the disproportionately small quantity of fruit produced—very often, he said, not having more than one fruit to a light. This is a common complaint among Melon growers who are not acquainted with the habit of the plant. In growing Melons the next principal point to securing healthy plants and fine foliage is to secure an even balance in the branches, and thereby get the crop of fruits set all at or near the same time. Unlike the Cucumber and other fruits, when once a fruit is set on a Melon plant in advance of the others and begins fairly to swell, that fruit runs away with all the growing power of the others, which will hang for a time without increasing in size, and then turn yellow and drop off. We grow many Melons, and never knew two Melons to swell and ripen on the same plant if any one fruit had two or three days' start of the others, while we have seen one plant of the same variety swell half-a-dozen fruits that had all been fertilised at the same time or thereabout. It is all a question of a little management and training, which I shall try to explain. The Melon flowers freely enough, and if the plant is allowed to attain a good size before it bears there is seldom any difficulty in getting as many fruits on a plant as it can sustain; but the rule with cultivators is to secure fruit as soon as possible, when the flowers are not numerous, and hence few can be got to the right stage together, and although they may be fertilised only one or two may swell. Proceed as follows, however, and the result will be better: If the plant has two limbs—say one growing towards the back of the frame and one towards the front—they will continue to lengthen, but will most likely show male flowers only. They should, therefore, have both their tops pinched off at the same time when from 2 feet to 3 feet long. This will cause them to push from two to four side shoots or laterals on each limb, and, unless the plants are too young and vigorous, these will show female flowers that will expand all about the same time, when they should be fertilised with pollen from the male flowers by means of a camel's-hair pencil. In this way from four to eight fruit may be had on a double-limbed plant, and half as many on a single-limbed one, and the plants need not be more than from 2 feet to 2½ feet asunder. We have always secured the most regular crops in this way without any trouble; it is simply a question of methodical training. Should the plants not show fruit at the first laterals, these laterals must be stopped just as the main limbs were, both sides at the same time, leaving a joint or two each time till they do show fruit, and when the fruit is set these shoots should be pinched beyond it at every two or three joints. Any laterals which show lower down the plant should be simply stopped as they grow, but the fruit should be secured on those nearest the top if possible. A properly-trained Melon should be in shape like a double-headed letter T, that is, with two arms on each side, and each arm should bear one fruit several pounds in weight. Nothing is easier than to train a plant in this shape by judicious pinching.

S. W.

INCIDENTS OF VINE CULTURE.

Renewing an old vinery is an operation with which many gardeners have to deal in the course of their experience. Twice have I had to face the difficulty of renovating old Vines that had been driven into premature decay by sheer neglect. The first attempt was so successful, that whenever an opportunity occurred I determined to pursue the same plan. The house was a small one planted with Royal Muscadine, which had borne no Grapes fit to eat for years, owing to their being persistently attacked by mildew. What ought to have been the Vine border was covered with weeds and shrubs of no importance. Of course, nothing could be done with the Vines until a good border for the roots was provided. We therefore dug out a trench parallel with the front wall outside the house, and at a distance of 9 feet from it; the trench was about 3 feet deep. If it had been a large house I would have gone 6 inches deeper. The whole of the space in the front of the house—9 feet in width—was excavated with forks, the work being done carefully in order to preserve as many sound Vine roots as possible. There were very few, but such as we found were tied up for the time close to the front of the house. A few that had run deep into the subsoil close to the front wall were left there to support the Vine in the meantime. We then put brick-bats to the depth of 6 inches or 8 inches for drainage. Over this we placed some turf with the grass side down. This or something else is necessary to prevent loose material from mixing with the drainage. The compost, which consisted of decayed turf and rotten manure, was filled in to within about 6 inches of the surface; the few roots found were spread out over it, and over them was placed another foot of soil, covering up finally with a few inches of decayed manure. The following season the Vines were not forced, having been severely pruned in order to obtain good bearing wood for the next season. Of this we had sufficient; it ripened well, and the second year after making the border we cut just 100 bunches from this small vinery, 15 feet long by 11 feet wide. The Grapes were of good quality, and mildew was kept entirely in check by thoroughly washing the woodwork of the house and the Vines with soapy water in winter, and then painting the latter with the usual sulphur, soap, and tobacco liquor mixture.

Late vinery border at Loxford Hall.—This I renewed as follows: The Vines, which were planted inside, had a well-prepared border in the first place to root into both inside and outside. The inside border was well filled with roots; the front wall was built on arches, plenty of space being thus allowed for the roots to run out, and of this they fully availed themselves, for they ran through the prepared border 12 feet wide into very unsuitable gravelly soil beyond it. Early in October it was determined to lift the roots while the Vines were bearing a full crop of fruit. We began at the outside of the border, dug the soil out to its entire depth, saving the roots as much as possible, and carefully eliminating them from the soil with forks. This operation was carried quite up to the front wall, and so well did the roots in the inside border sustain the Vines, that not a leaf hung down, and the fruit finished off well—quite as well as if no roots had been interfered with. The following season the roots had a chance to run into the new border, and this they did to the great benefit of the Vines. Roots in a late vinery have a stronger tendency to run outside than to remain inside. The border gets warmer at that time of year, owing to the sun shining strongly on the part of it immediately in front of the vinery wall, and the heat from the brickwork must also further help to raise the temperature of the soil there. A dressing of decayed manure about 3 inches deep should always be placed over the surface of Vine borders outside; it encourages the roots to come to the surface. Another not uncommon incident in Vine culture is the production of

Aerial roots on the branches of the Vine. A good Grape grower does not like to see such roots, and the usual verdict pronounced is, "Something wrong with the treatment," or, "The border is not right." I have proved again and again that first-rate Grapes and aërial roots may be produced at the same time, and to the young beginner in Vine culture I would say, be not alarmed if your Vines produce such roots; they do the Vines no harm and may do good. Insufficient root action, combined perhaps with a moist, rather close atmosphere, may be the cause of such roots forming. Such conditions are at any rate favourable to their production. In our early vinery at Loxford Hall, from which many first prize bunches of Grapes were cut, we had quantities of these air roots; they began to appear at Grape-thinning time, and continued to grow freely until the berries began to colour. The house was started about the end of November, or early in December, in order to get ripe Grapes about the last week in May. We started the house with a temperature of 45°, which was increased to 50° as the buds began to move, until the third week in January, when by a gradual rise it had reached 65° as a minimum, with a moist atmosphere. We were careful, of course, to cover the outside borders, and also to water the roots with warm water, but with all our care the borders could not be kept sufficiently warm, in which case the action between root and branch could not be reciprocal; the warm, moist atmosphere above being favourable to the production of air roots, they were formed under the unnatural conditions to aid in the full development of leaf, branch, and fruit. The value of borders heated by hot-water pipes was made apparent in that same vinery; at one end of it, where the hot-water pipes came in underground, was planted a Buckland Sweetwater, and I never before nor since saw such well coloured fruit of this variety as that which that Vine produced; while the other Vines that did not enjoy the advantages of a heated border produced air roots, this

one did not. Some 15 years ago, when I was engaged in investigating this question, a good Grape grower told me that he raised the temperature of his Vine borders by the aid of hot-water pipes underneath them to 70°; I need not, therefore, say that the production of air roots was not a source of anxiety to him. In the case of borders heated underneath there is a danger of the Vines suffering from over-dryness. Larger supplies of water are therefore a necessary consequence of this arrangement.

Warts on the under sides of the leaves are also caused by a moist, warm atmosphere, but I do not think there is any connection between these warty excrescences and insufficient root action, and I have not found that the Grapes were in any way injured by their appearance. Since the Phylloxera has appeared in our vineries, warty Vine leaves have been in some cases the cause of considerable alarm. It is easy enough, however, to distinguish between the two. The result of an invasion of Phylloxera is shown by the formation of protuberances on the backs of the leaves, but these are raised to a greater height than ordinary warts, and on cutting one of them through it is found to be hollow, and to contain the insect—the cause of its production.

Rust on Grapes.—Well-grown Grapes must be free from rust, and they must not be touched with water from the syringe. We try to get rid of that inveterate pest red spider by painting the well-heated hot-water pipes with flowers of sulphur. A strong dose of this may kill the spider, but its influence is seen on the disfigured skin of the Muscats. It does not injure the skins of Black Hamburgh, and Buckland Sweetwater may escape, but the delicate amber tints of the Muscats becomes utterly defaced. A good plan is to watch for the first appearance of red spider, and to destroy it by carefully washing the leaves by hand with a solution strong enough to kill it. Of course washing would be too tedious if the pest was all over the house; it must be attacked when first seen, and before it has time to spread. Rust is sometimes caused by the berries being exposed to cold winds at the time when they are being thinned.

J. Douglas.

THINNING FLOWERS AND FRUIT.

Whether we gardeners as a rule pay sufficient attention to the subject of early thinning both flower buds and fruit is an open question, but I am inclined to think that there is greater benefit to be derived from the practice when judiciously done than is generally acknowledged. I have been working out for the past few years a somewhat regular and systematic system of thinning both flower buds and the young incipient fruits, and I am fully persuaded that considerable benefit accrues from doing so. Our Peach crop has benefited by it. My practice has been to remove quite one-third of the blossom buds as soon as they have attained sufficient size to be handled; on trees trained on wires I removed every bud that was underneath the branches before they began to show colour, yet there was then left on the upper side of the shoots more than were wanted, but that those left were benefited by the operation was evident judging by the size and substance of the flowers, and the number of fruit that swelled off exceeded that of any previous year. A particular Nectarine tree not operated on last year was dealt with this, and in every respect I consider the condition of the tree improved. When any tree has formed more blossom buds than it can mature in the shape of fruit, the overplus must be an unnecessary tax upon its resources, even if only allowed to develop into the first stage of production. I do not advocate carrying thinning too far, but if done in a proper manner I maintain that it is quite possible to relieve our fruit trees of an unnecessary strain. In the matter of reducing the number of blossoms, I have only yet in my own practice got as far as removing one-third, but I am satisfied that, in many cases, it will be quite safe and an absolute advantage to extend the operation to one-half, and if one had the time the practice might be extended to Pear and Plum trees on open walls. Morello Cherries would, it is quite plain, be benefited, for they usually are overburdened with blossoms.

In regard to thinning the young fruit, the operation cannot well be begun too early, but the work should be done at two or three different times. For several years we have thinned our Pear and Plum crops where they have set too many fruit; already we have been over some young Pear trees on south walls, and operated on such early sorts as Doyenné d'Eté, Brockworth Park, and Jargonelle. In doing this we have had regard to the size of the fruit each sort is likely to attain when arrived at maturity. Those varieties which never produce large fruit are able to carry a greater number than sorts that are known to grow to a large size. Marie Louise, General Todtleben, and Williams' Bon Chrétien are all varieties that it is desirable to thin out rather severely where set too thickly. Exhibitors of Strawberries are fully alive to the importance of setting aside a sufficient number of plants to afford the choice of selecting the best fruits. These plants are carefully looked over, and the best formed fruits only are allowed to remain, the small ones being removed before they have time to weaken the plants. Exhibitors of Gooseberries and Tomatoes work on the same lines, because if they did not do so they would not get larger fruit than other people. Growers of Cucumbers who wish to keep up a continuous supply from a limited number of plants must be constantly cutting away the young fruit, so as to balance the crop, because if the plants are allowed undisturbed to produce their fruit they would soon exhaust their strength, and the supply come to a sudden stop. When left to fruit in their own way no plant is so uncertain as Cucumbers, and yet with an ordinary amount of attention in apportioning the number of fruit according to the space, there are not many plants so certain and productive.

If we turn to flowering plants, we may instance the Rose as being much benefited by thinning out the buds as soon as they are large enough to be seen. Some varieties of Roses produce more buds than others; therefore the number to be removed depends on the condition and habit of the variety, but all are benefited more or less by the judicious and timely thinning out of the smallest flower-buds, and such varieties as Alfred Colomb, Jules Margottin, Exposition de Brie, Peach Blossom, Boule de Neige, Charles Lefebvre, Annie Laxton, Madame Lacharme, E. Y. Teas, Marie Baumann, and Père Notting all invariably produce more flower-buds than they can support in a satisfactory manner. Growers of Dahlias for exhibition thin out the flower-buds rather severely; they never allow more than two or three flowers to be developed at one time up to the finishing point. Pinks, Carnations, and Picotees are plants that vary in the number of flower-buds formed according to the sorts, and if large and perfect blossoms are required, some nipping out of the small buds where they are crowded is necessary. J. C. C.

Thinning and shouldering Grapes.—If "W. I. M." made a fork instead of a point at the end of the stick which he uses for holding the bunches when thinning them, I think he would find it an improvement. With the fork there is less danger of the bunch or shoulder slipping, and it can be drawn or lifted into position more easily than in any other way. I also find sticks about the size of matches and of various lengths with a fork at each end, made by slitting the wood when damp about a quarter of an inch, and bending back one or both of the sides, to be most useful in holding out the shoulders in place of raffia in certain positions, such as the top shoulders on the lower side of the bunches. These shoulders are frequently on a level with the wires; and in such cases the forks are the best thing I know of for supporting them. Carefully lift the shoulder with the long stick, and, taking up one of those with a fork at each end between the points of the scissors, fix one fork against the centre stem of the bunch and the other end against the stem of the shoulder, and the operation is completed. At first this seems tedious, but with practice one is soon able to do it even more quickly than by shouldering in the ordinary way. Several forks of different sizes should be placed in a convenient receptacle, such as a small pan, and hung up by a wire close to the bunch to be operated on. Forks cannot, however, be used until the shoulders are sufficiently heavy to hang down naturally, which I rarely find them to do at the first thinning, but there is little danger of rubbing the bloom when carefully used. Perhaps your correspondent will kindly say whether the fine wire of which he speaks ever injures the stems of the shoulders when the latter are heavy. I should expect them to be cut, but have had no experience with it.—John C. Tallack, *Prideaux Place, Padstow.*

GARDEN FLORA.

PLATE 441.

CYMBIDIUM MASTERSI.

A graceful free-growing Orchid of evergreen habit well worth culture in all good gardens where heat-loving exotics of the usual stove plant order are appreciated. The individual flowers are neither so large, so massive, nor so showy as are those of C. eburneum or C. affine, but the gracefully nodding spikes as seen *en masse* are so beautiful in their own way, that one is amply repaid by giving the plant a little extra attention. Its natural habit of blooming at the dull season of the year may also be to some an additional recommendation, especially as the blossoms themselves endure long in beauty, and moreover possess a delicious almond-like perfume entirely their own. The flowers are pure ivory white with a suffused blotch of yellow on the disk of the lip. The particular variety we figure was drawn in the collection of Sir William Marriott, The Down House, Blandford, and shows a form having some rosy markings on the lip, while the inflorescence itself is also less dense than is usually the rule. When well grown C. Mastersi is an effective plant. It succeeds well in a compost of fibrous loam and peat, to which a few crocks are added on ample drainage. Abundance of water at the root when growing suits this plant, and even after its season of growth is over the compost should never be allowed to become dry. The plant has long been introduced to English gardens from the East, and it is figured in the *Botanical Register*, vol. xxxi, t. 50; also in Paxton's "Flower Garden," t. 78, and also in Lemaire's Jard. Fl., plate 289. Other good showy species of Cymbidium are C. eburneum, a species of similar habit, but with two to three-flowered erect spikes of much larger individual flowers; C. Dayi, from Assam, also resembling the last, but having a pendulous flower-spike, the flowers being ivory white with purplish markings on the lip. C. giganteum is a large and when well grown an effective winter-blooming plant from Nepaul, figured in "Sertum Orchidaceum," t. 4, and in the *Botanical Magazine*, t. 4814. It has long spikes of tawny-yellow flowers streaked with reddish brown lines. A fine greenish yellow-flowered variety of the last named, C. Lowi, is now in bloom in many collections, and is a great favourite in gardens generally for its graceful habit and free-flowering qualities. Another species long introduced, but now very rarely seen, is C. sinense, an erect growing kind with Sedge-like leaves and spikes of brown flowers not at all showy, but possessing the most delicious fragrance imaginable. Since C. eburneum has been cheapened by re-importations, C. Mastersi has been to some extent rather neglected, but no Orchid better

repays care and good cultivation. A spike of its snowy blossoms, if cut and arranged in a slender vase along with a few grassy leaves, will endure fresh, fair, and fragrant for several weeks in a drawing-room with an occasional change of water, and as to its growth, an intermediate or Cattleya house temperature suits it exactly. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

Euonymuses.—The variegated Japanese varieties of Euonymus are among the best of the many introductions of late years that can be effectively used for flower garden purposes, not their least recommendation being that they are all but quite hardy. The two recent severe winters somewhat injured plants of them in this district, but none were killed outright, and after such a trial it may safely be inferred that they will withstand our ordinary winters. The small-leaved kind (radicans variegatus) is in habit of growth half bushy and half climbing, and can, therefore, either be used as a covering for low walls and trellises or with a little attention to trimming be grown as a hedge. As a permanent edging plant to large beds cut and trimmed, as is usual with Box edgings, few plants are more suitable. The varieties aureus marginatus and argenteus marginatus are stronger growers, and have large and richly variegated foliage; the growth of both kinds is somewhat loose or straggling—a defect that is easily remedied by occasionally pinching out the points of the longest or unevenly developed shoots. Plants grown in bush or standard form make excellent and permanent centres for beds of high-coloured Pelargoniums or dark-foliaged plants, and for intermixing with bright green-foliaged plants in the outer lines of shrubberies they are invaluable. They strike best from cuttings made of the well-ripened wood of the current year's growth; hence autumn is the time to propagate them. Light sandy loam or peat, the cuttings well firmed in it, and the pots plunged in ashes in a cold pit protected from frost, are all that is needed to ensure a successful strike.

Bedding out.—With the exception of the most tender, such as Coleus and Alternantheras, all other kinds of summer bedding plants may now be planted, and in arranging them the less elaborate the designs and the quieter the colouring the greater and more lasting will be the enjoyment of the garden. Another thing to avoid in the arrangements is excessive formality or flatness; this is easily prevented by using at regular intervals over the beds such kinds of standard plants as will best harmonise with the other plants in the beds, such as, for instance, standard variegated Abutilons in a bed of scarlet Pelargoniums or the Fish-bone Thistle as a centre to a small circle of Lobelias, or standard Fuchsias in beds of dwarf foliaged plants. These examples will suggest others, the only point to be borne in mind in selecting these standards being, as we have said, that they contrast in both colour and habit with the plants forming the groundwork of the bed. Yuccas, Australian Dracænas, Grevilleas, tree Sempervivums, and Acacia lophantha are all suitable for this purpose. Taking into account the shortness of our summer season and the consequent transitory character of flower gardening when tender plants are used, every effort should be made to do without this section, or at all events to use them as sparingly as possible. Unfortunately, the rich chocolate colour which we get in Coleus, and the bright purple and orange in Alternantheras, are not to be had in hardy plants; hence, if we must have these colours, and they are all but indispensable, we have no choice in the matter. Another consideration to be taken into account when making these arrangements is the appropriation or association of various classes of plants together. There is to our mind such an inexpressible degree of incongruity in mixing, for instance, succulents with any of the ordinary kinds of bedding plants, that one marvels that such an error should ever be perpetrated. Used in moderate proportion to other kinds of bedding plants, succulents form an interesting feature in summer flower gardens, but under no circumstances should they be mixed with Pelargoniums, Petunias, &c., but only with nearly allied plants, such as Mesembryanthemums, Kleinias, Echeverias, and Sedums.

General work.—The tying up of plants in mixed herbaceous borders, weeding, and filling up vacancies in the same, thinning out and planting out annuals and biennials, such as Stocks, Asters, Phloxes, Wallflowers, Pentstemons, Antirrhinums, and Aquilegias, and the planting out of spring bedding plants and those that have been forced for cut flowers are operations all of which must now receive attention. Indoors the principal work is giving abundant space to sub-tropicals, and moving out to sheltered spots all those that can safely be risked out, giving Alternantheras and Coleus full exposure to the atmosphere whenever the weather is favourable, and potting up the last batch of cuttings of Coleus and Iresine.

INDOOR PLANTS.

Azaleas.—These are amongst the most accommodating plants we possess, for with sufficient stock and a suitable selection of kinds that have a natural disposition to bloom early, with others to follow and some that will bear being kept back, there is no difficulty in keeping up a succession from the latter end of the year until the middle of summer, but to do this it is necessary to vary the season of growth, encouraging the plants that bloomed earliest to make and complete their growth correspondingly early. Although this section of Azaleas will make growth and set their buds in an ordinary greenhouse temperature, still when so treated they make slow progress in gaining size, the wood being weak compared with that which is obtainable with a little warmth and a moist atmosphere; moreover, where considerable quantities of these flowers are wanted for cutting there is much gained by keeping them warm, as so managed the season's shoots attain double the length they otherwise would do, and can be used so much longer when cut—an advantage which those who have floral decorations to arrange cannot fail to appreciate. An intermediate temperature, with a moist, moderately confined atmosphere, secured by not giving much air, and this only for some six or eight hours in the day, is what they like. All hybrids of Indian and Chinese origin take more water at the root, especially whilst they are making growth, than most other hard-wooded plants would bear, and at the same time they ought to be freely syringed daily to keep down thrips and red spider. When those which flowered first have set their buds and got the current season's shoots well matured, they should be removed to a house or pit, where they can be given a plentiful supply of air, so as to be quite cool. Those that have recently bloomed should at once have the seed vessels picked off, and be treated in every way like those already described.

Epacrises.—Such of these as after blooming had their shoots cut well back, and have now made some growth, should be moved into pots a size larger, but it is well to bear in mind that none of the varieties can bear so much root room as many things; they are very impatient of the soil getting too wet, a condition that is much more likely to happen in the case of large than in that of small pots; a 2-inch shift is quite enough for any that are already in from 6-inch to 10-inch pots. Epacrises will do with peat a little closer in texture than some things; but it must have a liberal addition of sand in it, for if at all of a spongy character, so as to have a tendency to hold water, the roots are sure to perish. Pot hard and do not give water sooner after potting than is absolutely necessary, to avoid which see that the roots are sufficiently moistened before potting. The liability which these plants have to die suddenly when they appear in the best of health and there is no apparent cause is in most cases attributable to too much water at the roots; they need to be allowed to get drier before water is given than Heaths. If the young soft shoots droop slightly previous to its being applied it rarely follows that much harm is done. A slight sprinkling with the syringe on the afternoons of bright days will be an advantage.

Cyclamens.—Young stock of these raised from seed sown last summer will now require especial attention. To bloom them well in fifteen or eighteen months after the seed is sown there must be no time lost. The old method of managing these plants with cool greenhouse treatment was slow and unsatisfactory. The best results are obtained by keeping them growing from the time the seed germinates without rest in an intermediate temperature. Now, when the sun has got much power, they must not be fully exposed to it, or they will not grow kindly, the leaves never attaining their full size, and being much more susceptible than they otherwise would be to attacks from red sider. See that the soil is kept pretty moist; any that were sown late and not yet removed from the pots or pans in which they were pricked out should at once be put into small pots. Plants that have done flowering should be got together and placed in a pit or house where they can be properly attended to with water; the system of drying them off is altogether opposed to their well-being. Means ought to be taken to keep them free from insects, so as to preserve the old leaves in healthy condition. By this means when the time comes for their pushing up a fresh crop of foliage they will be much more vigorous and bloom again proportionately better.

Lapagerias.—These finest of greenhouse climbing plants are to some extent exceptional in their requirements. If grown in houses where any warmth is used further than is sufficient to keep out frost, they are excited to earlier growth, and under such circumstances I have found the young shoots and leaves very impatient of exposure to the full force of the sun, which not unusually has the effect of stopping the shoots from attaining their full growth, and causing the leaves to be deformed. Any aspect seems to suit these plants better than the south, yet if in too dark a position they rarely flower, however strong they may be, so freely as when more favourably placed in this respect. Now, whilst the young growth is in its tenderest condition, a thin shade of some kind should be applied and the soil should be kept well moistened, especially if the plants are grown in pots or tubs and the roots fully occupy the soil; but where small or medium-sized examples have been recently turned out in beds of considerable extent the earth must not be made too wet, otherwise it will get into a soddened condition, under which the plants do not thrive. Syringe every afternoon, getting the water if possible well to the undersides of the leaves; if this is attended to regularly, thrips, to which these plants are so subject, will be kept down, an essential point, for though the hard texture of the leaves prevents their being killed outright, still the insects feeding on them shortens their duration—a sad mishap when used for covering back walls and similar places in conservatories, for which purpose Lapagerias are well adapted.

Habrothamnus elegans and Cestrum aurantiacum.—These nearly allied plants do well on the back wall of a conservatory. The Habrothamnus is scarcely ever out of bloom, and the Cestrum flowers freely for a considerable time in the late summer and autumn. To do them justice they should be planted out, but if there is not room for this they must have good-sized pots and be regularly supplied with manure water when their roots get full hold of the soil, otherwise the quantity of flowers forthcoming will be proportionately reduced.

Heliotropes.—The small examples of these, such as are used for ordinary greenhouse decoration, are well enough in their way, but where quantities of these fragrant flowers are required for cutting late in autumn and during the early months of the year, and the houses are calculated

to accommodate them, some large plants should be grown either planted out on a back wall, if such is available, or trained to a pillar, for covering either of which few subjects can be more profitably used, as grown thus they will yield a plentiful supply of flowers. Should the new large white variety, White Lady, prove equal in freedom of blooming to the old kind, which has hitherto not been surpassed for general usefulness, it will be an acquisition. Its large size and decided colour commend it for a trial.

Plumbago capensis.—Few plants are more effective for greenhouse walls or pillars than this; and where it can be planted out so as to allow of its getting strong, it produces abundance of its lovely pale blue flowers for several months at a time. It should be grown in pots until it has attained some strength, or else the soil gets out of condition before sufficient roots exist to take possession of it. For decoration in 6-inch or 7-inch pots this Plumbago is an excellent plant. The present is a good time to strike cuttings of it for this purpose, as they will get nicely established before autumn.

Large-flowered and fancy Pelargoniums.—It is well to see that plants of these coming into flower are free from aphides; if not, they should be fumigated twice within six or eight days, so as to free them from these pests; for if affected with them when the flowers are expanded and fumigation has to be resorted to then, it will cause the blooms to drop in quantity. These, as well as Calceolarias now in flower, should be shaded from the sun, or their flowers will fall quickly. If a few cuttings of Pelargoniums are at the present time put in to strike, they will be good plants by the autumn, and will make large bushy specimens before the time of flowering next spring. Such cuttings can generally be obtained from the plants that are about to flower without waiting until the usual time of cutting down after they have done blooming.

Arum Lilies.—Plants of these that have been forced, especially if large, may now with advantage be split up into single crowns, putting some into pots to be grown on in them and planting the weaker portion out-of-doors. They will do well in ordinary soil in an open situation, and if a shallow trench is prepared for them it will be found to suit them. In this way they are easily kept supplied with water, of which in dry weather they can scarcely have too much; and so treated, they make more compact growth than in pots. In autumn they must be taken up and potted singly. They will flower in succession after the pot-grown examples are over, which latter are best for forcing early.

Fuchsias.—If the stock consists of early flowering varieties and others that naturally bloom later, there will be no difficulty in having plants of these in bloom from the present time up to late in autumn. Those not wanted to come in until considerably later should be no more exposed to the sun than is necessary to keep their growth stout, otherwise it is difficult to get them to grow much, so inclined are they to bloom after this time. Pinching the points once more of the shoots of the later portion of the stock helps to retard the flowering, but the plants so treated must have pots large enough to give them an increase of root room, or they will not bloom strongly. Let the old stock be frequently well syringed. This is necessary to keep down both aphides and red spider, either of which will much interfere with their growth, as well as with the healthy appearance of the foliage.

Bouvardias.—In whatever way the young plants, struck from cuttings in the winter, are to be grown through the summer, in pots or planted out in frames, they should be attended to in the way of stopping the shoots to prevent their getting long and straggling, studying the natural habit of the sorts grown; the close-habited B. Vreelandi grows bushy naturally. Do not let any small stock of these suffer through confinement of the roots in little pots, as if this happens they get into a stunted state. Where there is a large conservatory to furnish, some of the old plants that have been cut back may with advantage be grown on to a considerable size, as if given plenty of root space, say 12-inch or 13-inch pots, and the points of the shoots pinched in once or twice between this and the end of June, they will make large bushes that will bear a profusion of bloom through the latter part of the summer, at which time, independent of their always acceptable flowers, they will help to give variety at a season when blooming greenhouse plants are not plentiful.

FRUIT.

Pines.—Now days are getting a nice length and the resting period is comparatively short, early-started Queens may be subjected to a higher temperature than has hithertoo been advised, that is, assuming that very early fruit is wanted, and necessity leaves no choice, but it must be understood that express speed is not recommended or approved. To secure the greatest amount of good without doing much harm when plants are kept at 70° on cold nights, 75° when mild, and 95° after closing, they should be plunged with their heads close to the glass; some kind of covering, if only a shading blind, should be placed over the roof at night, and ventilation at this treacherous season should be confined to the apex of the house. If the fermenting beds are in good condition and the plants well plunged, root watering will not be a heavy item, but they must be regularly examined and supplied with a sufficient quantity of good liquid or guano water, and air moisture, so essential to the swelling of the fruit, must be secured by damping the walls, floors, and surface of the bed with the same, pure water being used for dewing the plants with after the house is closed for the day.

Successions that were shifted in March will now be growing freely, and will require careful watering and ventilation to keep them in good condition. A great number of Pine plants are much injured and often ruined by having too much water, by heavy syringing when the slightest dewing over would suffice, and by the barbarous practice of opening the front ventilators on a bright May morning, and so exposing the tender young growths to a cutting draught, when a moist, genial atmosphere would be better secured by keeping them closed and giving more air at the apex of the house. The temperature in this compartment may now range from 60° on cold nights to 68° when mild, and early ventilation, when the pipes are heated, will require attention; when the morning rise reaches 75°, gradually increase the day heat to 85°, and close in time for a temporary rise above these figures, with solar heat and moisture. If plants intended for starting in June have been kept dry and cool, the opposite extreme of heat and moisture will cause the greater part of them to throw up. Bring the soil into a nice growing condition by the use of warm generous liquid and feed the stem roots by forcing a little into the axils of the leaves with the syringe, but guard against excess, and defer overhead syringing until the plants are out of flower. Where hot-water pits are getting crowded and young plants require more room, a good fermenting bed, made of one-third manure and two-thirds Oak leaves with a deep Cucumber frame placed over it, will be found all that can be wished for the rapid propagation and growth of new stock.

Figs.—The fruit on early forced pot trees now ripening fast will be greatly improved in colour and flavour by full exposure to sun and light, as well as by a more liberal admission of air. The latter condition will naturally tend to a general lowering of the night temperature, which will do no harm provided it does not fall below 60°, and the maximum heat is secured once in twenty-four hours. Keep the trees clear of all useless spray, and pinch the points of strong shoots where there is no room for extension. Never allow the roots to feel the want of water, as, unlike all other fruit trees, the Fig when growing is furnished with an advancing crop in various stages of growth, which must be kept progressing. Syringe the stems and lower parts of the trees, and damp the floors every day, and after gathering all the fruit that is ripe, as we have previously directed, give the trees a thorough washing and shut up with sun-heat at a temperature of 85° to 90°. Thin the fruit in succession houses, stop or cut outside shoots and lay in leaders. Mulch with good manure, water and syringe copiously, and while ventilating freely through the early part of the day, see that the house is closed in time for solar heat to raise it to 85° on fine afternoons.

Vines.—Where late houses have been brought on in accordance with former directions, all the best winter and early spring kinds may now receive Muscat treatment until after the fruit is set, when 65° to 68° by night, and 80° to 85° by day, with a flush of sun-heat after closing, will keep them well in advance of the season, and allow time for cooler night treatment, by the admission of more air when the Grapes begin to colour. If Hamburghs are not likely to be in flower when shy setters require artificial fertilisation, a good supply of pollen may now be shaken into a box, which must be kept in a dry, warm place until it is wanted for use. Endeavour to keep the work well in hand in midseason house in which the Vines are now making rapid progress. Remove all surplus bunches from free setting kinds, discontinue stopping during the time they are in flower, and take advantage of early morning and dull days for thinning out the berries as soon as those which are properly set show signs of taking the lead. When all the bunches are thinned, give the inside borders a thorough watering with tepid liquid, mulch well with good manure, and encourage robust growth by giving plenty of air through the early part of the day, and by closing with sun-heat and moisture every afternoon. Early Grapes now ripe, or approaching that stage, may have less fire heat than they have hitherto received, but they must have sufficient to keep up a circulation of dry, warm air, and to prevent the temperature from falling much below 60° at night. Gradually reduce moisture, particularly towards night, but damp the walls and floors on fine mornings, and syringe the foliage copiously as the crop is cleared for the twofold purpose of cleansing it from dust and insects, and to induce a fresh break of laterals.

Peaches and Nectarines.—As the fruit in the early house approaches ripening, be very particular in the selection of pure soft water for syringing with. Turn aside any leaves which interfere with the free passage of sun and light, and give more air on fine mornings when the rooflights can be let down without exposing the fruit to drops of rain, which bruise and spoil the delicate skin. Give inside borders the final watering, mulch with some dry non-conducting material, and litter the floors with sweet soft hay. Many people at one time used to suspend nets or canvas under the trees to catch the falling fruit, but, independently of the fact that they spoil every Peach which falls into them, they are always in the way, and unless the fruit is wanted for home use, every Peach and Nectarine should be gathered before they are dead ripe and in danger of rolling off the supports which have been placed under them. When the Peaches begin to soften, maintain a dry warm atmosphere with a constant circulation of air; retard, if necessary, by shutting off all fire heat at night. Never wrench the fruit off the trees with the naked hand, as the slightest pressure produces a bruise, but with a pad of wadding in the left hand, gently grasp it near the base, sever the stalk with a pair of Grape scissors, and place it on squares of silver paper spread out in shallow-padded baskets. Remove it to a dry, warm room to ripen, or pack it at once in soft, well-beaten Moss if intended to travel.

In succession houses the growth of wood and fruit is unusually rapid, and as the numerous operations will closely follow each other, let good syringing and copious watering have the first care. If the roots are entirely under glass and the borders are well drained no one need be afraid of

over-watering a healthy growing tree, provided the water used is clear and its warmth is equal to the mean temperature of the house; neither need they allow it to carry more than a very small percentage of surplus fruit to compensate for dropping. Where the roots are outside the drenching rains we have recently had will have penetrated to the drainage, and all that is now needed is good mulching to keep in moisture and to draw the surface feeders up to the influence of solar heat. Follow up disbudding, tying down, and thinning in late houses. Syringe well about 6 30 every morning, ventilate abundantly, and ply the syringe again after closing for the day.

Melons.—As good Melons cannot be expected where the foliage ripens before the fruit, see that the roots are well fed, and the house carefully syringed every afternoon until the most forward show signs of changing for ripening. Plants growing in pots may receive more water as soon as the Melons begin to swell, but if planted on hills, watering should be deferred until they have attained the size of large Walnuts. Carefully preserve all the old leaves, thin out all spray, and support the fruit on small pieces of board before the weight becomes a strain upon the vines.

Melons in pits and frames cannot have too much sun and light. Ventilate with caution, and close about three o'clock with moisture when the fruit begins to swell. Attend to linings and coverings, as nights will be cold until after midsummer. Earth up successions with strong loam, and prepare fresh beds for successions by the time frames now full of Potatoes or bedding plants can be dispensed with.

Strawberries.—If good pits are available, get all the best kinds arranged near the glass, with plenty of room between the pots. Ventilate freely, and shut up with strong sun-heat and moisture when the fruit is set. Where extra large fruit of exhibition kinds is desired, thin off all side and inferior blossoms before they open, support with sticks, and give diluted liquid at every watering. Early forced plants that have been hardened off and rooted may be planted out for autumn fruiting. Soak the balls, ram the soil very hard, mulch with rotten manure, and water with the hose in dry weather.

KITCHEN GARDEN.

Early Potatoes should now be carefully hoed and earthed up. It is said by many that when not earthed they are earlier. Should that, however, be so, which we doubt, the large quantity of green-ended tubers occasioned through not being earthed diminishes their value; therefore, we always earth up our Potatoes, and get them early too. Fill up all vacancies in Seakale beds. What we use for this purpose are the roots of those taken up for forcing; cut them into 6-inch lengths and place them upright in pans or pots, and fill in with light soil; place them in a cold frame, and every piece will become a plant. Be careful to rub all the eyes away but two. These root cuttings make fine strong plants during the summer. The first fine day go through Onions, Carrots, Parsnips, &c. Our system is to use draw hoes instead of Dutch hoes, walking in one row and hoeing the other. In this way no footmarks are left, and all the weeds lie on the top of the ground; in fact, all hoeing should be done in this manner. Asparagus beds will be greatly benefited by a small sowing of salt on the surface. We never saw salt injure Asparagus after the tops appear. It, however, kills all seedling weeds, and keeps the beds clean for the summer. Scarlet Runners sow in shallow drills 6 feet apart, and cover with burnt refuse. Early Broccoli may be planted between each row when ready. Dwarf Beans (Canadian Wonder) may also be sown.

A Kew man.—The game of billiards was invented about the middle of the sixteenth century by a London pawnbroker named William Kew, from whom the billiard cue takes its name. William may have been an expert at billiards, but he didn't know how to spell his own name, so we read in an American paper.

TREES AND SHRUBS.

ORNAMENTAL BRAMBLES.

The common Bramble of our hedgerows is by no means wanting in beauty, either in flower or fruit, but it is scarcely the sort of subject that one would like to introduce into a garden. In the wild garden, by woodland walks, or in bold arrangements in the way of rockwork, it may, however, be advantageously grown, and several other kinds of Brambles are also well adapted for the same purpose. A few Brambles, too, are worthy of being associated with even the most select of subjects. In Rubus deliciosus we have one of the handsomest of spring flowering shrubs, and in the double form of R. rosæfolius we have a Bramble which is rapidly making its way as a popular winter flowering plant for the greenhouse, its pretty little white rosette-shaped blossoms being useful in a cut state for bouquets. As fruit-bearing plants, many Brambles, apart from the common Raspberry (itself a Rubus) are by no means to be despised; indeed, they are rapidly gaining favour in America, whence within the last few years great numbers of varieties have been sent to us, some of which, such as the Mammoth, Kittatinny, Snyder, and Wilson's Early, are already well known in this country. Rubus deliciosus is of quite a shrubby habit of growth, with lobed Currant-like leaves and beautiful pure white flowers about a couple of inches in diameter. These blossoms are borne in such profusion that the whole bush becomes quite covered with them. This species does well either grown as a bush in the open ground or trained to a wall. It is a native of the Rocky Mountains and is quite hardy, at all events in the southern parts of England. It flowers about the end of May. R. spectabilis is an erect-growing shrub, and produces suckers so freely as to soon form a dense mass. The flowers are somewhat contracted, rather drooping, and of a pleasing shade of purple. This Bramble, as a rule, does not expand its blossoms till a month after those of the last-named; but if the situation is not too dry, a succession of blooms is kept up for some time. From the freedom with which it flowers, and the distinct colour of its blossoms, this Bramble well deserves attention. R. nutkanus, the Nootka Sound Bramble, is of erect growth, and has large lobed Vine-like leaves and pure white blossoms about a couple of inches in diameter. It flowers at the same time as R. spectabilis. After midsummer, just as most flowering shrubs are on the wane, R. odoratus is at its best; and very handsome it is when well flowered. It is a stout, erect-growing, sparsely-branched kind, very prolific in the way of suckers, and bears large, massive, five-lobed leaves, sometimes a foot or more in diameter. The flowers are large and of a purplish crimson colour, becoming paler as they get old. It was long since introduced to this country, but is seldom met with. Of R. fruticosus there are two double-flowered varieties and very beautiful they are, the little blossoms which are borne in such profusion being like miniature Roses. They do best when so situated that they are clear of all other objects, forming large bushes, which under favourable conditions flower throughout the summer. When trained as wall plants, they quickly cover a considerable space, and if allowed to develop at will, flower freely. There is also a variety of R. fruticosus in which the leaves are variegated and retain their colour better than most outdoor shrubs. R. laciniatus, the cut-leaved Bramble, is a strong, rambling kind with sharp spines and handsomely-cut foliage. It is a vigorous grower and is seen to good advantage either rambling over rockwork or planted singly, when, if tied up to a stake in the first place, the long arching shoots will depend therefrom in a graceful manner, and the whole form a large, handsome mass from a foliage point of view alone, but still more so when studded with clusters of ripe fruit. The fruit is much better than that of the common Bramble, so much so, indeed, that it is occasionally recommended to be grown for that alone. The Nepaulese R. biflorus, frequently known as R. leucodermis, is very distinct from any other kind, owing to the dense white bloom with which the stems are covered. This peculiarity renders it very conspicuous, both when associated with other shrubs and when trained to a dark coloured wall, as—at all events, during winter—the stems appear to have been whitewashed. R. phœnicolasius, belonging to the Raspberry section, depends more upon its fruits for its attractiveness than on its flowers. It is seen to great advantage when supported in an erect position by means of a stake, as then the slender branches are freely produced from all parts, and are each terminated towards the end of the summer by dense clusters of fruit, in shape a good deal like that of the common Raspberry, but of an orange-red colour. When in this stage it is very handsome. This Bramble is a native of Japan, and, though hardy in this country, is well worth the protection of a greenhouse or conservatory, where, if planted out and treated liberally, it forms a very conspicuous object.

Several other kinds of Bramble are by no means lacking in beauty, but are more at home in the wild garden than in cultivated spots. R. rosæfolius fl.-pl. seems to have been known for some time, but has only become popular within the last few years. It is a dwarf-growing kind, and, owing to the number of suckers that are produced, quickly forms a dense bush. The foliage is pinnate, of a light green colour, and the flowers are produced throughout the winter months if the plant is kept in a temperature rather higher than that of an ordinary greenhouse. So floriferous is it, that pretty little specimens full of flowers can be had in 6-inch pots, and, when studded with their white rosette-like blossoms, they are very attractive. The last kind that I will mention is the antipodean R. australis, which forms quite a curiosity in its way. It is a scrambling bush, with slender shoots, armed throughout with stout hooked spines; its leaves, too, are almost suppressed, but little more than the midrib being present, and that is also armed with formidable spines. This Bramble is suitable for planting on rockwork, where it grows freely, and soon forms a tangled mass, thickly furnished with numbers of sharp hooked spines. It is nearly hardy, but during severe winters generally perishes.

For the propagation of Brambles different means are employed. The common kind and all belonging to that section are easily increased. Bring the point of the young growing shoot into contact with the earth, when it will strike root and throw up a young plant at once. In going through woods, copses, and similar places, examples that have increased themselves in this way are often met with. By root cuttings, too, they can be readily propagated if the roots are cut up into pieces about 3 inches or 4 inches long, and dibbled into a bed of sandy soil. Those of the erect little branching class, such as R. spectabilis, odoratus, and the common Raspberry can be increased to any extent by means of suckers, which are in their cases freely produced, while the winter flowering R. rosæfolius strikes readily enough from cuttings of the young shoots taken in spring when still soft, and treated as those of Fuchsias, Heliotropes, and similar subjects. When seeds are obtainable, most of the kinds can be raised readily enough in that way, but in order to perpetuate the double flowered varieties, or to retain individual characteristics, the other means just mentioned must be employed.

Alpha.

Apples beautiful as trees.—Having been a fruit grower for many years, I will name a few Apple trees which I think will give satisfaction to "W. R. R." First, we have one in this district, locally known as the Trosley Pippin, a fine tree and a grand cropper, the fruit being small and yellow, and fit for market in about a month after being gathered. Then there is the Sioux Pippin—another tree that would be likely to exhibit under a little training at first those features which "W. R. R." is in quest of. Thirdly, there is the prolific bearing Goff, a nicely spreading tree, and one which may be calculated upon being covered with a mass of bloom every other year. Lastly, there is the well-known Blenheim Orange,

than which, from whatever point of view it is regarded, no other Apple tree is perhaps better. In the first place you have a tree whose bloom presents a most charming appearance; then follows the fruit, which with its increasing weight gradually bends down the boughs, reminding one of a Cedar tree gracefully sweeping the turf. And last, but not least, you have a good keeping Apple, which, taken all in all, is perhaps second to none. It is scarcely necessary to remark that the full beauty of the tree can only be secured by giving it plenty of room on every side. We have only to look at an Oak growing naturally in a park and to compare it with one standing in a forest to be struck with the difference presented by the two trees. Hence, in order to obtain a properly shaped fruit tree it should, where space is no object, be planted where it will have room in which to develop itself in the most natural fashion. This is at least the opinion of A MID-KENT OCTOGENARIAN.

AN IMPROVED HEDGE.

I HAVE produced some neat and efficient hedges, says a correspondent of the *Country Gentleman*, an improvement, I think, on any which I have ever seen. My hedge is more easily made than any of the plashed hedges, and no more trouble than that made by low and back trimming until the hedge is broad at the base and thickened up so as to be efficient. The plan of making my hedge is as follows: The hedgerow was well prepared the year before the plants were set out. A thin ridge of soil in the line of the hedge was enriched with manure so as to secure an even vigorous growth along the entire length. The plants were assorted and only those that were good used. They were set in May, 5 inches apart in a single row. They were cultivated for two years. The third spring after planting the shoots were from three-fourths to an inch in diameter. We then cut off the tops to within 30 inches of the ground and trimmed off all the side branches. The next step was to loosen the ground about the roots thoroughly with a spade and fork, throwing the earth from the roots to allow free bending. At the east end of the hedge was in my case a gate-post, to which we attached a double strand barbed wire, and began to bend our hedge shoots, one at a time, to an angle of about 35 degrees, taking care that the shoot was kept straight, and the bend should be in the root and not make a curve in the shoot. As one man bends the shoot into position, another man with annealed wire makes a wrap around the barbed wire and the top of the shoots one inch or so from top. The efforts of the shoots, thus fastened to the barbed wire, to rise keeps each shoot as tight as a fiddle string and in its place. The annealed wire is first cut into lengths of about 1 foot, and each piece will fasten two shoots to the barbed wire. I do not use plain wire because it is more liable to break, and the barbs 5 inches apart mark the points at which to tie the shoots and prevent the small wire from slipping.

There was a curve in this particular hedge. To make it with the barbed wire we drove strong stakes in the line of the hedge and attached the wire to them. After all was finished we had a neat looking fence, the shoots were regularly spaced and so firm that nothing could pass through them. During summer we trimmed this hedge three times as usual, and as each eye sent up a vigorous shoot in an erect position they formed with the old slanting a living wicker work that grows more compact and firm each year. We side-trim to keep the hedge narrow, as there is no need of having it wide to get an efficient thickness of growth as must be had in the old kind of hedges. We thus have a hedge that occupies very little space and is very rapidly trimmed. Of course, the lower and narrower a hedge, the more easily it is trimmed.

We do not allow this hedge to grow more than 3 feet high. It is so compact and invulnerable, that no animal can make an impression on it. My experience with this hedge and others leads me to say that it is the cheapest and most efficient hedge I know. It never need to be large, hence need never become a burden to the trimmer.

FUNNY FOLKS ON BURNHAM BEECHES.—THE sub-committee of the city corporation specially charged with the management of "Turn'em Beeches" met yesterday, and the chief custodian, being in attendance, was called on to read his report of the recent improvements. It ran as follows: "Since my last report the work of improvement has been vigorously carried on, and only one of the old paths now remained covered with clumps of Moss, Fern roots, flowering weeds, and other such litter. But the necessary gravel, of the same rich, bright, yellow colour used with such effect in gravelling the other paths, had been ordered, and the Moss, &c., would be 'spudded' up forthwith. (Hear, hear.) Fifteen decayed old stumps, nearly covered with Ivy and other weeds, had been 'grubbed-up,' and their place supplied with some fine potted shrubs, neatly enclosed in a Box border. All the hedges had been trimmed, and most of the trees lopped into something like regular order. Since the last meeting nine more of the regulation direction boards, with the name of the drive or path painted in bright red letters on a beautiful yellow ground, had been nailed up to the trees, the trunks of which had been all cleared of Ivy, he might say, and white-washed. He begged also to report that there was a part of the property only used at present by painter fellows and their friends, and much overrun with wild Bluebells and other such weeds, which might be turned, at a small outlay, into a Potato patch, and he recommended that this course be taken with it. (Cheers.) The chairman, Alderman Boosey, said that the report they had just heard was a most encouraging one, and told of remarkable progress. Nothing had yet been done, however, in the way of ornamentation, and he thought the time was come for the committee to provide a few stucco vases—he could get them wholesale from his friend, Mr. Potts—and a selection of plaster of Paris statues; he had some in his garden at Tooting. Mr. Sloper thought a nice ornamental fountain, with gold fish and painted tin Water Lilies, was a great improvement to a dull place like that they had to deal with. (Applause.) Deputy Bunks liked the notion of the fountain; and he'd seen some very pretty effects got out of virgin cork and artificial Ivy, he added. He also thought a few stuffed beasts and birds dotted about—say a fox or two, and some squirrels, and a pair of storks, and such like—would have a very tasty effect. Mr. Butts thought they had worked a great change, and he had himself heard artists say they didn't know the old place again. So much the better. That showed what plenty of gravel and bordering tiles and a free use of the spud and shears could effect on the wildest looking property. He hoped before they'd done with it that Turn'em Beeches would be as neat and spick and span as Alderman Boosey's own back garden at Tooting. (Loud cheers.)

The modern florist.—In *Popular Gardening*, Mr. R. Dean, preparatory to taking up broader ground and a new departure, treats the reader to one of the most suggestive, and upon the whole fairly well considered and written articles in the first number. The distinctive term of "florists' flowers" has, we are told, "a larger meaning than it had a quarter of a century ago," which means, we gather, that florists are not now quite so straitlaced as they used to be. A quarter of a century is not a long period, but if Mr. Dean had put it "since THE GARDEN commenced," he would have been nearer the mark. Mr. Dean does not hide the truth about florists, however. The annals of the fraternity show, he writes, that it was people "mainly in the humbler walks of life," and therefore of restricted views, that first founded the order of florists proper. These cultivators "invariably worked by certain rules which in the course of time have come to be known as 'properties' or 'points,' and which were eventually formed into a code," and this code was adhered to "and acted upon as if it had the authority of an act of parliament." Mr. Dean is far too liberal-minded a florist to conceal the truth, and this history of the florist's origin may be accepted as authentic. "It would be affectation to deny," he writes, that the florist's ideal "sometimes lacks the highest beauty—that of truth—and thus destroys the significance and evidence of purpose and adaptation, which are as dear to the intelligent observer as mere symmetry of outline or harmony of colour." We fear Mr. Dean's views are not orthodox, and if such radical views do not meet with repudiation, things have changed indeed. If Mr. Dean's article means anything, it means that the florist proper is about to enter the great fraternity of gardeners and flower lovers generally, to sink all his own small foibles for the general weal. Mr. Dean's figure of a show Auricula is very unlike the florist's "model" Auricula published less than five years ago, and in which the truss and the flowers were each and all laid out by the rule and compass, Mr. Dean's flower being a perfectly natural one in all respects. In short, Mr. Dean is a modern florist, unhampered by hard and fast rules, and ought to be met half-way by cultivators, for no one doubts that our garden flowers may be improved from the cultivator's point of view and his necessities. One thing Mr. Dean records which is very true, viz, that the florist's ideal "continually recedes as he reaches nearer towards its attainment"—a fact which shows the ideal is a false one, like the mirage of the desert, which deceives the traveller to his destruction. It is different with the real cultivator, who pursues no such Will-o'-the-wisps, but sets out with a practical ideal based upon things as they are, and whose every step brings him nearer to it. It is a disappointing goal which one not only never reaches, but never approaches.—J. S. W.

INDOOR GARDEN.

NEW AND CHOICE CALADIUMS.

As Messrs. Laing make a speciality of Caladiums, examples of the newest Continental introductions in this way can be found at their nurseries. The following are very fine and distinct, and can now be seen in good form at the Stanstead Park Nurseries. Albo-luteum is remarkable for the size and peculiar colouring of its leaves; one recently measured was 18 inches in length by 12 inches in width, the leaf colour whitish yellow, with a faint greenish tint, an unusually distinct form and very fine for exhibition or decorative purposes. Despite its delicate appearance, Mr. Laing states it is robust in growth. Amœnum has leaves of a pale transparent rose, the ribs reddish rose veined with violet-rose, and distinctly edged with green, the leaves 15 inches by 10 inches; very handsome and attractive. Comtesse de Condeixa has leaves with a white ground dyed with reddish rose and small veins of green, the larger veins carmine-red, with a narrow margin of green; the leaves are of the dimensions of the foregoing, and of a very striking appearance. Elsa produces leaves of a very pleasing light rose colour, with numerous large red spots; veins and margins green; the leaves 15 inches by 9 inches. Gaze de Paris has white leaves with transparent midribs, and veins of deep pea-green. This is a very elegant Caladium, with leaves of medium size, measuring 12 inches by 7 inches. Another is Leopold Robert. Here the ground colour of the leaves is whitish rose, shaded with green, the border blue-green, and carmine-red ribs shaded with brown-red; this is a truly superb and bold variety, the leaves measuring 13 inches by 8 inches. Luddemanni has bold and handsome leaves 15 inches by 10 inches, blotched with magenta-crimson and white, deep crimson ribs, and intersections of a bright pea-green colour. Madame Fritz Kœchlin is a dwarf-growing variety, leaves white, ground very transparent, violet-rose ribs, and green veins; leaves large, 18 inches by 11 inches. Madame Marjolin Scheffer is very fine in form, the leaves enamel white in the ground, the ribs rosy lake; green veins and border; colour and form of leaves

very fine; size of leaf 18 inches by 10 inches. Mithridate is a very handsome Caladium, the ground colour crimson-lake, with darker ribs, and dark bronzy green margins; size 18 inches by 10 inches. Sanchouiathum is the largest leaved of all, now in good character; the leaves are 19 inches by 12 inches, the centre crimson, ribs deep glossy crimson, and broad margins of pea-green. Salvator Rosa is a variety of very dwarf growth, and of quite a new colour—the centre of the leaves scarlet-red softly tinted with violet rosy red, the border of a glossy apple-green; leaves 10 inches by 7 inches; a very fine decorative subject. Lastly, Souvenir de Madame Bernard has very fine leaves, 18 inches by 11 inches, bright red in the centre dotted with green and white, the border deep green: a very fine and striking novelty. The number of Caladiums now in cultivation may be inferred when it is stated that Messrs. Lniog's collection alone comprises over 120 varieties. There are so many additions of Continental origin being made year by year, that there must be a great demand for plants, but they appear to find their way but slowly into some country districts, judging from what one sees at country shows; they are much employed for decorative purposes, and are very effective. R D.

THE BLUE MARGUERITE.

(AGATHÆA CŒLESTIS.)

This forms a worthy companion to the white and yellow Chrysanthemums (C. frutescens and

Agathea cœlestis.

its variety Etoile d'Or) now known by almost everybody as the white and yellow Marguerites. The blue one has only lately come to the fore as a candidate for popular favour, although it has existed in collections here and there for many years under various names, to which reference will be made presently. In habit, indeed in everything, the blue Marguerite is a long way removed from the Chrysanthemum, but in the selection of fashionable names for popular plants botanical distinctions are, as a rule, not too closely attended to, and therefore the above name may perhaps be allowed to stand for the Agathæa. The annexed woodcut shows the habit and floriferous character of this plant, though too much reduced to convey any idea of the handsome appearance of well-grown, well-flowered specimens of it. A. cœlestis is a shrubby perennial, forming, under favourable conditions, a bush about 4 feet high and as much through. In the south of France it is extensively grown out-of-doors, and we learn that few plants of its kind surpass it even in that happy home for most plants. It is trimmed over with the shears every spring, and is thus made to form a bush and to produce thousands of its pale blue flowers. The leaves are opposite, obovate, slightly pilose, and the flowers are produced on terminal scapes some 6 inches in length, every twig bearing at least one flower-head. These heads are made up of lilac-blue ray-florets, of which a single row surrounds the bright yellow central ones. They may be likened to a Paris Daisy with the petals blue instead of white. For the cultivation of this Agathæa in pots the following directions will be found useful. Cuttings strike freely at any time of the year, so that successional batches may be put in about every month. If wanted for winter and spring flowering, spring-struck cuttings should be grown on in a cold frame for a time, and placed out-of-doors with the pots plunged in ashes in summer, where by frequently pinching out the points of the shoots, cutting out the flowers before they open, and keeping the plants well supplied with water, handsome little bushes will be formed. On the approach of cold weather move the plants into a cool house or frame, and induce them to flower by the application of a little heat according to the time at which the flowers are desired. Ever since Christmas handsome specimens of this plant have been in flower in the conservatory (No. 4) at Kew. The Kew plants, we believe, are, or were until recently, the only representatives of the true Agathæa cœlestis in gardens here; what is supposed to be the same plant is really the annual Charieis heterophylla—syn., Kaulfussia amelloides. These plants at Kew were raised from cuttings received direct from Nice. What we have stated will, in conjunction with the illustration, be sufficient for the identification of the blue Marguerite or Agathæa cœlestis. Charieis heterophylla is a small hardy annual, cultivated at Kew and elsewhere in the open border. The stem and leaves are pubescent, the latter alternate above, opposite below, membranous, and altogether rather like those of the Agathæa. In height it never exceeds 6 inches, and it always remains herbaceous. The flowers are blue and yellow, but smaller than those of the Agathæa; the wiry stem of the latter always distinguishes it from the Charieis. As has been stated, another name for this plant is Kaulfussia amelloides, under which name it is often alluded to. Much disappointment has, doubtless, been caused by the confusion of these two plants with each other, which has led to the annual being supplied for the blue Marguerite. B.

EUCHARIS AMAZONICA.

Well as this plant succeeds with some, others find a difficulty in inducing it to flower. Where a continuous succession of blooms is wanted it is necessary to have several batches of plants in order that some may be growing on at different stages while others are resting; for, though some assert that they flower the same bulbs again and again after short intervals, I much question if they really do so. I believe that only a portion of the plants in a pot send up spikes, and that the others follow afterwards, and continue this habit all through, unless they are turned out and the strongest and best bulbs selected and potted on by themselves. This, I think, is the proper treatment, although I do not recommend too frequent disturbance, as the turning out and shaking the soil from the roots, even if done very carefully, must cause a severe check, and throw the plants back. The bulbs, however, under good cultivation and suitable conditions, increase so fast, that it is quite requisite they should be divided, or have much more room afforded by shifting them on—a plan, up to certain limits, very advisable, and, if they could only be planted out in beds with bottom heat, the best results would follow. We have been able to do this by making use of a part of the Cucumber house, where there is room for two rows, and these we have placed on a layer of half-rotten leaves, resting on 3 inches or so of clinkers for drainage, the plants being turned out in nothing but leaf mould and sand, in which they luxuriate; and I hope we may be able to let them remain where they are, as we never before had them so good. If this system could be pursued by growers for market, I feel sure it would pay well, as the Eucharis being shade loving, might have Stephanotis over them, and the two do well together in the same house. Although necessary to rest the Eucharis, it is quite a mistake to do as some do—dry the plants off to such a degree as to allow them to lose their foliage; for in its native habitat there is no doubt that the Eucharis is an evergreen, as it seems quite of that nature in our stoves, and the less the leaves suffer and the more they are taken care of and developed, the finer and stronger the bulbs grow and the better they flower. This being so, the resting should be brought about more by keeping the plants cooler than by withholding water to such a degree as to cause flagging, as it is important that the foliage should not suffer, nor the roots take injury, which both must if the soil becomes quite void of all moisture. Before the resting the thing to aim at is to get a free, strong growth by plunging the plants where they can have a good brisk bottom-heat, and be well syringed or sprinkled over the foliage, which damping, under a high temperature, is what Eucharis specially delights in, and the constant wetting keeps the leaves clean and free from red spider or thrips, which in a dry atmosphere are sure to assail them. Besides an abundance of clean warm water at the roots of the Eucharis when growing and blooming, the plants are much benefited by liquid manure, which, if not strong, may be given freely with the greatest advantage. The best and most suitable is that made from cow manure and soot, which should be allowed to stand and get perfectly clear before using, as any sediment blocks and seals over the surface of the soil and shuts out the air so essential to keep all sweet and pure. The time for repotting is immediately after the plants have done blooming, when they may either be partially shaken out and separated or shifted on, according to the sized pots they are in. Whichever is done, the pots to receive them must be well drained, and to insure the drainage being kept perfectly open, some Moss or half-rotten leaves should be scattered over it, and then a portion of the roughest parts of the soil, which may consist of equal quantities of peat and loam, or leaf mould and the latter, with plenty of sharp sand, the sand being important to prevent any adhesion or binding of the mixture, that there may be a free passage through for the water. This should be given somewhat sparingly at first after potting, and gradually increased as the plants get more hold of the soil, and show that they are growing quickly, when it is requisite that the treatment should go on in the way already referred to above.

S. D.

PALMS FOR INDOOR DECORATION.

Where Palms are grown for indoor decoration it is often a desideratum to have them in as small pots as possible consistent with perfect health; therefore, when they have reached a stage at which it is necessary to repot them, a moderate shift only should be given—just enough to allow the plants to push forth a few new roots, and thus maintain themselves in vigour for a time. The principal points to be borne in mind regarding Palms used for decorative purposes are having them well rooted and thoroughly hardened off, when, if kept properly watered and sponged when necessary, many Palms will do well for a long time in a dwelling-house, provided, of course, suitable kinds are chosen. For this purpose we grow a great many different kinds, and in the case of all of them much the same mode of procedure is pursued. The seed is sown in shallow boxes filled with good loamy soil mixed with a moderate amount of sand. The depth at which it should be covered depends upon its size, but, as a rule, the amount of soil above the seed should be about equal to its diameter. When the sowing is completed the boxes are placed on a stage in a stove where the seeds readily germinate, provided the soil is kept in a regular state as to moisture; if allowed to get too dry many often perish, while equally bad results spring from allowing them to get too wet. In this way we raise great numbers of Arecas, Latanias, Phœnixes, Chamærops, and Seaforthias, as well as the more delicate kinds, such as Cocos, Geonoma, Calamns, Dæmonorops, and Thrinax—all with perfectly satisfactory results. As soon as the young plants are well above ground they are potted off in the same soil as before, using a deep pot of about 2 inches in diameter.

The pots are then plunged in a gentle bottom-heat in the stove, and the syringe is liberally applied—so much so, indeed, that any other mode of watering seldom needs to be resorted to. This frequent syringing, by maintaining a moist atmosphere, greatly assists the growth of the plants, and also tends to keep down insect pests. The plants are shifted on as they require more pot room, but by the time they are in 5-inch pots they are plants useful for decorative purposes.

The soil which we use after the first potting is good yellow loam with an admixture of well-decayed manure and silver sand, but less of the latter than in the compost in which the seed was sown. As it is the habit of most Palms to send down a few strong roots, that mat themselves together at the bottom of the pot, and frequently lift the mass of soil bodily upward, it is often difficult when potting to get the plant deep enough in the new pot without sacrificing some of the roots, which must on no account whatever be done, as the loss of a few of the principal roots often results in death to an otherwise healthy Palm. The better way to proceed under such circumstances is to dispense altogether with drainage, for the roots, being matted around the bottom of the old ball, will hold the broken crocks in their places; therefore the ball of earth may be simply dropped into the new pot, allowing its base to rest on the bottom thereof, when, if thought necessary, a few bits of broken crocks can be dropped down by the side of the ball before the soil is worked in around it; this is, however, seldom needful in the case of vigorous kinds and in pots not more than 6 inches or 8 inches in diameter. New roots will be soon pushed out in the fresh soil, and regarding this I have frequently observed that, as a rule, most kinds, when potted in a compost principally consisting of loam, produce more vigorous and healthy roots and stouter foliage than if leaf mould or peat were employed. A great point to be borne in mind is to see that they do not at any time get overcrowded, as a weak and ill-balanced growth will be the result; moreover, when drawn up in a young state, they are apt to get loose at the collar, and when that is the case they seldom do well. This latter result is often brought about by potting too deeply when young, as plants so treated will sometimes remain in an almost dormant state for a long time, and then need repotting to start them.

Water plays an important part as regards their welfare; a liberal syringing greatly assists their growth, as well as tends to keep them clean and free from insect pests. Palms are notoriously gross feeders, and can hardly be over-watered, provided the drainage is in good condition and the pot full of healthy roots. But the case is different when the roots are few and the plant perhaps in rather a large pot; then if over-watered it will soon be reduced to a sickly state, from which it will take a very long time to recover, if ever it does. When Palms of any kind have been allowed to get unhealthy it is difficult to induce them to assume their original condition. The first thing to do where the roots are bad and the surrounding soil sour is to turn them out of their pots, remove as much soil as is necessary, and repot in fresh compost. After that the plant may be plunged in a slight bottom-heat in a moist and shaded part of the house till the roots again start into growth. Even greenhouse kinds when treated as above will be better kept in the stove a little while in order to start them. When the unhealthy appearance results from a cramped and starved condition of the roots of course some other means must be resorted to; thus, if giving the plant a larger pot is not objected to is the best thing to do, but in the event of that not being possible some food of a stimulating character must be supplied. Very good substances for the purpose are Clay's fertiliser or Standen's manure, applied in small doses from time to time. Or if the plants are watered with soot water it will greatly tend to impart a healthy hue to the foliage, but in using any stimulating substances a great point to bear in mind is that the plants will derive far more benefit from several small doses than from one large one.

Seeds of most of the commoner decorative Palms are offered by our large dealers, and even young plants may now be obtained at so cheap a rate that they are quite within the reach of everybody. We find one of the best draught-resisting kinds to be Rhapis flabelliformis, which when grown cool may be used with impunity where many others would suffer. This Palm produces suckers freely, and is very useful either in the form of a large mass or confined to a single stem. In order to propagate it we take off the suckers when rooted and pot them into small pots, care being taken not to separate them until they are at least fairly well rooted, otherwise they are difficult to start into growth. If possible after the suckers are taken off they should be kept close till the roots make a fresh start. H. P.

PLANTING OUT CHRYSANTHEMUMS.

If Chrysanthemums have been properly hardened off, now is a good time to plant them out. Any open sunny spot will do for them, so long as it is far enough away from the roots of trees, which otherwise would get into the soil, and seriously rob it of its moisture. A shallow trench, prepared something after the manner of those for Celery, but with much less manure dug in, answers best to grow them in, as there they may occasionally be flooded with water or sewage without loss, and a thorough soaking insured. In order to prevent evaporation and keep the ground cool about them, a slight mulching should be afforded them, and if this is given they will be much more independent of assistance in the way of watering than they otherwise would be. As when planted out Chrysanthemums are intended to be grown into large bushes, one stopping will be sufficient, and this should be carried out about the first week in June, when they have got a good hold, after which they break strongly and become well furnished. Except staking to give them support, no further attention will be necessary till they are fit to take up in the autumn, to prepare them for which it is always advisable to run a sharp spade around them a week or so before lifting, and to give them a good watering at the same time. This will induce fresh root action, and prevent the removal being felt so much as it would be if dug up at once. The proper time for lifting and potting is immediately the flower buds can be discerned, and this operation should, if possible, be carried out during a dull showery time, a condition much in their favour. In digging them up it is necessary to exercise care in order to secure a good large ball, the earth from which may be reduced according to the sized pots into which it is desired the plants should be put. In doing this, however, it is highly important that as many roots as possible be preserved; and, to give these fresh material to feed on, what additional soil is required for filling up should be of the richest description, and pressed down thoroughly firm, which will form a great stay to the plants. The potting complete, the best place for them till they get fresh hold is the foot of a north wall or other building, where they can be screened from sun and wind for a week or two, and kept well syringed overhead and liberally watered; if this is done they will soon become re-established, when they will bear removal to the greenhouse or conservatory, and expand their flowers without a leaf flagging, just as if nothing had happened. Late-struck cuttings may be treated precisely in the same way; but as the plants will be so much smaller when fully grown, they will not require nearly so much room when turning them out. Eighteen inches or so between the rows, and about the same distance apart, will be ample; and for those planted out in June or July less than that will suffice.

Taking cuttings.—The chief thing in order to secure fine strong cuttings to start with is to take care of the old plants after flowering, and to do that, one of each kind that it may be desired to grow should have the tops shortened back and be turned out in leaf soil in some cold frame where they can get plenty of light and air, and be duly protected from frost. So favoured, they will send up stout vigorous suckers, any of which when about 4 inches long will do for taking off, and will strike freely under the conditions already named. In growing them in pots, no soil answers better than a well-enriched fibry loam, rather inclined to adhesiveness than otherwise; in this they make firm, short-jointed stems. Owing to the great quantity of water they take and require, worms are a great bother, as the moisture that drains away is sure to attract them to the bottoms of the pots, and if ingress is not prevented they do irreparable mischief. A good way of keeping them out, and of benefiting the plants at the same time, is to scatter a pinch of soot over the crocks, and if the pots are then set on a firm coal-ash bottom, they will be quite safe from their attacks. A sunny open spot, well sheltered from wind, is the best place in which to set them; but to protect the roots from the desiccating influence of the air and solar rays, the pots should be plunged in half-rotten leaves or litter, the non-conducting properties of which keep them cool and assist greatly in preserving the health of the plants. The gross-feeding habits of Chrysanthemums are such that, when grown in pots, it is almost impossible to overdo them with liquid manure, provided it is not too rank or strong, or given before they are well rooted, as, after that, if properly diluted, they will take it almost daily. Soot water mixed with farmyard drainings suits them admirably, as does soapsuds, or, indeed, any kind of clear sewage, which, when they are showing their buds, should be given without stint. Where very fine blooms are required for show or other purposes, it is necessary to disbud, leaving only the central or main one; but where a fine display is more the object than the individual size of the flowers, nothing is gained by thinning. The only insects that affect Chrysanthemums are green fly and thrips, the latter of which initiate themselves into the tips of the young shoots during dry summers, and feed on them in such a way and so unexpectedly, as to cause them to become blind before the mischief is observed. The remedy for both is a syringing with a weak solution of Abyssinian mixture, or some tobacco water, or some fumigation in the ordinary way.

As to varieties, their name is legion, but I would particularly recommend the following as distinct and fine, viz.: Julie Lagravère, brilliant crimson chestnut; Empress of India, Mrs. Geo. Rundle, and Mrs. Turner, fine whites; Geo. Glenny, Golden Beverley, and Jardin des Plantes, yellows; Peter the Great and Mrs. Dixon, lemon colour; Triomphe du Nord and Bronze Jardin des Plantes, bronzes; Dr. Sharp and Sparkler, reds. Some of the Japanese kinds are very showy, among the best of which are Cry-Kang, James Salter, Elaine, Red Dragon, and Fair Maid of Guernsey. S. D.

Chorozema Chandleri.—Although many greenhouse plants, favourites in days gone by, have of late fallen into disrepute, this is one that ought to find a place in every collection; it is so easily grown, and keeps in flower so long, that it well repays any slight amount of attention which it may require. A mixture of peat, loam, and silver sand suits it well, and quite large plants of it may be grown in pots 6 inches or 8 inches in diameter. Its growth is light and elegant and when covered with its small Pea-shaped blossoms it has a very pretty appearance on stages amongst the ordinary occupants of glass houses. Its season of flowering is from Christmas onward through the spring months, and so persistent is it in this respect that I have had plants of it quite full of flower when cut back in May to make growth for the ensuing season. We usually give our plants of it a small shift and set them in a genial growing atmosphere for a month or six weeks, after which they are benefited by a few weeks, exposure to the open air in autumn, so as to get the young growth well matured. A cool airy house, such as answers for Azaleas or Camellias,

suits them in winter perfectly. In fact, they do well treated just the same as Azaleas, but they commence flowering naturally much earlier, and the same plants will last in presentable condition all through the Azalea season. It is to be regretted that hard-wooded plants are so much neglected as they are, for they are by no means difficult to cultivate, and they last for years with but a minimum of care.—JAMES GROOM, *Gosport*.

The progeny of Anthurium Scherzerianum raised from seed, as stated in THE GARDEN (p. 375), is very variable; but I have seen seedlings give much better flowers than the parent plants. Last year I had under my charge seedlings which produced double spathes—that is, two good spathes on one stem instead of one. The first two flower-spikes came so, but as the plant grew stronger spathes of the ordinary form were produced. The best way of sowing the seeds, I find, is on the soil or Moss of the old plants, or in an Orchid pot.—H. H. C.

Diseased Eucharis bulbs *(J. S.)*.—Your Eucharis bulbs are attacked by a mite or acarus (Rhizoglphus echinopus) which attacks the bulbs at the base of their roots; they are very small and can be hardly seen by the naked eye. If the plants would bear being plunged, pot and all, into water deep enough to cover the bulbs for forty-eight hours, I believe the mites would be drowned. If the plants will not, with a small stiff brush, brush off all the decaying portions of the bulbs and cut off the useless roots, and then use the strongest insecticide you think the plants will bear; soft soap and flowers of sulphur or tobacco water would no doubt kill the mites. Do not let any of the soil lie about; it is safest to bury it, and clean the plants over a tub of water, which throw down the drain as soon as the operation is over.—G. S. S.

Cardiospermum Halicacabum. — This, the Winter Cherry, or Heart Pea, is one of the most cosmopolitan of tropical weeds, the bladder-like capsule in which its seeds are enclosed no doubt serving as a protection to them when carried by the sea from one country to another, and by means of which the plant has spread from South America, where it is supposed to have originated, into almost every country and island where its seeds could find a favourable harbour. It is remarkable that the first, or one of the first, plants to establish itself on recently formed coral islands or land from which the sea has retired is this Winter Cherry. Horticulturally, this plant is of no interest whatever, unless it be from the curious form of its seed vessel, which resembles that of the Bladder Senna (Colutea arborescens), except that the valves or sides of the triangular capsule are distinctly heart-shaped. C. Halicacabum is an annual, with pinnate or bipinnate foliage, which is pale green and more or less hairy. In habit it is a climber, growing to a length of from 4 feet to 6 feet. In summer its small whitish flowers are borne in panicles from the axils of the leaves, and these are succeeded by the fruit just described. It sometimes fails to produce fruit in this country, but if grown in a light stove, the crop of capsules is generally pretty abundant. Perhaps botanical collections only would contain plants of it. At Kew it is cultivated, as also are several other species, all of which are climbers, and bear bladdery capsules more or less similar to those of C. Halicacabum.—B.

SHORT NOTES.—INDOOR.

Shading for glass houses.—The following is a cheap and good shading, viz.: 1 quart of size jelly made hot to boiling mixed with 1 gill of turpentine and 1 gill of boiled oil, adding the size of a Walnut of whitening. Apply this mixture to the glass thinly with a brush when the glass is dry and the sun out. It will stick until frost comes, after which it will not be required.—D. E. B.

Arthropodium cirrhatum.—Either as a greenhouse or conservatory plant this native of New Zealand is very ornamental and withal simple as regards culture. It forms a tuft of arching Iris like leaves of a pleasing shade of green, and bears large panicles of white blossoms which expand at this season. It is nearly hardy, but succeeds best under greenhouse treatment, and when planted out rather than when grown in pots.—H. P.

NOTES.

Solomon's Seal.—Polygonatum multiflorum is just now one of the most graceful of all the hardy plants, alike effective in blossom and in beauty of leafage. That it is perfectly hardy, and will flourish perfectly well in dry soil, in sunshine or in shade (finest in shade perhaps), is a fact, but why it is so seldom seen among indoor floral decorations is not so easy of explanation. I often wonder the Dutchmen who send its first cousin Lily of the Valley to us in such enormous quantities and so finely grown do not take up this Hebe among graceful hardy plants. For forcing in pots to bloom in March it is perfection in its own way, as full of graceful curves as a Bamboo, and its pale buds are like a string of pearls. That it was a great favourite with our great grandmothers may recommend it to some, but its own beauty ought to make it welcome everywhere. It is verily an Apollo Belvidere or a Venus de Medici among the early blossoms.

Veronica Hulkeana.—This, while the very earliest of all the Veronicas in blossoming, is likewise one of the most distinct and beautiful. It now bears great panicles of delicate lilac flowers in great profusion and in the open air. In Devon, Cornwall, and Ireland near the sea it is quite at home. Most of the Veronicas seem lovers of the shore, all the varieties of Anderson's hybrid at Bournemouth to wit, and this fairest of all the species as yet common seems no exception to the rule. It is a shrubby species, growing 2 feet or 3 feet in height, as easily propagated from cuttings as a Fuchsia and quite different in its blossoming from any other hardy shrub now in bloom. Why, oh, why! is it so seldom seen?

Phlox amœna deserves all that Mr. Murphy can say of it, and more. It was sent to me years ago by Mr. W. Falconer, then curator of the Harvard University garden at Cambridge, and I sent it to the late Mr. Nelson, of Aldboro', and to Mr. Ware. Of all the Phloxes of its race, I think it one of the best; indeed, its ever-blooming habit is most remarkable. It roots quite readily from cuttings under a hand-light in the open air and flowers immediately. We have it now in rosy masses beside the snow-drift-like carpets of N. Nelsoni, and the effect is—well, everyone should try the combination for themselves.

Parrot Tulips—To all those gardeners who have now-a-days to fill large oft-returning flower baskets these showy Tulips will prove a great boon. You may buy a few thousands of these and of the mixed late or "rogue" Tulips from the Dutch growers for a mere trifle, and their flowers are in all stages most effective either in the flower beds and borders or as cut for indoor decorative uses. We all remember the sweet-scented old cottage garden Tulips of years ago, but, alas! how rarely do we see them now-a-days. The early forcing and bedding Tulips are far less beautiful and yet seem to have supplanted them, but it is pleasant to know that the trade growers in Holland are again returning to their "first loves," these remnants of the old Tulipomania epoch, which in their own time were more valuable than even our Orchids of to-day. But few other hardy bulbs are more showy than Tulipa elegans, T. cornuta, T. Gesneriana, T. Golden Eagle, T. Buttercup, and others of this good old hardy race which when once well planted are as hardy as paving stones, and most generous in their blossoming.

The Florentine Iris.—This pale beauty is a charming companion for the more florid forms of the German Iris, now so common in most gardens. It is wild around the flower city, and in its own delicate way most beautiful. Cut in the bud stage and brought indoors, its glistening buds open into lovely blossoms one by one in the most pleasing way, each petal broad as those of a Brazilian Cattleya, but graced with a satin-like sheen no Orchid petal can rival. But it is only a beautiful hardy flower. Once well planted it goes on blossoming from year to year; it requires no fire-heat, no glass roof, no sponging of leafage, no fostering care, and so it is too often entirely forgotten except at blooming time. No one with eyes for a lovely blossom could forget it then. It deserves a place in all gardens wherein it is now a stranger.

Solanum crispum.—I find that very few of even the best of gardeners know this blue Nightshade or Potato Tree, which in Ireland is quite hardy, and now makes our old walls beautiful with its bluish purple blossoms, which nestle in clusters among its dark green leaves. It has beside it a fair rival, Clematis montana, its slender shoots swinging and dangling, or woven into coronets, each blazing with its silvery stars. The Clematis is hardy everywhere, but the Solanum, although also a shrub, is not so. In Ireland it is mostly at home on sheltered walls; so is S. jasminoides; but in England it might generally be found necessary to protect it with a mat or with Fir branches. In Devon, Cornwall, Scilly, or in the Isle of Wight it should find a welcome wherever it has not as yet been accorded one.

The Mexican Orange is a popular name for Choisya ternata, a fresh and evergreen shrub now in bloom. Its flowers are singularly like Orange blossom; indeed, at Ghent and elsewhere on the Continent they are quite commonly grown as a substitute for that popular bridal flower. The silvery stars are deliciously sweet scented, and produced abundantly at the apices of the last year's growth. Other wall shrubs now flowering in its company are the Fuchsia-flowered Gooseberry (Ribes speciosum); Vella Pseudo-Cytisus, sometimes called the Cabbage Bush; Billardiera longiflora, with its greenish white bells, which are succeeded by puce-coloured fruits; and the Erica-like Fabiana imbricata, really a Solanum with a Heath-like growth and inflorescence.

Clematis alpina is a very beautiful plant now in flower, and is in some gardens known under the name of Atragene cœrulea. It is a most effective plant as seen at its best rambling over a dead wall shrub, or trailing at its own sweet will over an arbour or rustic fence. Its lavender-purple sepals, four in number only, surround a silky tuft of white styles, and its young leaflets are of the most tender green tint, thus enhancing the beauty of its short-stalked flowers. Compared with the large hybrid kinds its blooms are small, and taken as a wall shrub one cannot say that it is as effective as the Wistaria now rich in its sweet-smelling Grape-like clusters of blossom, but to those who can appreciate form and colour of the most refined type, this Clematis alpina will be most attractive. It is a plant of which one does not weary too soon. Its beauty grows on one the rather year after year.

Fragrant posies.—The old "posy" was in old country house parlours what the bouquet is in our drawing-rooms of to-day, and was culled from the Lady Corisande's garden of a past age. We may, however, indulge in a fragrant posy in this time of Orchids, just as did our grandmothers when Auriculas and Tulips were the fashion. Snow-white Stocks, double and sweet, balmy Sweet Brier, and a sprig of Rosemary, flowers of the Poet's Narcissus, single and double, and of Wall-flowers, yellow and crimson, we can take in plenty for our "posy" of to-day. We can fringe it with Auriculas and Cowslips golden, and with Oxlips also, or with sweet Woodruff and balmy golden Thyme. A few of the earliest Roses may well be added and Lilies of the Valley, also each with its spire of tiny lamps all aglow like pearls, and sweet "as new-mown hay." May blossom and Woodbine may also be added, and our "posy" is as bright and fragrant as "a Rose in June."

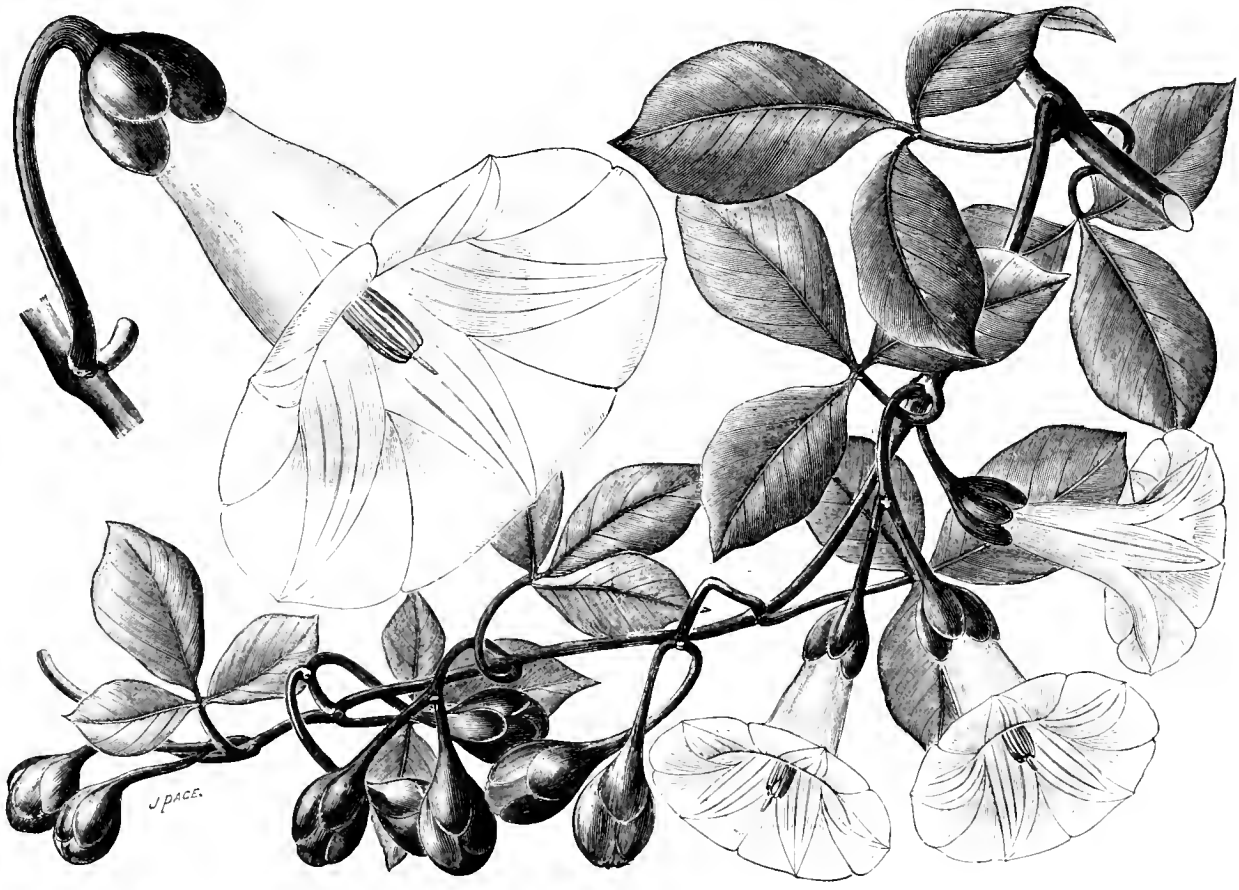
The time of Oranges.—In April and May Oranges are at their best, as juicy and as sweet as August Peaches with a brilliant colour and refreshing flavour all their own. It is the one fruit which bridges over the gulf between latest Grapes and earliest Strawberries, and, after the Apple, the Orange is, *par excellence*, the fruit of the artisan or working class. Peeled and quartered, the Orange is a delicious dessert after luncheon on a hot May day. With or without cream, a little

powdered sugar may be added by lovers of sweet things, although at this season the fruits are sugary enough of themselves for most palates. On hot days, a good Orange or two eaten with a spoon is far more refreshing than many other thirst-quenchers—a pure product, moreover, born of the sunshine and the rain.

Fashionable flowers.—A lady who was at the private view of the Royal Academy writes to tell me that, "the Orchids worn on that occasion were really very splendid; indeed," as she says, "the Gardenia, the scentless Camellia, and a host of other flowers once the fashion are now likely to be given over to the Philistines and Yahoos of the town, while the finest and freshest of Orchids only are to adorn our intellectual beauty for some time to come." So my friend seems to think, and there is room for all tastes, but I hope there are ladies who will wear Rosebuds and Violets, and sweet white Stocks, and big clusters of Carnations even although their hothouses are gay with Ferns and Orchids of the finest and best. The words "fashionable flowers" with some means "seasonable flowers," and truly these are many and varied enough for all tastes. To see a whole assembly of people wearing Orchids or Daffodils, or any other one kind of flower, shows a total disregard for beauty of the highest type, and a want of intelligence also. A flower should be worn because it is beautiful, sweet, and suitable, not merely because it is supposed to be "fashionable."

Love of trees.—I am sometimes afraid that we gardeners waste much of our time under glass roofs, and do not fully recognise the full value and nobility of our finest trees. He of the Primrose pale has said: "I passed part of my youth in the shade of Burnham Beeches, and I have now the happiness of living amid my own 'green retreats.' I am not surprised that the ancients worshipped trees. Lakes and mountains, however glorious for a time, in time weary. Sylvan scenery never tires." Trees solitary, like Mr. Whirter's lady of the woods, the fair and silvery Birch; or trees in company, such as those of which Millais gave us such lovely portraiture in his "Sound of many Waters," are alike most enjoyable, ever beautiful, and ever changing all the year round, and yet how many with fine pictures on their walls have not fine trees in their gardens around them. Perhaps after all we have to go through the valley of humiliation—bedding plants, and Orchids, and cut flowers and the like—ere we can fully appreciate the grace and beauty of trees at their best. There is an old lawn before the hall at Somerly, the country house of Colonel Fred Burnaby, and just in front of the creeper-covered walls, with its lower branches sweeping the turf, is an old Larch—one of the very finest of all lawn trees. It is always beautiful in form and in colour, and just now is as fresh and graceful as a Maiden-hair Fern magnified ten thousand times. Leafy in June or glittering with rime at Christmas time, our hardy trees are living pictures all the year round.

VERONICA.



Ipomœa Thomsoniana.

RECENT PLANT PORTRAITS.

ABIES RELIGIOSA (*Botanical Magazine*, plate 6753).—A fine double plate of this distinct and handsome Mexican Conifer, showing the handsome deep blue cone covered with regular and conspicuous white bracts, somewhat resembling that of Picea Webbiana. It is unfortunately tender in this country, the specimen here figured coming from the pinetum of Mr. A. H. Smith-Barry, at Fota Island, Co. Cork. This Fir comes next to that known as A. bracteata in the family commonly described under the distinctive epithet of silver. It has also the following synonyms: Abies hirtella, Picea glaucescens, and Pinus hirtella.

TULIPA KESSELRINGI (*Botanical Magazine*, plate 6754).—This is a rather showy new Tulip from Turkestan, and was sent to Mr. Elwes by Dr. Regel under the name of T. Hoeltzeri. It has medium-sized flowers, of which the inside petals are deep yellow and the outer ones green, with a deep red border round each.

SAGITTARIA MONTEVIDENSIS (*Botanical Magazine*, plate 6755).—This is one of the most beautiful and free-blooming water plants other than Water Lilies that has yet been introduced into the tropical aquarium of Kew since its establishment, and a very free grower and of easy cultivation. Nothing can exceed the snowy whiteness of the flowers, which are produced in succession, relieved as they are by rich maroon blotches bordered with pale gold at the base of each petal and reminding one of those of a fine variety of Calochortus. It is a native of South America, and seeds sent to Kew by Mr. John Ball, F.R.S., from Buenos Ayres early in 1883 flowered in June of same year. No tropical aquarium should be without this lovely plant.

SOLANUM MAGLIA (*Botanical Magazine*, plate 6756).—This is a member of the Potato family from Chili, with pure white flowers and small oval tubers of about the size of a pigeon's egg. It is proposed to name it in future the Darwin Potato.

TILLANDSIA STREPTOPHYLLA (*Botanical Magazine*, plate 6757).—A very curious Bromeliad from Honduras with light green foliage twisted and curled in a most abnormal and extraordinary manner, and sprinkled thickly with a kind of coarse white powder. It has pink spathe bracts

and light purple tubular flowers interesting from a botanical point of view.

ANTHURIUM SCHERZERIANUM VAR. VERVAENEANUM (*Revue Horticole*, May 1)—This may be considered as quite an acquisition, as it is by far the purest and finest of the white-spathed varieties of this well-known plant, and quite throws into the shade all former so-called white varieties, such as A. Williamsi and others. This fine novelty has been raised by M. Vervaene, of Ghent, the well-known Azalea grower, but has not yet been sufficiently increased to distribute.

ALSTRŒMERIAS (new hybrids) (*Revue Horticole* for May 16)—A beautiful bunch of these handsome, free-blooming, and bright-coloured Amaryllids, which with but slight protection in very severe winters may be considered hardy. These here figured are crosses between A. versicolor and A. aurantiaca. W. E. G.

A NEW STOVE CLIMBER.

(IPOMÆA THOMSONIANA.)

THE first time we saw flowers of this beautiful new climbing plant (about a year ago) we thought that it was a white-flowered variety of the favourite old Ipomœa Horsfalliæ, as it so nearly resembles it. It has, however, been proved to be a distinct new species, and Dr. Masters has named it in compliment to Mr. Thomson, of Edinburgh. It differs from I. Horsfalliæ in having the leaflets in sets of threes instead of fives, and, moreover, they are quite entire. The flowers, too, are quite double the size of those of Horsfalliæ, but are produced in clusters in much the same way; they are snow-white. This Ipomœa is indeed a welcome addition to the list of stove-climbing plants, and will undoubtedly become as popular as I. Horsfalliæ, which may be found in almost every stove. It is of easy culture and of rapid growth, and it is to be hoped that it is as continuous in flowering as Horsfalliæ. It is among the new plants of the year now being distributed by Mr. B. S. Williams, of the Victoria Nurseries, Upper Holloway, to whom we are indebted for the annexed illustration.

PLANTS IN FLOWER.

Wistaria sinensis—The promise of an unusually fine display of bloom on the part of this climber was almost universal, but in many places such will not be the case, the frosts of three weeks ago having injured it. With us, whether on a wall or in the open, only a raceme here and there has escaped.—ALPHA.

Patersonia longiscapa.—This is an Iris-like plant with long narrow leaves and violet-blue flowers, borne on stems about a yard high. Like most of its class, it is by no means difficult to cultivate, yet though an old plant and very pretty it is seldom met with. This Iris is a native of Australia, and is at the present time in flower in the temperate house at Kew, the conditions there being just suited to its requirements.

Flowers from Newry.—Mr. Smith sends us from Messrs. Rodger, McClelland's collection flowers of Choisya ternata from bushes in the open, 2 feet high and as much wide, completely covered with white, sweetly scented blossoms; also Abutilon vitifolium from a wall where it grows most freely and flowers abundantly, its large Mallow-like blossoms being very showy. Associated with these were likewise Lonicera tatsrica rubra grandiflora, a distinct and good Honeysuckle, and Rhinodendron Hookeri, growing well in a damp spot in the open and blooming sparingly.

Carnation Eureka.—This is the name given to a very fine new seedling Tree Carnation raised last year by Mr. Knight, The Oaks, Woodmanstone, Epsom, from whom we have received some blooms. These are of large size and very double, and the colour a glowing scarlet inclined to carmine. It must be an extraordinary free flowerer, as Mr. Knight states that he has plants carrying nearly half a hundred blossoms at the present time.

The Spanish Broom (Genista hispanica is a shrub that should adorn every garden large or small at this time of the year on account of its attractiveness when in bloom. Mr. Kingsmill, who brings us a good sized branch of it fairly smothered with small bright yellow blossoms, likens his plant to "a ball of gold from 4 feet to 5 feet through." He bought the same plant for twopence in a provincial market some eight years ago; it must therefore have made rapid growth. This Broom always forms a compact rounded tuft and invariably produces a profusion of blossoms about this time of the year. It is, moreover, a shrub that will thrive almost anywhere and in any kind of soil, though it seems to have a liking for warm loam and an open, sunny situation. We advise those who do not possess it to procure a plant of it in the autumn. It is a capital rock garden plant, as it never grows out of bounds.

Brugmansia suaveolens.—In the greenhouse here we have in bloom two very fine plants of this Brugmansia. One is in a large tub; the other is planted out in the border. The one in the tub is sufficiently large to allow anyone to walk comfortably under its branches, and it is completely covered with its white trumpet flowers. It is very effective, and in the cool of the evening it emits an agreeable perfume.—THOS. WILKINS, *Inwood, Henstridge, Blandford.*

Fabiana imbricata—At first glance this looks like a Heath, and not at all like a plant belonging to the order Solanaceæ, in which, however, it is placed. It is a native of Chili, and along the southern coasts of England flourishes as a bush in the open air, but in less favourable spots it requires the shelter of a wall. Its extreme floriferousness, too, renders it where necessary well worthy of greenhouse culture, as about this season it becomes laden with long, tube-shaped, white blossoms. It is now in flower on a wall in the herbaceous ground at Kew.

Clonera jasminiflora.—One often meets with this plant in by no means a flourishing condition, but when well grown there are few more desirable winter flowering stove plants than this Clonera; its season of blooming, moreover, is not limited to the winter, as it is now finely in flower in the Palm house at Kew. It is a neat, somewhat upright-habited shrub, which bears clusters of pure white fragrant blossoms. Individually, the blooms somewhat resemble those of Bouvardia jasminiflora, and they may be used in a cut state for much the same purposes. It is also known as Psychotria jasminiflora

Sutherlandia spectabilis.—I send you a branch of this beautiful Cape shrub, which I raised from seed last year. It was planted out at once in a sunny border, and protected during winter with a canvas hood, so that the foliage remained uninjured. It is now in full flower, having more than a dozen upright branches well studded with beautiful elongated, pea-like blossoms of a rich, sealing-wax-red colour, which stand out from among the grey-green pinnate foliage and produce a charming effect. In hard winters it would doubtless require house protection, but as it flowers so well the second year from seed it seems well worth attention.—ALFRED R. WALLACE, *Frith Hill, Godalming.*

*** A very pretty plant, reminding one of the New Zealand Cliantbus puniceus, though the flowers are smaller and arranged on the branches differently. The silvery lustre of the pinnate foliage renders the plant attractive even when out of flower.—ED.

From Knockmullen, Gorey, Ireland, Miss Owen has sent us a small basket of flowers and the following memoranda concerning them. "I send you a blossom of Meconopsis simplicifolia, which, though not to be compared in beauty with M. Wallichi and M. nepalensis, has the advantage of being, I believe, a true perennial. It looks so dead in winter, that there is much danger of its being thrown away. This is the first year in which it has done well here. The pale lemon-coloured flowers of Genista præcox with which that shrub is entirely covered make it the prettiest bit of colour in our garden at present. It will be succeeded by the large lemon-coloured Broom, which, however, has not its graceful drooping habit. The dwarf large-flowered G. prostrata seems also worth growing; I send a spray. I also send Cardamine latifolia as a plant not worth growing; also Tritoma pumila, one of the few evergreen Cape plants which are fairly hardy here (of those we have as yet tried), though a plant of it dies now and then. Ourisia coccinea does better here in a border than on rockwork. One of our most effective late spring plants, the variegated Forget-me-not (Myosotis elegantissima) made a good bed, dotted through with red Van Thol Tulips. It stood this trying spring well, but white mildew has now attacked both it and M. dissitiflora. M. azorica usually escapes this blight till late in the season."

Allium Clusii is one of the few ornamental species of the Onion family worth growing. It is extremely like A. neapolitanum, so similar that one hardly knows where to look for the difference. A. subhirsutum is another very much like it. All these three species produce umbel-like clusters of pure white flowers on slender stems about a foot in height. The blossoms are quite devoid of the characteristic odour of the Onion tribe, therefore not objectionable in a cut state. They last a considerable time in water, as the flowers open one after another. Mr. Kingsmill grows A. Clusii finely in his garden at Eastcote, whence we have received some large heads of bloom, the produce of seed sown last year.

Anemone hortensis—Among herbaceous plants now in flower few surpass this Windflower. The intense scarlet colour of its blossoms, combined with their black centres, renders it very conspicuous amongst others of its class or planted, as ours are, in a herbaceous border in clumps. Those who have not tried it in a cut state will, on doing so, find it worthy of a place in the choicest arrangements. It lasts fresh for a week, and the richness of its colour is sure to be admired by even the most fastidious. It likes a sunny spot and good light, rich soil, and it may either be planted now or in November, or even in February; the latter month, however, is not to be recommended in any but the coldest situations; plants raised from seeds will also flower the same year if properly attended to.—E. D.

Bouvardia strigosa—In general characters this is distinct from the garden varieties of Bouvardia, and although not suited as they are for growing into bushy little specimens, it makes a desirable basket plant; its slender arching shoots hang down in a very graceful manner, as may be seen in the T range at Kew, where it is now in flower. The blooms are borne in clusters at the ends of the shoots, their colour being deep red, with a yellowish centre. The individual flowers are larger than those of most Bouvardias; they are about three-quarters of an inch in diameter, and their colour is also quite distinct from that of the others. As this Bouvardia breaks out but sparingly when the shoots are stopped, it would not be viewed with favour by market growers, yet in the hybridiser's hands it might impart a different colour to our ordinary garden Bouvardias.

Eossiæa linophylla.—Among the so-called New Holland plants that at the present time seem to be almost ignored in gardens there are many beautiful and desirable subjects; yet few can equal, much less surpass, this Bossiæa for grace, elegance, and profusion of bloom. There is a specimen of it some 6 feet high now in flower in the temperate house at Kew, the whole plant being a mass of long slender shoots, as drooping as those of the Weeping Willow, and clothed for the greater part of their length with small, bright orange, Pea-shaped blossoms. The beauty of such a specimen as this should tend to revive a taste for these old-fashioned plants—not the large, distorted, so-called trained specimens, but healthy, vigorous ones, with no more supports than are absolutely necessary to uphold them. The system of stiff and formal training has doubtless had much to do with the neglect into which they have fallen.

Tulipa Greigi and other early flowers.—In reply to your note as to Tulipa Greigi, one necessity of its health seems to be to have sufficient water during the growing period. It suffers greatly from drying east winds when it first comes up unless well watered. It likes hot sun through-

out the summer, and does not do well unless well exposed to it. It is a bulb of which more bad ones are found in a consignment than most others; perhaps it travels badly. I send a Tulip that shows most peculiar changes of colour; at first it is pale primrose, it then turns to ivory white, and is now, as you will see, suffused with pink; it has been blooming for the past four weeks. As my garden has many fine Hawthorn trees in parts of it, together with Lilacs, Laburnums, &c., I have to look for plants that grow well in the shade, and I send you a few Scillas of various colours to show how useful they are as shade growers. With Ferns and Primroses they are charming, and a large clump of the delicate pink Scillas growing among the young fronds of Lady Fern is a lovely sight. Scillas have to me an especial charm from their exceeding delicacy of colour. You will also note the very pretty Hyacinthus amethystinus.—H. STUART WORTLEY (Colonel).

Discaria longispina—Quite a curiosity in its way is this Discaria, and when in full flower by no means devoid of beauty. It is a low, scrambling, deciduous shrub, poorly furnished with leaves at any time; yet, from the bright green hue of the spines and shoots, it is as effective as an Evergreen. It may be allowed to run over sunny parts of rockwork and similar spots in the milder districts of the country, but in many parts it will need the protection of a low wall, which it will soon clothe in an effective manner. A plant of it thus situated on the outside of the T range at Kew has been in flower for a long time, but it is just now at its best, the whole plant being thickly studded with small, white, contracted, bell-shaped blossoms. This particular specimen was also very effective last Christmas, the flowers then being pure white, but now in consequence of the bright sunshine they are suffused on the outside with pink. It is a native of South America, as also are its allies, the Colletias, all of which are singular shrubs.

Double Anemones—A large and beautiful gathering of these have been sent to us by Messrs. Ant. Roozen and Son, Overveen, Haarlem, showing to what perfection the Anemone is grown in Holland. All the varieties, numbering nearly two dozen, are double, which seem to be the greatest favourites with the Dutch growers. Their colours are exceedingly rich and varied, and the flowers of all are very double, forming compact rosettes of petals. Our selection of the sorts sent include those named as follows: La Reine des Beautés, pale pink, shaded crimson; Couleur de Sang, rich crimson, inclined to a reddish hue; Rose Mignonne, a soft pink, very beautiful; Queen of the Netherlands, pure white; General Brown, rich crimson; Indigo, intensely rich purple, one of the finest of its colour; Mary Stuart, crimson with purplish centre; Bleu Aimable, purple tipped with white; De Broglie, pale blue; King of the Blues, a very rich purple; and Auricula, a bright crimson, inclined to carmine. The above form a representative selection of the various colours sent, and are all first-rate varieties, which would form a great attraction in the open border all this season. A gathering of double Ranunculuses is also sent. These are likewise uncommonly fine, and embody, we imagine, the best varieties.

Dracæna Lindeni.—A plant of this Dracæna is now flowering in the T range at Kew, for the first time, we believe, in Europe. As we suggested soon after this Dracæna was introduced, it proves to be merely a variegated form of the old D. fragrans, which has been known in gardens in this country upwards of 100 years, although from its green foliage and habit of not flowering until it gets large, its cultivation is now limited to botanical collections. We are not acquainted with the native country of D. Lindeni, but from the fact of the type being found only in various parts of Tropical Africa, we suspect that that country is the home of this variegated form. The inflorescence is terminal, in the form of a branching spike or raceme, the flowers being thickly crowded, white, and deliciously fragrant. The length of th spike on the Kew plant is about 18 inches. If this variety proves to be a free flowerer whilst young, it would be worth cultivating for the sake of its ornamental, fragrant flowers. As a foliage plant it is attractive only when about 1 foot high; after that the variegation becomes less distinct, until finally the leaves come wholly green, and those which were originally striped and margined with clear white gradually change to the normal colour. It may be worthy of remark that this plant is what is termed a true Dracæna by botanists, D. Goldieana, D. ensifolia, and D. umbraculifera being other true ones. The garden Dracæenas, such as D. ferrea, D. terminalis, &c., are really Cordylines; to hybridists this difference may be worthy of note. In the same house, along with the flowering specimen of D. Lindeni, is a curiously mottled-leaved form of what we take to be D. fragrans, named D. Cantleyi, and which, if the markings could be made more distinct, would prove a worthy companion to D. Goldieana.

Stigmaphyllum ciliatum.—Being desirous of seeing Messrs. Laird's collection of Pansies, I paid a visit to their Pink Hill Nurseries, near Edinburgh, but was unfortunately too early in the season to see them in perfection. My journey was not, however, in vain, as in one of their hothouses I came across the charming stove climber just named growing with the greatest freedom in small pots, and producing a profusion of chaste yellow flowers which I have never seen equalled. They are quite unique in form and might easily be mistaken for those of an Oncidium, the colour being a delicate yellow. The plant flowers continuously through the entire summer and should surely find a place in every stove, as it does not require a large space to see it in perfection, as is the case with most tropical climbers.—G.

Exacum macranthum.—This beautiful Gentianwort, of which we gave a coloured plate in Vol. XXII. of THE GARDEN, is now flowering in the Begonia house at Kew. What Gentiana acaulis, G. verna, and one or two others are amongst hardy plants this herbaceous shrub from Ceylon is amongst indoor flowering plants. A green-leaved, tall, branching stemmed plant, bearing on the ends of its strongest shoots clusters of bright purple-blue flowers, each as large as half-a-crown, with a disk of bright yellow anthers, all of which remain in good condition for several weeks together, is a rare beauty, even in the richest collections, Lisianthus Russellianus being perhaps its only rival, but this plant is, alas! a very testy subject indeed, even in the hands of the most skilful cultivators. Exacums are not difficult to grow, and as they can be propagated either by means of seeds or cuttings, a stock is easily obtained. Before one can sow the seeds, however, they have to be procured, and herein lies the cause of the rarity of these beautiful Indian Gentianads. We learn from Colonel Beddome, whose knowledge of Indian plants is very wide, that the Exacums are as plentiful on the Neilgherry Mountains as our Bluebells and Primroses are in our forest glades and glens. Besides E. macranthum, a native of Ceylon, there are several beautiful species whose acquaintance we would like to make. E. zeylanicum has been in cultivation in this country, but, so far as we know, it no longer remains with us. Exacum affine, an interesting little species from Socotra, is also about to flower at Kew. It is said to be very fragrant and is apparently free flowering, the individual flowers being rather small, but crowded as they are on the ends of the shoots, they have a pretty appearance.

Bulbines.—An interesting genus of the Lily family, and a near neighbour of Aloe and Kniphofia both in botanical classification and in its native habitat—the Cape of Good Hope. In habit the species vary from that of a Kniphofia or of Aloe vulgaris to that of a Daffodil or of an Onion. The flowers are yellow, in some species nearly as large as a Primrose, and are borne on long graceful scapes in a dense racemose head. The following species are now in flower in the succulent house at Kew: B. latifolia, an Aloe-like plant with thick fleshy foliage 2 inches to 3 inches broad at the base, narrowing to a point. The flowers are lemon-yellow, very numerous and closely packed on the long scape. One of the Kew plants bears fifteen scapes and is a really ornamental object, worthy of a place in any conservatory or greenhouse. This plant has been in flower several weeks and promises to keep on blooming for some time yet. B. narcissifolia.—As the name implies, this species when out of flower resembles a Narcissus. The flowers are pale yellow, and are deliciously scented. B. caulescens has a stem about 2 feet long, which is clothed with semi-cyliadrical fleshy foliage, from the axils of which the long graceful flower-scapes are produced. B. alooides has thick bladdery foliage of very watery appearance and pale yellow flowers. What appears to be a new and very distinct species is about to produce a central flower-scape, and promises to be an ornamental plant. Like many other obscure plants, these Bulbines are beautiful only when well grown; if allowed to fall into anything approaching neglect they have a very weedy appearance. B. latifolia we would recommend as a very attractive greenhouse plant.

Phyllocacti.—What Philip Miller called the Spleenwort-leaved Indian Figs, London called Cacti, and what we now distinguish from their congeners by the above appellation comprise some of the most gorgeous-blossomed indoor plants, which are so easy to grow that, once possessed, it is not easy to kill them. Once upon a time, before first-rate gardening came to mean the cultivation of costly plants of a generally very precarious nature, these brilliant-flowered Cacti held a favoured place in almost every garden, from the richest and most extensive to the humble cottage window through which the sun's rays were able to penetrate. In old gardening works we frequently meet with accounts of the brilliant displays of flower on large wall-clothing specimens of Phyllocacti, and we are certain that many of our gardens of to-day would be made richer and more interesting if a collection of Miller's Spleenwort Cacti was included in them. There are now a great many beautiful varieties of only recent origin, the result of hybridisation, these plants crossing freely with each other, and yielding an endless variety in the colours and forms of their progeny; and by growing the plants in warm, moist houses, or with their roots warmed by a manure hot-bed during the summer, and keeping them dry and airy in a warm house until spring, the yield of large, richly-coloured blooms will be both large and lasting. In one of the corners of the succulent house at Kew there has been a most attractive display made by a collection of these plants, which we are pleased to see are still considered worthy of attention there, though apparently despised by the majority of the gardeners of to-day. To anyone in search of a new and sensational delight we would recommend a collection of these Phyllocacti; they do not last quite so long as Cattleyas, but they are infinitely brighter coloured, easier to manage, and very much cheaper.

QUESTIONS.

5203.—**Blechnum Spicant and its varieties.**—Would some reader of THE GARDEN oblige me with a descriptive list of the various varieties of this Fern and the means of identification?—A. D. W.

5204.—**Fowler's lawn sand.**—I should be glad to know if any of your readers have used Fowler's lawn sand for the destruction of Daisies, &c, and if so, with what results. Also if paraffin is still used for the destruction of plant pests; and if so, how is it used, and of what strength. —W. B.

5205.—**Plants to grow in a frame.**—I have a frame 48 inches long, 44 inches broad, and 3 feet high with a good slant. Will some one be kind enough to tell me what would be the best kind of plants to grow in it in order to keep up a certain amount of bloom during the spring, summer, and autumn months? I was thinking of trying Roses. I should like to have the names of four of the best dwarf sorts. I got Maréchal Niel from a nursery in the spring; it had a stem about 3 feet long. I trained it to the back of my frame. It threw out a good many shoots and shortly afterwards the stem got quite black in the centre, and all the leaves on its upper part faded away. I cut it down to about 8 inches from the roots. Must it be a climber or would it grow in any other way? I have no accommodation for growing flowers outside; therefore any information would be thankfully received.—S. B.

SOCIETIES.

ROYAL BOTANIC SOCIETY.

MAY 21.

THERE has not been for several years past a finer May show at the Regent's Park than that which was held on Wednesday last, the brilliant effect of which was enhanced by the weather, which was all that could be desired. The spacious exhibition tent, as usual, presented a charming aspect, more particularly so on this occasion as the heavy masses of foliage were skilfully relieved by gay groups of colour. At no other exhibition can such a lovely effect be produced as under this tent, on account of the judicious way in which the surface of the ground has been laid out in order to display exhibits to the best advantage. On this occasion the tent was filled to overflowing, and collectively the exhibits were of high-class quality. Orchids have rarely been more plentifully or better shown than on this occasion. Stove and greenhouse plants, too, were quite up to the mark, while Roses, Pelargoniums, Clematises, Azaleas, and other important elements of an early summer flower show could scarcely have been finer; but for all that there was a conspicuous lack of absolute novelty, for although there were crowds of new florists' flowers of all kinds, there was nothing to particularly fascinate plant lovers in the way of new and distinct species.

Botanical certificates were awarded to—

CYPRIPEDIUM CILIOLARE.—A new species in the way of C. Argus, but finer, the colour being brighter and the spotting more profuse. Shown by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway.

FICUS ELASTICA ALBO-VARIEGATA.—A variety of the well-known India-rubber plant, in which the leaves are handsomely variegated with several shades of yellow and green, so as to render them handsome and attractive. Exhibited by Messrs. Ker & Son, Aigburth Nurseries, Liverpool.

ODONTOGLOSSUM ELEGANS SUPERBISSIMUM.—A superb variety of a species of Odontoglossum that has long been regarded to be among the rarest in the genus. It is supposed to be a natural hybrid between O. Halli and cirrhosum. The flowers most resemble those of the last-named species as regards form, but the sepals are of a rich chestnut brown, mottled with white. The spike is long, slender, and flexuose. Exhibited by Messrs. Sander & Co., St. Albans.

ACER PALMATUM AUREUM.—A variety of a Japanese Maple, with golden instead of green foliage, and A. palmatum roseum, in which the foliage is handsomely tinged with red. Both shown by the New Plant and Bulb Company, Lion Walk, Colchester.

CATTLEYA MENDELI MARGINATA.—A most beautiful variety, the distinctive character of which is the broad and conspicuous margin of rich magenta-crimson to the labellum. The flowers are large, well formed, and splendidly coloured. Shown by Mr. Salter, from Mr. Southgate's garden, Selborne, Streatham.

ODONTOGLOSSUM POLYXANTHUM.—A rare species and distinct from all others. The flowers are large, greenish yellow, heavily blotched with chestnut-brown. O. mulus, in the way of O. hystrix. The flowers are large, cinnamon-red, blotched with pale yellow. Both exhibited by Mr. H. James, Castle Nursery, Lower Norwood.

CYPRIPEDIUM ROBELINI.—A new eastern Lady's Slipper Orchid in the way of C. lævigatum, to which it is superior in point of colour, and probably will be as regards the size of the flowers when they become well established. Shown by Mr. Cypher, Cheltenham.

ANTHURIUM SCHERZERIANIUM CYPHERI.—A variety having enormous spathes, larger even than those of the rare Wardi variety, which has hitherto been considered the largest. The spathes are almost as broad as long, and the colour is particularly brilliant. Shown by Mr. Cypher.

Floricultural certificates were awarded to

BEGONIAS (tuberous) T. Hewett, a large double of a brilliant crimson-scarlet; Earl of Chesterfield, a large single vivid crimson-scarlet; Mrs. Weekes, a most lovely single variety, with finely-shaped flowers, pure white with a distinct margin of rose-pink; Her Majesty, flowers large and handsome, of a delicate blush flushed with rose-pink; General Gordon, an extraordinary large and fine double with the rosettes of a carmine-crimson; Distinction, a lovely sort, with large crimson blossoms flushed with white towards the centre; Mr. A. Forbes, a good flower of a vivid crimson; Countess of Chesterfield, carmine-crimson, very large and finely shaped. These were all shown by the raisers, Messrs. Laing and Co., Stanstead Park Nurseries, Forest Hill, and all are the perfection of what tuberous Begonias should be.

GLOXINIAS.—Beauty, flower large, erect, purple throat, white-edged and profusely spotted; George Amer, crimson, white-edged and spotted, very large, and of fine shape and texture; Mrs. Coomber, crimson, white-edged, copiously spotted with carmine. All shown by Messrs. Laing.

CALADIUMS.—Baron James de Rothschild, leaves crimson, veined and pencilled with a deeper tint; L'Aurore, crimson leaf, broadly edged with yellowish green; Mitzand, leaves crimson, veined with red. All these exceptionally fine new varieties were shown by Messrs. Laing.

PELARGONIUM HARVESTER.—One of the decorative section, having large dense trusses of crimson flowers flushed with black, very showy and distinct. George Sheppard (Jackson), also a decorative variety, and an extremely brilliant one, the colour of the flowers being a vivid crimson-scarlet distinctly edged with white; the habit is good and the trusses large. Shown by Mr. H. Little, Hillingdon Place, Uxbridge.

ROSE ETANDARD DE JEANNE D'ARC.—A Tea variety bearing large full flowers of a pure creamy white. It is a vigorous grower and prolific flowerer, and is likely to become a popular Rose, particularly for early bloom. Shown by Messrs. Paul, Cheshunt.

CROTONS.—Flambeau, leaves long and gracefully recurved, of a bright yellow, veined and ribbed with carmine-crimson. Sunrise, with broad, handsome leaves, handsomely variegated with emerald-green and gold. Mosaicus, leaves long and rather narrow, of a green ground colour, veined and ribbed with crimson. These three were singled out of the fine collection exhibited by Messrs. Ker & Son, Aigburth Nurseries, Liverpool.

ROSES.—Though not so plentiful as usual, there probably has never been such a faultless display of pot Roses at a May show as on this occasion. The nine plants which Messrs. Paul showed from their Cheshunt Nurseries were magnificent indeed, all being gigantic specimens and profusely flowered. There was a prodigious Charles Lawson quite 7 feet through, and thickly set with flowers and buds. Scarcely inferior in size were the examples of Edouard Morren, Anna Alexieff, and Cheshunt Hybrid, while a plant of Madame de St. Joseph was a grand specimen of high class culture. The other plants that made up this superb group were Camille Bernardin, Madame Victor Verdier, Beauty of Waltham, and Céline Forestier—a first-class assortment of varieties for early bloom. For groups of 20 plants in pots 9 inches across, Turner, of Slough, and Messrs. Paul, of Cheshunt, were in rivalry, and certainly the judges must have had a difficult matter to decide which was the best group of the two, as both were so fine. Mr. Turner's plants were, however, larger, and carried better blooms than the Cheshunt plants. The Slough collection consisted of the following select varieties: Juno, Marquise de Castellane, La France, Céline Forestier, Sir Garnet Wolseley, Therese Levet, Innocente Pirola, Camille Bernardin, Edouard Morren, Madame de St. Joseph, Madame Victor Verdier, Madame Margottin, Souvenir d'un Ami, Star of Waltham, Charles Lawson, and Merveille de Lyon, the last being the lovely new white Hybrid Perpetual. These plants were from 3 feet to 4 feet across, and admirably furnished with luxuriant foliage. Among the Cheshunt group were such beautiful sorts as Alba rosea, Paul Jamain, Edouard André, Catherine Soupert, and Madame Bravy. An extensive array of cut blooms, comprising about a score of boxfuls, was contributed by Messrs. W. Paul, of Waltham Cross. These even surpassed in quality the superb display made by the same exhibitors at the last South Kensington show, all the blooms being as fine as one is accustomed to see at July Rose shows. Among the sorts shown the most prominent were the new Queen of Queens (which seems to become finer each time it is shown), Merveille de Lyon (two dozen splendid white blooms), Juno (uncommonly fine), Marie Baumann, Masterpiece, and Baroness Rothschild. The most noteworthy of the Tea varieties were Madame Cusin (a sweetly pretty new sort), Julie Mansais, La Boule d'Or, Etoile de Lyon, Enfant de Lyon, Jaune d'Or, Mons. Furtado, Madame Joseph Schwartz, and Madame Hippolyte Jamain. These are all uncommon sorts, and all thoroughly good. This exquisite display of cut Roses occupied a position on a bank, so that the blooms could be seen to perfection. The perfume pervaded the whole tent. The amateurs showed much better productions this year, but are still far behind the nurserymen.

ORCHIDS.—These were not only more plentiful, but of higher quality than have been seen here for several seasons, but the competition was chiefly confined to amateur exhibitors. Of these there were no fewer than six exhibitors of twelve plants, all of which were above the average quality, and the first three were of superlative merit. A new exhibitor won the first prize, and he is to be congratulated on thus beginning his exhibiting career with such *éclat*. This exhibitor was Mr. Powell, who grows Mr. Brymer's celebrated collection so well at Ilsington House, Dorchester. Of the dozen plants shown there were only three weak ones, all the others being remarkable examples of high-class culture. The finest specimen was a Cattleya Skinneri, a *bona-fide* mass over a yard through and carrying no fewer than twenty-two spikes, each averaging half-a-dozen flowers. This plant was singled out by the judges as the finest specimen Orchid in the show and worthy of the Veitch memorial prize and medal. The other eight remarkable plants were Dendrobium nobile, a pyramidal mass of bloom a yard high and as much through; Thunia Marshalli, with a dozen and a-half spikes; Cypripedium caudatum, with nine spikes; Dendrobium pulchellum, a splendid mass of bloom, 1½ feet across; D. Falconeri, a well flowered mass on a wood block; Lycaste Skinneri, with about two dozen flowers; Calanthe veratrifolia, with a dozen spikes; and Cypripedium niveum, with three dozen spikes, and a plant 2 feet across. The other plants were Vanda tricolor, Odontoglossum citrosmum, and Masdevallia Harryana splendens, a very richly coloured variety. The second collection came from Mr. Cobb's garden at Sydenham. This was also an excellent group, and exemplified the skilful way in which Mr. Catt grows Orchids. The best plants were Odontoglossum vexillarium, with some fifteen spikes; Cymbidium Lowianum, with four spikes; Cypripedium caudatum, with eight spikes; Masdevallia Veitchi, about 2 feet through and a perfect sheaf of spikes; Dendrobium thyrsiflorum, with seven spikes; and Oncidium Marshallianum with two or three very fine spikes. The other plants were Cattleya Mossiæ and Mendeli, both good; Odontoglossum crispum; O. citrosmum roseum, Masdevallia Harryana, an excellent plant, and the rare Angræcum articulatum. Mr. Philbrick's gardener, Mr. Heims, won the third prize, his collection containing a magnificent Sobralia macrantha with about two dozen blooms. This plant was scarcely inferior to the Cattleya Skinneri, to which the Veitch memorial prize was awarded. There was also in this collection a mass of Oncidium concolor with six spikes, one over a foot in length, and Thunia Marshalli. The other exhibitors included Mr. Douglas, gardener to Mr. Whitbourne, who had a grand specimen of Odonto-

glossum Roezli carrying over a dozen spikes and the white variety almost as large, huge plants of Cypripedium villosum 4 feet across, Dendrobium nobile 4 feet through, Cattleya Mossiæ, and Odontoglossum vexillarium. An excellent dozen plants came from Mr. Southgate's collection at Streatham. It contained fine specimens of Dendrobium infundibulum, D. thyrsiflorum and D. Wardianum, all good; Odontoglossum citrosmum, Cymbidium Lowiaoum, Cattleya Mendeli marginata, a pretty variety; the rare white Vanda Denisonians. The other group from Mr. Child contained a fine example of Aerides Fieldingi with four branching spikes and Vanda suavis with three spikes. There were three collections from nurserymen, the best being from Mr. James, Castle Nursery, Lower Norwood, who had in his group grand masses of Cattleya Mendeli and Mossiæ, Odontoglossum vexillarium (a superb variety), Lælia purpurata alba, Dendrobium nobile, Aerides Fieldingi grande (a lovely variety), and Oncidium Marshalli. In Mr. Cypher's second group was a magnificent variety of Cattleya Mendeli, one of the finest we ever saw; the mass bore six twin-flowered spikes. There were also a Dendrobium thyrsiflorum with twenty spikes and a good plant of D. infundibulum.

Clematises.—At every May show here we look for some marvellous specimens of Clematis from the Woking Nurseries, and on the present occasion the group shown by Messrs. Jackman eclipsed all the efforts they have hitherto made in displaying the Clematises they grow to such perfection. They showed a dozen huge plants all perfect masses of bloom. A plant of Lady Caroline Nevill, one of the lanuginosa section, with large deep mauve flowers, was an exhibition in itself, being so thickly set with flowers as to almost hide the foliage. The other sorts were, of purples and mauves, Princess of Wales, William Kennett, Duke of Norfolk, Blue Gem, Mrs. Hope, and purpurea elegans, the last being of a deep purple. The whites were Madame Van Houtte, Impératrice Eugenie, patens floribunda, and lanuginosa candida. Fairy Queen is a lovely sort, with very large flowers of a delicate blush barred with reddish purple. The other plant that completed this display was the double Duchess of Edinburgh. There was no other collection of Clematises shown.

Stove and greenhouse plants.—These, as usual, were a great feature in the show, and received a fair share of admirers, though it must be confessed that to *habitues* their sameness year after year is apt to become monotonous. The customary exhibitors were again in competition. Among the amateurs Mr. Spode's gardener (Mr. Chapman) brought all the way from Hawkesyard Park, Rugeley, the winning collection of ten, which, indeed, were a grand lot. The largest and best plant was a huge Hedaroma Tulipifera, which was fully 6 feet through, and profusely set with drooping blossoms. This perfect specimen was singled out as the best specimen stove or greenhouse plant in the whole exhibition, and as such was awarded the Veitch memorial prize and medal; there was also an immense Erica affinis and an equally large plant of Erica Cavendishi. The others were Ixora Dixiana and coccinea, both profusely flowered; Anthurium Scherzerianum, Statice profusa, and Aphelexis grandiflora. Mr. Chapman was also unapproachable in the class for six plants. These were as fine as the larger group, the most noteworthy being Erica Cavendishi, Tremandra ericæfolia, Erica profusa, Acrophyllum venustum, and Ixora Dixiana.

The nurserymen were not so well represented as usual, as may be assumed from the fact that Messrs. Jackson, who are generally first, were only third on this occasion. Mr. Cypher, of Cheltenham, showed a good dozen for the first prize, and Mr. James, of Lower Norwood, a capital collection for the second place. In the last named collection was a grand plant of Anthurium Scherzerianum with about a dozen spathes.

We have seen better Ferns and fine foliage plants than those shown here in the competing classes. The best Ferns came from Great Gearies, Ilford, which included some magnificent specimens of Adiantum concinnum latum and some thrifty young Tree Ferns. The fine-foliaged plants shown by Mr. Rann, from Handcross Park, were unsurpassable, but the rest were below the average quality. Mr. Rann had large plants of Croton undulatum and Hendersoni, Cycas revoluta and circinalis, Dasylirion gracile, Latania borbonica, and Areca sapida. The Azaleas from Garbrand Hall, Ewell, were the admiration of the visitors, every plant being veritable pyramids of colour, some as much as 6 feet in height. The smaller plants from the Slough Nurseries were also fine, but the rest were not remarkable, though they helped to light up the tent with their splendid colours. A great attraction also was the large group of Calceolarias from Messrs. Carter's nurseries at Forest Hill, and a smaller one from Mrs. F. Watson's garden at Isleworth. The only collection of hardy plants was from Mr. Douglas, who generally shows them well. His plants were good, but he had a poor selection, as if there was no choice out of the wealth of hardy perennials we now have in gardens. This, however, arose, no doubt, from the absurd wording of the schedule, which stipulates six varieties, but probably the compilers of the schedule meant not less than six. This group of hardy flowers, which as a rule afford much interest to the visitors, was placed in an obscure corner, as if everyone was ashamed of them. Pelargoniums were a bright feature in the show, and, as may be seen by the prize list, some of the best growers about London competed for the prizes. Mr. Turner carried off first honours for both show and fancy varieties, his specimens being really grand, between 4 feet and 5 feet through, and completely smothered with bloom. Mr. Little's garden was also represented finely, and among them were some new seedlings of his own raising, which promise to be an advance upon older sorts. Gloxinias were shown fairly well, but not so fine as they might have been.

Groups of plants not in competition were numerous. The central banks were occupied by miscellaneous collections exhibited by Messrs. Laing, Messrs. Cutbush, Messrs. Henderson, and Mr. B. S Williams. The group shown by the last-named exhibitor was particularly noteworthy, as it consisted for the most part of flowering Orchids, numbering some 200 plants, which included not only the majority of the commoner kinds now in flower, but numerous rarities; among these were Aerides rubrum, Coelogyne Massangeana, Cypripedium Druryi, C. ciliolare, C. selligerum, C. Crossi, Dendrochilum latifolium, Odontoglossum cordatum superbum, numerous varieties of O. citrosmum and O. crispum, Oncidium concolor nigratum, Suttoni, and serratum. These, with crowds of the finest Cattleyas, Masdevallias, noble Vandas, and such like genera, interspersed tastefully with Ferns, made a charming group. Messrs. Laing's group contained numbers of new Begonias, Gloxinias, Caladiums, many of which were certificated, besides a collection of fine foliaged plants. Australian plants formed the basis of the group from Messrs. Cutbush's, which they grow so finely in their Barnet Nurseries, and in Messrs. Henderson's group some Blandfordias were the most remarkable. A great attraction in the show was a magnificent bank of Crotons which Messrs. Ker sent all the way from their nurseries at Liverpool. These were the perfection of skilfully-grown plants, and the colour of the foliage on the majority of the plants was the finest we have ever seen. The selection shown here was the pick of a collection of some seventy varieties grown by Messrs. Ker, therefore the very best sorts were represented, including some of their own raising, and quite new. Some of the varieties were worthily awarded certificates, and the whole group a silver medal. The New Plant and Bulb Company showed a small group of Japanese Maples, which they make a speciality of in their nurseries at Lion Walk, Colchester, and the corridor was enlivened by an extensive array of cut bulbous plant flowers from Messrs. Barr, Covent Garden, and cut Pansies from Mr. Hooper, Bath.

Veitch memorial prizes.—These much-coveted prizes have seldom been awarded to more creditable specimen plants than those which the judges selected for the honours. The specimen of Cattleya Skinneri reflected great credit on Mr. Brymer's gardener, who evidently understands the management of this lovely Orchid, which is not one of the easiest to cultivate and flower well. The plant which took the other prize possessed a great fascination to those of the old school of cultivators, who look upon a perfect example of an Australian shrub as the masterpiece of the plantsman's art. The plant was Hedaroma Tulipifera, and the cultivator was Mr. Spode's gardener at Hawkesyard Park, Rugeley. The specimen was fully 6 feet through, as perfect in outline as a Mushroom, whose form the plant resembled. It was in luxuriant health and profusely hung with blossoms. The Veitch memorial prizes for fruit will be competed for at the next show held at the Regent's Park Gardens in June.

A full list of awards is given in our advertising columns.

The pleasure grounds at Kew.—The chief attraction in this part of the Royal Gardens just now is the Rhododendrons, many of which are in full flower and brightening up the surrounding scenery with their glowing colours. The collection of Ghent Azaleas, too, is perhaps one of the best in the country, many of the varieties being large bushes, shapely and most floriferous, and just now masses of brilliant and varied colour. Nothing can surpass the beauty of such plants when grown in large masses as at Kew, and surrounded, as they are, by Beeches and other trees, which set off to advantage the blaze of flowers. Crossing the Syon vista, and turning off to the left of the lake, one comes upon a carpet, almost acres in extent, of Bluebells (Scillas), the effect of which is beyond description. Many trees and shrubs, too, are now in blossom, and look, in spite of a treacherous spring, as happy and hopeful as one could wish. An afternoon spent in wandering amongst these rather out-of-the-way portions of the gardens would well reward at the present time anyone fond of contemplating Nature in her best attire.

Adiantum cuneatum deflexum. — The name placed under the illustration of this new Maiden-hair Fern (p. 415 was by mistake A. cuneatum variety strictum, whereas it should have been variety deflexum.

Murray's composition.—In reference to Mr. Muir's statement (p. 332), Mr. Murray has sent us several letters upholding the value of his composition for killing insects, and also samples of the composition itself, which we shall test and in due course report the result.

Tobacco juice.—In The Garden (p. 372) M. Godefroy Lebeuf recommends vaporised Tobacco juice of the strength of 14° in place of Tobacco fumigation. Will you kindly tell me where this can be procured, or if not, then how I can make it of this strength?—Constant Reader.

*** Tobacco juice of the required strength can be obtained in London from Messrs. Corry & Soper, 18, Finsbury Street, who are permitted by the Custom House to extract from leaf Tobacco for horticultural purposes.—Ed.

Names of plants.—*G. W. N.*—Blue flower is Myosotis Weirleigh Surprise; other is a species of Arenaria (the flowers had dropped).——*F. H. Lloyd*—1, Vanda tricolor; 2, Diplacus glutinosus; 3, Streptocarpus biflorus; 5, Begonia metallica.——*E. M lyneux*—1, Olechoma hederacea. ——*N. B.*—Other shrub sent last week is Euonymus latifolius.——*J. R. D*—Salix cinerea.——*A. Elder.*—1, Epimedium alpinum; 2, Veronica; 3, Tulipa psittacina (Parrot Tulip); 4, Ranunculus bulbosus.——*G. C.*—Blue and pink varieties of the Spanish Squill (Scilla campanulata); Grass is Phalaris arundinacea variegata.——*J. H.*—1, Sedum pulchellum; 2, Saxifraga cæspitosa var.; 3, Oxalis Bowiesos; 4, Orobus aurantiacus.——*R. L*—Bird Cherry (Prunus Padus).——*F. R. S*—Apparently Cattleya Schilleriana; other is Epidendrum phœnicenm.——*H. Kes'ney.*—Dendrobium Calceolus.——*Cork*—You send the double-flowered variety of Ribes sanguineum which always flowers in the way you state.——*Young Gardener.*—Meyenia erecta.——*B H.*—Amelanchier Botryapium——*K. A. S.*—Lilac is Syringa persica; yellow flower is Cheiranthus alpinus; white flower is Smilacina stellata; white shrub is Spiræa chamædrifolia. Please attach numbers to specimens next time.——*E. F. C.*—1, Orchis Morio; 2, Orchis maculata; 3, Geum urbanum (Wood Avens); 4, Geum rivale (Water Avens); the monstrous form is a rarity——*Delta.*—Cheiranthus alpinus.——*E. Molyneux.*—1, Melica uniflera; 2, Luzula Forsteri: 3, Carex vulgaris; 4, Carex axillaris.——*A. K.*—Yellow shrub is Genista hispanica; Tragopogon porrifolius, Tulipa australis, Sparaxis grandiflora variety; white shrub is Exochorda grandiflora——*G. H. C.*—Oxalis Acetosella var. rubra, a very rare British plant.——*T. H. A. H.*—Cephalanthera ensifolia.

No. 654. SATURDAY, May 31, 1884. Vol. XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE CHANNEL ISLANDS IN APRIL.

To say that there is much of deep interest to the horticulturist, whether amateur or professional, in these favoured islands is to repeat a well-known truism. But how seldom does one meet with the professional gardener away from his nurselings. Of course it is very necessary that he should be on the spot during the greater part of the year, but an occasional short tour of observation to an island like Jersey, where gardening is so flourishing, or to Haarlem in the spring season, or to the Paris market gardens, or to some of the big Belgian nurseries must add considerably to his efficiency. The Jersey villa gardens are quite a treat to see, and many of them are very artistic. Whether or not April is the best month for the horticulturist, it is the best for the tourist; for although vegetation is not more forward than in Southern England, the islands are not then infested with excursionists, and the hedges and stunted trees do not bear the dust-beridden appearance which they show later in the year. Every cultivator nearly has a try at market gardening both with and without glass, and the Potato crop ranks next in his estimation to cattle breeding. New kinds are very little grown, and are looked upon with much suspicion. In fact, this clinging to the old state of affairs is one of the characteristics of a true Jersey man. His greenhouse does not show the signs of very careful attention, and the Grapes are small in bunch and leaf. If the climate was not so good, one would predict that they would finish badly. Notwithstanding, a chat with a Jersey cultivator on his theories and experiences is very instructive.

THE GRAPE TRADE has not been good of late years, and many of the vineries are used for growing early Potatoes and French Beans, which last year brought high prices; these are followed later on by Tomatoes. I went through a number of vineries and some of extraordinary length, but in no case did I notice any cultivation better than we have to show in England. In reality, we have to thank our fickle climate for making our gardeners so expert, for in warm countries where the fruits do well of their own accord, that best of all training—contest with difficulties—is taken away. No one must suppose, however, that mildew is unknown in Jersey. The fruit crop this year promises to be above the average, if the north-east winds have not caused "death i' the bud." A well-known grower at Millbrook, in Jersey, informed me among other things that the Chaumontel is deteriorating with him both in size and flavour. Doyenné du Comice is one of the most extensively grown sorts. The Bonne Louise trees want frequent replanting, as they soon bear themselves to death. Of late sorts, the old Glou Morceau and Josephine de Malines were the most popular. There was scarcely a good word said for Bergamotte d'Esperen. Here again I noticed a great lack of any wish for experiment. New sorts are very little tried, and double grafting almost unknown. Yet there is one of the very late French Pears that I have seen doing very well in England and ripening really good fruit at the end of March, viz., Marriette de Millepieds, that might be tried, and Prince Napoleon is another very promising sort. Glou Morceau in many soils is vegetable-marrowy in taste. Ribston Pippins are much grown on walls, and remarkably well they do, and are, as might be expected, a very paying crop. Figs are trained on wooden trellises parallel with the ground in the open air, and some of the trees cover an almost incredible quantity of ground.

THE VILLA GARDENS, as I have said, are mostly very pretty, and in many of the sheltered valleys are houses owned by enthusiastic amateurs, who show by their grounds what can really be accomplished in the Jersey climate. Such an one is La Claire, in the Rozel valley. Many of the tropical and semi-tropical shrubs grow here luxuriantly, and there are fine specimens of various kinds of Acacias and magnificent Eucalypti. The Rhododendrons and Camellias were in full bloom out-of-doors, one of the former—a hybrid of Edgeworthi, the name of which I could see nobody to ask—being magnificent. It is as sweet-scented as Princess Alice, and forms compact shrubs covered with large open Azalea-like flowers. In the same valley, a little higher up than La Claire, is a large villa, with prettily arranged and extensive grounds, to be let for 28s. a week. Perhaps the house is haunted, but 28s. and a ghost ought to tempt some of your readers to these islands. The great size and the free growth of the Camellias and Azaleas out-of-doors are well known, the largest I saw being in the grounds of Rozel Manor House. As the Channel Islands are so well known, there is little need to spin out these notes to greater length; but I should like to ask why the Euonymus hedges are so much finer and more golden than in England.

C. A. M. CARMICHAEL.

MARECHAL NIEL HOUSE AT BATH.

WE are pleased to give your readers a few particulars of our Maréchal Niel house, but are afraid we cannot divulge any great secret for "W. I. M.'s" edification beyond fairly good cultivation and favourable surroundings. Our house is a roughly built span-roofed structure, originally an orchard house, in length 40 feet, in width 30 feet, and in height 14 feet. Both north and south sides are boarded to the top, the east about half-way up, the west all glass. It has no side ventilation, all air being given from the top. A flow and return 4-inch pipe runs round the house at about 3 feet from the ground, but fire-heat is not used, excepting in severe weather and to assist at the flowering time. We have a wide border each side, and two borders 5 feet wide at equal distances in the centre. The plants in these borders are at distances of 6 feet. They have been planted with one exception about five years, and are on the seedling Brier and Grifferaie stock, about equal quantities of each. In passing we must say we give the preference to the first named stock. The exception spoken of above is about ten years old. It has made extraordinary growth, and has wood 10 inches in circumference 3 feet from the ground. When the trees were planted the borders were well prepared with good yellow fibrous loam and rotten manure, and the long shoots made were carried upright for about 10 feet and then tied down to wires 4 feet from the glass.

After flowering we cut all the small and weakly growths away and prune in some cases hard back. We syringe twice a day to produce a moist and growing atmosphere and to keep down red spider. Mildew will not appear if care is taken to avoid drought. The borders are mulched with rotten manure, and occasionally have a good soaking of water. Everything is done to encourage growth during the summer and early autumn. About September we take a few inches off the ends of the long shoots that have been made, to plump up the eyes and further the ripening. According to the condition of the new growth at the end of the year so we determine if we force or not; if strong, thoroughly well-ripened growth has been produced, then early flower may be had. If the trees do not appear to have ripened so well, then we prefer to allow them to bloom later. We are of opinion it is not a good plan to force early every year. This season we were at our best in Easter week, when from this house we were cutting from sixty to seventy dozen daily. Our total during the six weeks has exceeded 7000 blooms.

Bath. GEO. COOLING.

PLANTS IN FLOWER.

Seedling Pansies.—I send you a gathering of seedling Pansies from my own strain. They were planted in April, 1883, and flowered profusely all last season, even throughout the whole winter months, and are now, as they have been for several months, a perfect blaze, which will continue into November. On many of the plants can now be counted from sixty to one hundred good expanded flowers. They are individually not so large as last season, though very much more plentiful.—JOHN FORBES, *Buccleuch Nurseries, Hawick.*

*** A very beautiful and rich series of Pansies, which seem more at home in the cool north than anywhere else, though their beauty and fitness for our country generally is everywhere shown. Mr. Forbes' strain seems to us intermediate in size between that of the large French kinds and the beautiful crisp and wavy-edged German race, with, however, smooth and, in the old florist's sense, "good" forms. There are amongst them a good many of the delightful kinds in which what we will venture to call Wallflower-red predominates.—ED.

Scotch Polyanthuses.—A large gathering of seedling Polyanthuses has come to us from Mr. Neill Fraser's garden, Murrayfield, Edinburgh. They show what a marvellous range of tint exists among these flowers. There is every gradation from almost black to red, and from glowing yellow to almost white. We notice, too, a great number of fasciated stems among Mr. Fraser's flowers, due doubtless to liberal culture. The silver-edged sorts are particularly beautiful, having large and well-shaped flowers.

A white Columbine has been sent to us by Miss Jekyll from Munstead, who considers it a very beautiful variety. The flowers are the counterpart of those of A. cœrulea, but they are pure white save the faintest suggestion of mauve on the outer sepals. From the tip of the spurs to the anthers the flowers measure 3¼ inches, and the habit of the plant is dwarf and graceful. It has been raised from seed, and is surely one that should be perpetuated and grown largely, as it is far more beautiful than any white form of the common Columbine (A. vulgaris).

Double-flowered Calochortus.—Mr. Ware has sent us from his nursery the first example of duplication in the flowers of a Calochortus that has come under our notice. The species is the pretty little yellow C. Benthami, lately introduced. Instead of the normal number of petals, viz., three large ones and three small outer ones, the inner row of large petals is duplicated, making quite a rosetted flower without spoiling its elegant form, and certainly adding to its attractiveness. The flowers, moreover, have lasted twice as long as those of the original; hence, if a permanently double variety, it would be a gain in this respect.

Linaria anticaria.—This is without doubt one of the most beautiful of all the Linarias, and at the same time possesses the charm of novelty. It grows to about the same size as our common native L. vulgaris, and its flowers are gathered similarly in dense clusters, but they are white, with two purple blotches on the lower lobes or chin of the flower, and the corolla throughout is

delicately pencilled with purple lines. Sometimes the chin is yellow instead of purple. Miss Jekyll sends us some fine spikes of it from Munstead, where it is a favourite. The foliage is very glaucous, almost silvery. It is a capital rock garden plant, but is strong enough to take care of itself in a border.

Homeria collina is a pretty bulbous plant, suitable for growing in borders against warm and sunny south walls. Such is the treatment which it receives at Munstead, and Miss Jekyll has sent us some specimens of it in order to show how well it grows with her in a light sandy soil. This is a plant worth growing on account of its distinct colour—a sort of orange-red, a tint not easily matched among bulbous plants, or, indeed, in any other class.

Monstrous Polyanthus.—I send you a rather curious freak of Nature—more curious than beautiful. It is a seedling which came up among a number from the old Jack-in-the-Green Polyanthus, and is something like Pantaloon, now becoming scarce. It is a curiosity, nothing more. —A. Rawson, *Windermere.*

*** A curiosity indeed. The calyx of the flower is leafy, and prolonged an inch or more, while the corolla is much reduced in size.—Ed.

The Peacock Iris.—Some flowers of the major form of this exqnisitely beautiful flower (I. Pavonia major) have been sent to us by Captain Patton, Alpha House, Regent's Park. Few gardens contain a more lovely flower than this; it is therefore to be regretted that it is so fugacious. The snowy whiteness of the petals seems to intensify the blotches of turquoise-blue which adorn their bases. The flowers withered in an hour after they reached us. Irises seem to be favourites with Captain Patton, who says he has as many as fifty distinct kinds of German Irises in bloom at present in his garden.

Hardy Orchises.—A numerous and interesting series of Orchises has been sent to us by the New Plant and Bulb Company from their Lion Walk Nursery, Colchester, where their culture is evidently understood. They include Orchis Stabiana, a kind with dense globose heads of flowers of a delicate lilac colour, spotted with purple; O. undulatifolia, with curiously shaped flowers of a pale mauve colour; O. spectabilis, a handsome species with large lilac-tinted flowers very singular in shape; O. papilionacea, with long, dense heads of pale pink flowers; and Orchis (Aceras) anthropophora, not very attractive, but most singular in form.

The double Poet's Narcissus.—I send you two blooms of this beautiful Daffodil, which seems to me to be in colour of stem, length of flower-scape, and habit quite distinct. The one showing the red eye, as if the double of recurvus, is a native. I have noticed it growing wild for years on the Grass. The bloom is small. The beautiful large flower which accompanies it is a French form from bulbs imported. What variety is it the double of? It certainly differs from the ordinary type seen wild in Ireland, or at least growing in the Grass. I do not think the two are the same, and would like your opinion.—W. Baylor Hartland.

*** The flowers sent by Mr. Hartland are certainly different; one is larger, fuller, and without colour in the centre, and the stem is dark green, while the other is smaller, distinctly coloured in the centre, and has a pale green stem.—Ed.

Choisya ternata.—Of this beautiful evergreen Mexican shrub some excellent flower clusters come from Mr. Robert Veitch, New North Road Nursery, Exeter, where it thrives to perfection quite in the open air, and is never injured even in the severest winters, though sometimes it is damaged slightly by late spring frosts. It is a shrub that should be planted everywhere in the south and west, and as the flowers resemble those of the Orange Tree so much, they are an excellent substitute for Orange blossom. It has been in bloom for the last month. Flowers also come from Mr. Veitch of the Himalayan Laburnum (Piptanthus nepalensis), which is almost hardy in the Exeter Nurseries, and for the last two seasons it has commenced to flower at the end of March or early in April. It is a handsome shrub with racemes of yellow flowers, larger than those of the Laburnum, and with handsome shining foliage of an intensely deep green. Speaking of Laburnums, Mr. Veitch states that the Scotch Laburnum (alpestre) is now grandly in flower with him. It flowers twice in the year—in spring and autumn.

Eremurus himalaicus.—This is now in great beauty here (Rathcoursey, Ballinacurra, Co Cork). The flower-spike has much the form of a fox's brush; the stately stem stands over 6 feet in height, and bears a solid column of white star-shaped flowers with a yellow eye. Twenty-one inches of flowers are now open with about 7 inches more to follow; diameter of flower-spike, 4 inches. It possesses the great merit of being perfectly hardy. Seeds of it were sent to me about ten years ago by Captain T. F. Lloyd, who states that he found the plant growing in the Murree Hills, Western Himalaya, and also in parts of Gurhwal, but not common anywhere. It grows on the mountain sides where they are bare of forests at an elevation of from 6000 feet to 7000 feet, and on southern aspects.—J. J. S.

German Irises.—Judging by a gathering of hardy flowers which Mr. Robert Veitch has sent to us, his nursery at Exeter must indeed present a most attractive appearance at the present time. The flowers include an uncommonly fine series of German Irises which, with their large and showy flowers, rich and varied in hue, approach more nearly to Orchids than any flowers we know, yet they are much less expensive and more easily grown. From this collection we have singled out the following as being the most distinct and beautiful, viz, Prince of Wales, canary-yellow petals, striped falls; Faust, plum-purple; Duc de Brabant, yellow and purple falls; Florentina, very large white, deliciously scented; Margottin, white, edged with mauve; Queen of May, bright plum-purple; pallida, a very fine species with large mauve flowers; Walneri, a very large variety of I. germanica with intensely deep purple flowers; Victorine, deep purple falls, white petals. These form a representative selection.

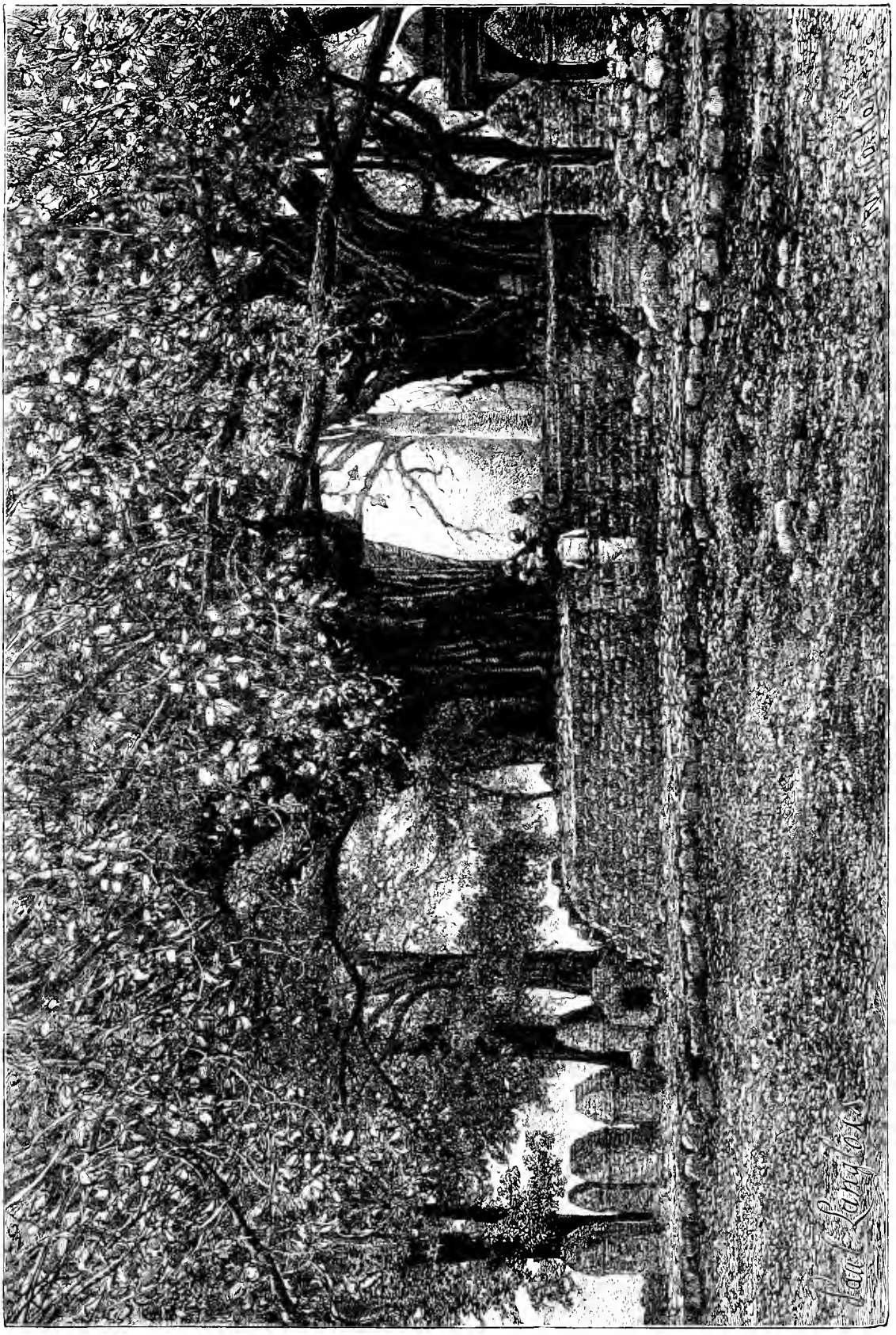
Leschenaultia biloba major.—One of the most beautiful plants that we have had sent to us for a long time is this Australian shrub, once such a favourite plant in greenhouses, but now very seldom seen, particularly in such perfection as the plants which Mr. Balchin has sent to us from his nursery at Hassock's Gate, where he says he has a large number of plants as fine as those he has sent. The plants are little bushes about a foot high, furnished with narrow, Heath-like foliage, and completely smothered with flowers about an inch across, and of the loveliest Gentian blue imaginable. The blue is of various shades, being most intense when the flowers are first expanded. It is a great pity that such a lovely plant as this should be allowed to lapse into such neglect. We intend to give a coloured plate of this plant in The Garden shortly. In the meantime we should welcome information from Mr. Balchin respecting the treatment he gives it so as to bring it to such perfection.

Daffodil freaks.—I send you specimens of N. poeticus and N. biflorus representing freaks that may interest some of your readers. 1. N. poeticus majalis has eight petals. This elegant species has for the past month or six weeks been full of interest, the calyx for several weeks before the flower expanded resembling an inflated bladder resting on a miniature poll, and when the flower was prepared to come forth its first appearance reminded one of a sweep in days gone by emerging from the chimney cowl. 2. N. biflorus has a fasciated stem, the flowers ranged frill-like round an enlarged cup. I do not recollect observing before a similar malformation. The three stems, which have agreed to go together, have masterly worked their eighteen petals round a common unbroken centre. The second specimen has four flowers, two being joined the full length of the stem; then they separate, and each preserves its individuality. In some cases there have been specimens with eight flowers, but usually N. biflorus has one, two, and sometimes three flowers; when more appear on a plant it is the result of fasciation. 3. N. poeticus, Mr. Harrison Weir's semi-double seedling. There is no shortening of the tube in this. For comparison I send a single N. poeticus and a double N. poeticus. If any of your readers have raised double N. poeticus from seed, I shall be pleased to hear if it retains the character of the single, as in Mr. Harrison Weir's. 4. N. poeticus patellaris of Haworth, Narcissus medio-purpureus maximus of Parkinson, which I suppose is the single of the common double form, and this I find is how Haworth fixes it. I was at one time of opinion there was one common type of double poeticus, but I find that is not so, as I appear to have two or three. I cannot so far, however, trace any double variety of the common single N. poeticus recurvus.—P. Barr.

THE BANYAN TREE.

(FICUS INDICA.)

One of the most remarkable trees belonging to the genus Ficus—the 600 species of which comprise climbing shrubs and trees of great diversity of character—is the famous Banyan, whose extraordinary habit of growth and enormous proportions so much astonish those whose idea of a large tree has been formed from what we in Europe consider giant forest trees. The annexed engraving shows the character of the Banyan, whose spreading, bowery roof, beneath which whole villages of huts find shade and shelter, is supported by gigantic pillar-like props, formed by descending aërial roots, which, on reaching the ground, assume the appearance and perform the functions of separate trunks. The following extract from Tennant's "Ceylon" gives an interesting account of the peculiar habits of this tree, which in many parts of India is held sacred by the natives: "As we ascend the hills, the Banyans and a variety of Figs make their appearance. They are the Thugs of the vegetable world; for although not necessarily epiphytic, it may be said that, in point of fact, no single tree comes to perfection, or acquires even partial development, without the destruction of some other on which to fix itself as its supporter. The family generally make their appearance as slender roots, hanging from the crown or trunk of some other tree, generally a Palm, among the moist bases of whose leaves the seed, carried thither by some bird which had fed upon the Fig, begins to germinate. This root, branching as it descends, envelops the trunk of the supporting tree with a network of wood, and at length, penetrating the ground, attains the dimensions of a stem; but, unlike a stem, it throws out no buds, leaves, or flowers. The true stem, with its branches, its foliage, and fruit springing upwards from the crown of the tree, whence the root is seen descending, and from it issue the pendulous rootlets, which on reaching the earth fix themselves firmly and form the marvellous growth for which the Banyan is so celebrated. In the depth of this grove the original tree is incarcerated, till, literally strangled by the folds and weight of its resistless companion, it dies, and leaves the Fig in undisturbed possession of its place. It is not unusual to find a Fig tree in the forest which had been thus upborne till it became a standard, now forming a hollow cylinder, the centre of which was once filled by the sustaining tree, but the empty walls form a circular network of interlaced roots and branches firmly agglutinating under pressure, and admitting the light through interstices that look like loopholes in a turret." Deep twilight always prevails under the shade of the spreading foliage, through which not a ray of bright light can pierce, and the awe and dread with which the Buddhist villagers regard this sacred tree is very intelligible. In the Wood Museum at Kew there is a fine specimen of a Palm trunk, upon which the strangling growth of a Banyan's roots is well shown. The remarkable way in which the roots become united to each other at every point where they touch is observable in the specimen just named. B.



THE BANYAN, OR SACRED TREE (FICUS INDICA) AT BAIDYNATH.

INDOOR GARDEN.

GLOXINIAS AT CHELSEA.

TWO houses filled with these richly coloured and showy flowers form quite a feature just now in Messrs. Veitch's nursery at Chelsea. All the best of the named varieties are to be seen there in good condition, while their numbers are being rapidly increased by means of selections made from seedlings. Seedling Gloxinias remind one very much of seedling Phloxes. One has to raise hundreds of seedlings of the latter before a shade or two superior to existing varieties can be obtained, although fifty in every hundred may be as good as the parents. So it is with Gloxinias. Messrs. Veitch raise several thousands annually and obtain some 500 really good varieties from amongst them; but selecting a set of new ones to be introduced to the public is a somewhat difficult matter; they must be improvements on existing varieties—new in colour, more perfect in form, or more abundant in blooming—and therefore about one in 500 is the largest number that can be reckoned on.

One thing greatly in favour of the seedling raiser is the short time that elapses from the time the seed is saved and sown until the plants are in flower. If the seeds are sown early in the year the produce will be in flower during the summer; not in the form of small plants with a flower or two, but good specimens, with a score of blooms open on them at one time. In order to get up a good stock as rapidly as possible a pinch of good seeds may be sown and the plants grown on rapidly, but the chances of raising anything really good is very small indeed; and as the best-named varieties can be obtained for a shilling or two, and new varieties about from 3s. 6d. to 5s. each, no owner of a plant stove need be without the very choicest varieties.

PROPAGATION AND SOIL.—Few plants are more easily propagated than Gloxinias. Leaves or portions of leaves inserted in sandy soil soon make flowering plants, and when the flowering season is over the dried bulbs may be put under a stage for the winter. They are not very particular as to soil. The potting material used for Pelargoniums should have a third part of turfy peat added to it, and they like rather more sand than Pelargoniums require. The plants should be kept near the glass, otherwise the foot-stalks of the leaves become drawn, and the flowers do not stand up erect and firm. A well-grown Gloxinia has the footstalks of the leaves and the stems of the flowers so firm and brittle, that they snap off almost with a touch.

VARIETIES.—Some of the most strikingly beautiful kinds in Messrs. Veitch's nursery at present are those with deep purple-coloured flowers. One of the very best of this class is Brunette, the flowers of which are large in size and of a rich, dark purple, shading to purplish maroon in the centre. Ovid is also a rich, dark purple flower. Daimio, deep purple. Ne Plus Ultra sent out by this firm some years ago is still one of the best of its peculiar colour; it is quite distinct from Brunette, and should be grown in every collection. Lady Brook is also a very desirable purple flower. Amongst shades of crimson and scarlet, Garibaldi is conspicuous on account of its intense, almost luminous, scarlet flowers of good form. Robin Hood, crimson, with a pale, rosy red margin, is very distinct. Radiance is also a charming flower of a distinct crimson-scarlet shade. Duchess of Connaught is a very distinct variety; it has rosy crimson flowers with a white margin. Acme, scarlet, with a dash of lake on the throat, is likewise a very fine variety. Boule de Feu, though an old flower, is of large size and strikingly rich in colour.

LIGHT COLOURED VARIETIES in flower were not plentiful at the time of my visit. Purity, sent out in 1881, is still the best white, the flowers being remarkable for their large size and fine form. Elaine is a very fine light coloured variety; it is pale purple or mauve on the outer margin of the flower, the flower itself being white with spotting on the throat. Meteor is very richly coloured, and William Golding is also distinct, both in its rich crimson with maroon shade and the spotted throat. Lewis Castle I noted as one of the most distinct flowers in the collection; it is white, with a margin of a decided blue colour. Cordelia is very free in growth and one of the best of its class in cultivation; it is thickly spotted with purplish red on a white ground. Galilee is spotted internally with a red margin. These are a few of the varieties that were the most conspicuous at the time of my visit, but there are at least a hundred named kinds, many of which are distinct in colour from any I have mentioned; and as individual tastes differ very considerably, some may think that a few of those to which I have alluded might have been omitted and others included in the list.

DROOPING FLOWERED SORTS do not seem to claim attention; they are, however, very pretty. Some even artistic and tasteful people might prefer this class of flowers to the erect ones. Nevertheless, the general public do not seem to take to them, and the names are gradually disappearing from the lists. The plants look exceedingly well when properly arranged in plant stoves, and some examples of them in the Orchid houses lose nothing in comparison with the flowers of the best of the Orchid family. J. DOUGLAS.

HYDRANGEA PANICULATA GRANDIFLORA.

THIS Hydrangea is rapidly becoming a popular pot plant, great numbers of fine bushy little specimens, carrying from four to six large heads of blossom, being already in the London markets, so that, considering when out-of-doors its usual season of flowering is towards the end of the summer or early in the autumn, few shrubs equal it for the length of time over which its blossoms may be had in perfection. For flowering in pots thus early in the season the plants should be young, clean grown, and well ripened, potted up early in the preceding autumn, and plunged out-of doors. During winter, should the weather be severe, a slight shelter must be given them, and then as spring advances they may be brought on gradually in a little heat. As the pots get full of roots a copious supply of water should be given, varied occasionally by some slight stimulant, as this Hydrangea, like the common kind, is when in full growth a liberal feeder, and a check at that time will show itself in the colour of the foliage as well as in the size of the blooms. When kept indoors for early flowering, a liberal use of the syringe, especially on the undersides of the leaves, must be accorded them, otherwise the foliage is liable to be attacked by red spider, which if unchecked will completely mar the beauty of the plants. The atmosphere of the house, too, must be kept in circulation, as the young leaves are sometimes attacked by mildew, which, when once it has effected a lodgment on them, will spread rapidly if unchecked. A liberal amount of air whenever possible and dustings with sulphur should be resorted to in the event of mildew making its appearance. Under glass the flowers are of a creamy white colour without that rosy tinge which they assume when out-of-doors, especially after being expanded some time. Useful though this Hydrangea is as a flowering plant under pot culture, its merits as a hardy shrub are undoubtedly greater, for apart from its beauty the blossoms are borne at a time when they are especially valuable. This Hydrangea is seen to the greatest advantage when grown in beds or clumps rather than when dotted indiscriminately here and there, as collectively the mass of flower furnished by a group has a bold and imposing appearance compared with small scattered examples. This Hydrangea succeeds best with good liberal treatment, and so situated that the soil is moist rather than dry throughout the summer.

THE PRUNING of it may be limited to the cutting out of a few weak wiry shoots where they have become crowded, or the plants may be cut back rather severely—that is, the young shoots may be shortened to within three or four eyes from the base. By both methods a good display of flowers may reasonably be expected, but the pruned plants, as a rule, bear larger and more massive heads of blossom than those that are not pruned. A dressing of decayed manure every year will be of great service, especially if the plants are in a bed or mass. The typical H. paniculata is comparatively a little-known plant, but though not so effective as its variety it is nevertheless a desirable shrub. It is stronger in growth than grandiflora, and the outline of the plant is less rigid than in that variety, besides which the foliage is of a deeper green. The heads of bloom are much less massive than those of grandiflora, owing to the sterile flowers being but few in number.

CUTTINGS of both these Hydrangeas strike without difficulty at any time during the growing season. In our case we place a few large stock plants potted up for the purpose in gentle heat early in the season, when they soon start into growth, and when the young shoots are large enough they are taken off and put in as cuttings under the same conditions as Fuchsias and similar subjects. When rooted they are potted off, and under this treatment make good growth the first season. The young soft shoots on the plants now in the open ground will root readily enough if treated in the same way. In their case, too much heat must not be given, otherwise the change in temperature will be too great, and perhaps cause many to decay. For outdoor cuttings, a little heat will be of advantage, but if this is not to be obtained, they root readily enough in a cold frame, though, as a matter of course, they take rather longer time to strike. In putting in cuttings of a delicate character, such as these in a cold frame, care must be taken that the frame is air-tight, otherwise they will quickly flag, and many thus perish. The frame should be in a spot sheltered from the full rays of the sun and shaded if necessary. When in the full sun it is sometimes difficult to keep the frame close and the temperature within low enough not to injure the cuttings. In the event of very hot, dry weather, if the frame is shaded with mats, they may with advantage be well wetted two or three times a day. ALPHA.

PRUNING AND MULCHING CAMELLIAS.

THE Camellia season has not held out long with us this year, the hot weather of the present month bringing the late blooms on rapidly. However, as the season has extended from the middle of December until the present time, we have little cause for complaint, and it would be hard to find any other flower that would yield such a continuous supply of bloom. Last week we pruned our Camellias and gave them their annual mulching. The marked difference in growth amongst many of the older varieties renders a little care necessary when pruning. Beali and Woodsi, for example, can be cut with impunity, and will produce blooms on all the shoots, whilst with others strong, firm growth must be left to secure fine flowers for another season. Fimbriata may be cited as a type of the last named, and I fancy conspicua will be the same, although our plant of this is hardly large enough at present to enable us to form a decided opinion. Eximia is another variety that will not bear much cutting; indeed, I find it advisable with this only to remove the very thin growth. Briefly, the pruning is confined to thinning out cross and inside pieces and heading back where the growth is getting too far over the path. The heavy mulching which the beds have received for two or three seasons has brought a mass of fibrous roots close to the surface, and we shall this season only slightly prick the soil with a fork without in any way disturbing it. Three inches of cow manure, with a slight sprinkling of spot, is our mulching, and as a heavy watering is given immediately after this, the plants respond to the treatment in a few days. As in the case of outdoor trees, the mulching saves us much labour in the way of watering. We only use the syringe four months in the year, *i.e.*, from now until September; it is vigorously applied during that time, and serves, with an occasional fumigation, to keep

down insect pests. I am no advocate for shading in any shape or form where it is possible to exercise strict supervision as to ventilation, but as this cannot always be done, the thinnest covering possible may be applied, and this only when the foliage retains moisture on the surface exposed to the sun. The secret of plenty of Camellias for six months in the year depends greatly on plenty of air and light, coupled with generous feeding when the plants are making growth. E. B.

WINTER-BLOOMING PELARGONIUMS.

There are no more showy flowers for conservatory decoration in winter than zonal Pelargoniums. We all know how brightly they bloom in the greenhouse and conservatory in summer, and they come out quite as well and make as grand a display in November, December, and January if the plants have been properly prepared beforehand, but if allowed to bloom throughout the summer and autumn they cannot be expected to go on flowering all winter. Plants which will give the greatest satisfaction in winter are those propagated now and grown on in a hardy way until autumn without being allowed to produce a single truss of flower. Short-jointed and robust wood must be produced and well ripened by October; then flowers will be produced freely without any trouble. Cuttings from the freest blooming sorts should be taken off now; make them in the ordinary way, and insert each singly in small-sized flower-pots. A gentle bottom-heat induces them to root quickly, but they may also be rooted in a close frame without any artificial heat. As soon as rooted, place them in an airy position in a frame or on a greenhouse shelf, and as soon as they have begun to grow freely shift them into 6-inch pots; this is the best size in which to bloom them. Drain the pots carefully and use a rooting mixture consisting of three parts fibrous loam and the remainder sand and decayed Mushroom bed manure or leaf-soil. Pot firmly, and then put the plants back into the frame for a time or until they are forming new roots, when air may be admitted abundantly, and by July they may be placed wholly in the open air. Now begins their proper preparation for winter flowering. They should not be placed in odd corners; on the contrary, they should have the best position available that is fully exposed to the sun. Each pot should be plunged up to its rim in soil or ashes. If in the former, after the hole is dug out for the reception of the pot, place half a shovelful of ashes in the bottom and on these set the pot; they will prevent worms from working up into the soil. Never allow the plants to suffer from want of water, and as the flower-buds appear pick them off. At the same time when the shoots become long remove their points, so as to secure a dwarf bushy habit. By the end of September plants thus treated will be good ones; they should then be moved under glass and allowed to grow and bloom without restraint. In an airy house or pit where the temperature is 60° or more they will soon develop abundance of bloom and amply repay the cultivator for past attention.—Cambrian.

—— Zonal Pelargoniums have always been a useful class of plants, and they are so still, whether out of doors or under glass. They are not particular about soil, but they like a light one best, such as a mixture of rotten turf, leaf-mould, sand, and a little well-dried cow manure. The single varieties under proper treatment are very useful for winter flowering, and there are few plants better than the double and semi-double sorts for decorating the conservatory or greenhouse during both summer and winter. They should not, however, be allowed to flower much, if at all, in summer when wanted for winter blooming. The atmosphere of the house should be kept dry, and the temperature about 50° after the last week of October, and by using tepid water and weak liquid manure once a week, and letting them have plenty of light, and room, and air during sunshine, a rich show of bloom onwards till February will be the result. The following are really good sorts, viz., six singles, dark shades: Dr. Masters, H. M. Pollette, John Gibbons, Henry Jacoby, Colonel Holden, and John Fellows. Six light coloured kinds: White Swan, Mrs. Rivers, Condin, Agnes Emily, Bride, and Edith Pearson. Doubles; Madame Lemoine, pink; Pallas, salmon; Guido, scarlet; Mrs. Passman, nearly purple; Jules Simmons, light pink; Bellona, soft scarlet; Asa Gray (semi-double), salmon; Wonderful; Bridal Bouquet, white; Leamington Lassie, pink; and Gloire de Nancy, red.—J. Dick, *Skaw Park, Alloa.*

SUMMER TREATMENT OF BOUVARDIAS.

These beautiful late autumn and winter blooming plants are specially valued here, and as the success of their winter flowering depends wholly on their summer treatment, that receives a good deal of attention. Until the end of March our old plants were quite dry at the root and leafless in an unheated structure. They were moved there in February and given a month's rest. When placed in heat early in April they soon began to show signs of life by emitting shoots from every bud all along the old stems, and were soon green, but the uppermost shoots were taken off when 3 inches in length for cuttings, an operation which confined the young growths to the lower portions of the plants—the best place to have them where dwarf plants are desired. As soon as fairly in growth they were all turned out of their old pots; part of the old soil was taken from the roots, and they were repotted in clean pots, newly drained, and in good fresh material. This was done about the beginning of May. They were then returned to their heated quarters, and have grown well ever since, but we have just moved them into a cool pit, in which Primulas are kept during the season, and here they will receive such treatment as will cause them to bloom profusely from October till February. There may be nothing special in this treatment, yet they cannot do without it, and we have ample proof year after year that the practice thoroughly agrees with them. At present most of them are in 6-inch and 7-inch pots—sizes in which they will remain until about the beginning of July, when most of them will be transferred to 8-inch pots, and the largest into 9-inch ones Now the shoots are growing fast, and if allowed to go on would soon be 1 foot or more in length, and produce bloom, but this we do not allow them to do; just as every shoot is well into growth and capable of making more it is nipped back only a little distance from where it originated. This stopping soon induces other two young shoots to appear at the twin joints or buds below where stopped, and these quickly run up, but they, too, are stopped, and in their turn send forth new shoots until by the end of July the plants are large bushes full of healthy young wood, which is allowed to grow on in the unheated pit fully exposed to the sun. By autumn the plants are one mass of bloom buds, and when placed in gentle heat soon develop and prove of the greatest value for all kinds of floral decoration at a time when choice flowers are by no means plentiful. Green fly and other insects are kept off by syringing; stimulants are never given them, but they get clean water and plenty of it. Air is freely admitted during the whole of the growing period, except immediately after re-potting, when they are shaded and kept close for a week or so.

Cambrian.

Lavatera arborea variegata.—I am disappointed with this new Mallow-wort. In the spring of 1883 I bought a packet of seed of it which germinated well, and as it was said that the produce would not become variegated the first year, I was contented when I saw them green, but they began to get mottled early in spring when in a slightly heated pit, and as they began to get very white, I thought they would suit well for placing here and there amongst a mass of Pelargoniums in a cool conservatory, but since they were put in there, two months or so ago, every leaf has become quite green, and not in the slightest way effective. How long they may remain in this condition I cannot tell, but at present they are of no decorative value. In connection with this matter allow me to say that nearly everything written about in the horticultural papers is spoken of in terms of praise; we seldom or never hear a word of censure regarding worthless introductions, although cultivators have to pay good money for them, spend valuable time in getting them up, then to be thrown away. A little extra attention paid to this aspect of the question might have a salutary result.—J. Muir, *Margam.*

Lath blinds.—Although Mr. Baines may attach no importance to the fact that many of the best Continental plant growers use lath blinds in preference to any other form of shading, English growers will not be likely to reject such favourable testimony as this fact affords. Mr. Baines knows that market growers are amongst the shrewdest of gardeners, and yet he says that the fact of the lath blinds being used by them is no proof of their value. What test of their utility does he therefore require? The primary cost which seems only just to have occurred to Mr. Baines, was fully described by me in a former article; indeed, my first remarks were made quite as much with the hope of directing the attention of manufacturers to this matter as for the purpose of advocating the use of the blinds. I thought—and I still trust—that means may be found of producing these blinds at a much cheaper rate than they can now be had at, and then they will become as popular as they deserve to be. Here, so far as I am concerned, the discussion must close, and I would merely add that those who wish to make trial of the lath blinds need not do so on any large scale at first, as it is just as easy to shade a portion of the roof as the whole of it with them, but I engage to say that once used they will not voluntarily be again given up. One more word as to the cost. By keeping them on through the winter the coal bill will be materially reduced, and with a trifling annual cost for repairs they will last many years; whereas canvas blinds used in this way will want renewing every other year. —J. Cornhill.

KITCHEN GARDEN.

NOTES ON TURNIP CULTURE.

When quickly grown, and therefore juicy and tender, Turnips are much appreciated as a vegetable, and are considered to be the proper accompaniment of boiled mutton. The earliest grown and latest kept roots unfortunately are seldom fit for anything else except flavouring soups, but for that purpose they are highly valued, and it is part of most gardeners' duties to have them when thus required nearly or quite all the year round. In some gardens that are hot and that quickly dry after rain, really good Turnips are seldom grown, and in the majority of places there is often a break in the supply. The introduction of the Early Munich has, however, rendered Turnip forcing an easy matter, as this variety, if sown in a frame on fairly rich soil and the seedlings freely thinned out, bulbs readily. It also does well in a cool orchard or Peach house, and is fully a fortnight earlier than the older varieties when sown in the open air. Unfortunately, it is seldom fit for a dish, being hot and stringy and only fit for flavouring. One or at the most two sowings of it in the open are ample. We have still to rely on the old early Snowball, or on one of the selections from it. For autumn and early winter use, Veitch's Red Globe is invaluable, while the latest and much the hardiest is the Chirk Castle Black Stone. Those who like yellow-fleshed Turnips will find Orange Jelly both hardy and good, but we much prefer the black-skinned, white-fleshed, short-topped Chirk Castle. It is useless to attempt to grow good Turnips on dry, unmanured land, especially during summer. Our earliest sowings, usually two in number, are made on a well-manured east border, the first early in April and another at the end of the month. This season the frosts destroyed the first sowing, and we shall be later accordingly. I long since found early Turnips to succeed best on an east border, thus

enabling us to devote the south borders to more profitable purposes. Late in May or early in June, according to the state of the ground, a sowing is made on a north border, followed by another about three weeks later, the varieties being Snowball and Red Globe. These north borders being cool, Turnips do not so quickly become unfit for use, and in some seasons they have been serviceable till late in September. For the winter supplies a breadth is sown in the open ground directly it is cleared of early or second early Potatoes, this perhaps being late in July. The final and largest sowing is made about the middle of August, also on ground cleared of Potatoes. For the July sowing we prefer the Red Globe, while for the latest breadth what is left of the seed of the early Snowball and Red Globe, and about three ounces of the Chirk Castle are sown, the latter never being lifted and stored, and only sufficient of the others for use in case of severe frosts being experienced.

Turnips seldom bulb well or quickly if at all crowded; the rows therefore of the short-topped Munich and Chirk Castle varieties should not be less than 15 inches apart, and the plants should be finally thinned to about 9 inches or 10 inches asunder in the rows. The coarser-topped sorts ought to be 18 inches apart and the plants not less than 10 inches asunder in the rows. If the ground is at all dry at sowing time water the drills before sowing in preference to doing so after the ground is levelled. Where birds are troublesome, moisten the seeds and dust them over with red lead prior to sowing, and thus treated they will not be much interfered with when sprouting Slugs and fleas may be kept off by dusting over the young plants frequently with slaked lime and soot; partially thin out the seedlings as soon as they are large enough to handle, the final thinning being completed when the plants are growing strongly, and therefore less liable to be destroyed by insects. In showery weather the maggot often destroys whole breadths of Turnips, and in that case, as well as in the attacks of other grubs and caterpillars, prevention is better than cure. Where the Turnips are much liable to be damaged by any one or more of these depredators something must be done to make the plants obnoxious to them; for this purpose nothing probably is more effective or more easily applied than petroleum, at the rate of one pint to four gallons of water. I ought perhaps to repeat the advice to keep the petroleum forcibly mixed or well stirred with the syringe in order to prevent it from accumulating on the surface of the water, and to syringe this mixture over the plants in the evenings, preferably during showery or dull weather.

W. I. M.

PLANTING OUT YOUNG VEGETABLES.

Throughout May and June this is the most important of all kitchen garden operations, and one which should have timely and careful attention. There is hardly any kind of vegetable which does not need to be planted out during the months just named, and the bulk of the kitchen garden crops will have to pass through the planter's hands before long. When plants are taken from the seed beds or rows and placed in their permanent quarters, there is generally not much transplanting in the strict sense of the word connected with them, as, owing to their growing so closely together, they have, as a rule, to be pulled or dug up without any soil attached to their roots; but many do this more roughly than they ought to do, and the result is that they are long in becoming established and in commencing growth, and not infrequently are permanently injured. Plants should never be pulled up from the seed beds by their tops until the roots have been thoroughly watered and a fork worked gently amongst them to raise the soil, and thus preserve as many roots as possible. Showery days are the best for transplanting, but when these do not conveniently occur the roots should be puddled in mud and water immediately before being planted. Where insects abound a little soot should be added to the puddle. We have tried artificial manure and lime too in place of the soot, but prefer the latter. In taking plants from seed beds the largest and best should always be drawn first. Any one in the slightest way deformed should be rejected, as it is almost sure to die off and cause a blank. Plants taken up in the way indicated can generally be most conveniently dibbled in.

An old spade handle with a sharp point makes a good dibble. The hole should be made clean and wide and the roots should be let comfortably down. Cramming them into the hole is a fatal mistake, and so is making the hole too shallow and bending back the tap root. When the hole is made and the plant in it, the next thing is to put back the soil. Here again damage may be done if care is not taken. When the dibble is rammed down again close to the plant it invariably breaks a number of the young roots, which can ill be spared at that time. The best of all ways in which to put the soil against the roots and fill the hole is to push the dibble down into the soil to the same depth as it was in making the hole for the plant, and from 2 inches to 3 inches from the plant; then press it towards the hole. This will move the soil and fill the vacancy without injury to the roots. There is, too, such a thing as hanging a plant in dibbling them in. This consists in making a very deep hole, putting the plant into the top of it, and then pressing the soil around the collar, leaving the bottom empty. When this is done, as it is very often, and it is easily enough done, too, especially by a careless workman, the plants never thrive. When the roots are dressed before planting, they will not suffer immediately from want of water should the soil be dry; but when not puddled before being dibbled in, water the plants thoroughly immediately they are inserted. There is another class of plants with which I like best to deal, and that is those transplanted into nursery beds when quite small, each one being a few inches apart in good soil. When planting time comes these can all be lifted with excellent balls. All choice vegetables should be treated in this way, as it is a great gain to them in every way. In this case each should be lifted with a trowel, and in planting them the hole should always admit the roots without the slightest cramming. In filling the holes the soil should be put firmly about the collars and gently about the roots without leaving any means of allowing them to rock about or shift either before or after they begin to grow.

J. Muir.

SPRING BROCCOLI.

There probably has never been a better winter for Broccoli than the past one. The weather being so mild, none of the plants were injured in any way, as they frequently have been through severe and continued frost. Each kind came in at its appointed time and produced fully developed heads. Spring Broccoli has been uncommonly fine and plentiful. Many are complaining that they have had more than they could use, as they came in so thick and fast, and altogether so fine that cultivators hardly ever counted on having such an abundant supply. Our Broccoli during the past month has consisted of Sutton's Late Queen, and as a first-class variety for the season it is absolutely unique. The plants are exceedingly hardy at most they do not exceed 18 inches in height and their side leaves are remarkably few. It can be grown to produce a grand crop with the plants 20 inches apart each way, so compact is it in habit. We have seen it of late with not more than 12 leaves and a solid head 9 inches in diameter, and that, too, in a cottager's garden. Some five years ago it was unknown here, but now every cottager is acquainted with The Queen, and is most anxious to secure plants of it for their garden. Tall-growing and wide-spreading Broccoli plants are no favourites here, as they take up too much space, and do not as a rule bear any finer heads than medium sized ones. Sander's Late comes in at the same time as Sutton's, but its leaves are three times the size of those of The Queen, and in head hardly so large—a circumstance which has lowered it in our estimation Spring Broccoli will, however, very soon be over, but the crops for next winter must soon demand attention.

Broccoli seed should all be in the ground before now, but should any not be sown yet, it may still be put in with the certainty of the plants growing well and becoming useful if given a good place We have planted out Broccoli as late as the middle of July and had good returns, and as it is yet seven weeks until then, there is still time for the young plants to become ready for planting. As a rule, we sow our main crops about the latter end of April, take the best of them up from the seed rows about the end of May, and dibble them into good ground 2 inches or 3 inches apart. In two or three weeks afterwards they are lifted, with balls of soil, and planted where they have to grow permanently. We are never very particular as to where the seed is sown. Main quarters are never given up to it, but odd side borders along the walks and ground between Gooseberry bushes and fruit trees are generally the spots on which all our plants are raised. Situation is not so important as good soil, but I must own to being particular about this. Poor material will never produce robust young plants, and ill-grown seedlings will never make the best bearing plants. A moderately heavy, rich soil is that in which young seedlings delight. Thin sowing is an advantage. When the plants come up in crowds they are injured thereby from the very first; their stems are drawn up long and spindly, and frequently many of them retain this deformity throughout the whole of their existence.

Thinning out when quite small is one good way of securing sturdy plants, especially if the thinnings are dibbled in as just suggested. Damp weather is the best in which to transplant Broccoli, as on a wet day young seedlings may be taken up and replanted without ever drooping or receiving any check, and when artificial watering has to be resorted to it is quite as great a benefit to have the soil and roots wet before lifting them from the seed bed as it is to water them after planting. Broccoli need never be sown in succession, as one sowing if made at the proper time will supply plants which will yield quite as long as they would do if of different ages. In proof of this I may state that last year I sowed some seed of Sutton's Queen in April and more in July, thinking that perhaps the latter would be proportionately late in coming into use at this season, but the result is not so; on the contrary, all have come in together, the only difference being that the last sown ones are smaller than those of which seed was sown earlier—a circumstance which applies to all varieties. Cambrian.

Diseased Cucumbers *(E. G. C.)*.—Your Cucumber plants are suffering from a disease which has baffled cultivators for many years. It begins by what is termed gumming; the stems crack in many places, and from the fissures, sometimes large and sometimes small, a gummy material exudes. At this time a fungus commonly appears on the stems or fruits named Gleosporium, often on the cracked places, but whether the fungus starts the disease or not is uncertain; probably it does not. The subject has never been thoroughly investigated, and the only known method of extirpation is to clear out all the affected plants, as well as the soil, and begin afresh with new seed, for it is by no means impossible that the seeds come from plants suffering from the disease in a hereditary form. There is another disease of Cucumbers equally bad in its effects. In this the roots become covered with myriads of little nodular excrescences, which on being cut open are full of microscopic worms named Tylenchus. Like the last, this disease has never been fully investigated.—W. G. S.

French Beans *(S. A.)*.—Your French Beans are attacked by red spider. Do not allow the earth or the atmosphere to get too dry; cut off and burn the affected leaves. They may be killed by painting the hot-water pipes with a mixture of 1 pint lime to 2 pints flowers of sulphur, and enough water to form a paint, making the pipes as hot as possible. If the house is heated by a flue, take care not to make the flue too hot, or the sulphur may burn and injure your plants.—G. S. S.

Runner Beans in succession.—Many only make one sowing of these, and that is about this time. The plants come into bearing about the end of July, and continue to yield pods until about the middle of September, when no more are formed. This is generally regarded as anything but satisfactory, because fresh tender pods are just as much valued in October as in July, and in order to secure plenty of them then should be the aim of every cultivator. This may be accomplished by sowing a good row or two about the middle of June, when the plants will not begin to bear until September, and then, being fresh and vigorous, they will yield abundantly until frost destroys them.—J. Muir.

Ellam's Cabbage—This is a good spring Cabbage and remarkably handsome, producing close medium sized heads, with but few outside leaves. When cooked it is very tender. Planted at the same time as two other sorts which I have grown as the earliest for several years, this one was fit to cut some time before them, and this spring not one plant of this variety bolted, while a number of the others did, causing blanks in the rows. This one may be planted closer than most varieties, owing to its leaves growing upright and compact.—Wm. Christison.

Flower Garden.

LOASA HISPIDA.

The Loasas, compared with most of which our common Nettle is comparatively inoffensive as far as stinging is concerned, form a curious group of plants just between the Onograds and the Cucurbits. The sting of the Nettle has only a local action, and is of short duration, while a sting from any of the Loasas on the hand or wrist will, in nearly all cases, be felt for a week. Of the few in cultivation at the present time all are annuals, with the exception of the pretty L. lateritia; they are easily cultivated, the young plants being raised in spring with the greatest certainty in a cold frame under a handlight, or, in cases of emergency, in the open in sunny situations, sown a little later than the usual period for seed sowing. To this order belongs the curious group of Mentzelias, little grown except in botanical gardens, and having little else than botanical curiosity to recommend them for general cultivation; also the showy Bartonia aurea, with its large shining yellow flowers, and the Scyphanthus elegans, an annual climber, which has been recommended as useful for forming light summer screens in the flower garden or for covering verandahs or tree stumps, the finely-cut leaves also showing themselves off to great advantage when grown intertwined with Roses or Clematises. Loasa hispida—also known in gardens as L. ambrosiæfolia—is a pretty annual plant, sub-divided into spreading branches; it may either be made to form a low bushy plant or a climber. It is well armed with stiff shining brownish prickles, that sting worse than any Nettle. The stems, which are round, have an agreeable whitish green colour, marked here and there with short brown longitudinal lines. The leaves are pinnatifid, irregularly alternate, rough and disagreeable to the touch; the angles are blunt, the upper ones wavy. The flowers are totally devoid of fragrance; the calycine segments are narrow, pointed, hairy, and yellow; the ground colour of the nectaries is white, variegated with red and green dots set at equal distances from each other; the anthers, while they remain upright, occupy the interstices, and explode their pollen whilst close to the stigma; after fertilisation they gradually retire under the arches of the petals. The above, with L. volcanica, L. Wallisi, and L. tricolor, are all interesting garden annuals, natives chiefly of South America. D. K.

Loasa hispida.

TREE PÆONIES.

For many years I have crossed and sown the seed of Pæonies. My first attempts were not worth much, but by-and-by I gained experience, and thus I am now enabled to produce better results. As to colour, rose, salmon, and white are predominant, but we had no well-built, large, and conspicuous double flower in the darker shades of purple, magenta, crimson, and blood-red. It happened, however, some six years ago that one of Fortune's introductions from China, Osiris, a dark blood-red, but only semi-double, was just at its best when at the same time an old, bnt very robust constitutioned variety called Grand Duc de Bade was just opening. This seemed a good opportunity for crossing the two, which I did; I fertilised the latter with the former. When the seedlings made their appearance I at once observed that something extraordinary was likely to come out of the cross, and, indeed, the two plants now in flower far exceed my expectations; both are well built and of good substance and shape. The duplication is perfect and the size about from 6½ inches to 7 inches; one is bright magenta-red, the other crimson. They are in every respect fully equal to Gloria Belgarum, now considered to be the best variety, and being of a different colour will produce a grand effect planted together. I have named them Juno and Ceres. It appears to me that a robust variety, the flowers of which are of good shape and outline, should be chosen as the female parent and as a rule a male parent with flowers of a very striking colour should be selected in order to obtain the best results. It is a general law that in most cases the female gives form and the male colour to the offspring. The seeds should be sown as soon as they are ripe in October, either in a pot or in a frame. They should be covered with three-quarters of an inch of soil and be left undisturbed. In fifteen months or so they will germinate and make flowering plants within from five to seven years—a long time to wait, it may be said, but if the process is repeated every year there will every year be fresh successions, and an occasional failure will only strengthen the hope for better results the next season.

Baden-Baden. Max Leichtlin.

Double Cinerarias.—The new varieties of these useful flowers to be had are, as far as I can ascertain, very limited in number, and yet raising double Cinerarias is an easy matter—in fact, quite as easy as raising single ones. Mr. Moore, Silver Street, Taunton, lately exhibited before the committee of the Taunton Gardeners' Society plants bearing double flowers, which he had obtained by simply crossing indiscriminately a number of single varieties without any regard as to the colours of the flowers or any other feature. The result was that a large portion of the seed produced plants bearing double flowers as perfect in form and outline as any florist could desire. Therefore, now that it is known how simple a matter it is to raise double kinds, there is no doubt we shall soon see the present short list of such sorts rapidly extended, and our thanks are due to Mr. Moore, who in such a disinterested manner publicly made known the result of his labours.—J. C. C.

Iris susiana.—The various recipes, such as baking, roasting, &c., given lately in the columns of The Garden regarding the treatment of this plant, seem rather amusing—at least to those who, like myself, have seen it thriving luxuriantly and blooming profusely under the most ordinary conditions, and with no extra care whatever. Here (Penrhyn Castle) Mr. Speed has it in grand condition, last week nearly a dozen flowers being in full bloom. It is growing in an ordinary border with Daffodils and similar plants, the aspect being south-west.—A. D. W.

XANTHOCEPHALUM (GUTIERREZIA) GYMNOSPERMOIDES.

This is a plant which inhabits the greater part of New Mexico. Seeds of it were collected and sent home by Charles Wright, but it disappeared until recently, probably from its being only of annual duration, and requiring the aid of a slightly heated frame in order to have anything like success with it. It has very much the aspect of the Fleabanes, although the flowers are produced more abundantly; they also last much longer, and are quite unique in colour. It grows from 2 feet to 4 feet in height, and is much branched, the flowering branches as well as the flowers themselves being corymbose, *i.e.*, collected into large heads. The leaves, which are about the length of the hand, are very narrow, the lower ones being slightly spathulate and serrated near the point, the others entire. The flowers, which are over an inch in diameter, are of a peculiarly attractive orange-yellow colour, very pretty, and are produced nearly all on the same level. This plant when better known is likely, at least in its dwarfer state, to be much used in flower and border gardening, and although a little extra care is required early in the year, this is amply repaid by the result in August and September. The annexed illustration is a good representation of it.

D. K.

Xanthocephalum (Gutierrezia) gymnospermoides.

A WALK ROUND THE GARDEN.

Perhaps in this third week in May, in any garden fairly stocked with the hardy plants best suited for our climate, there may be seen as many breadths of brilliant bloom as at any time of the year; indeed, of the smaller plants there are now doubtless more than at any other season. The last Daffodils are now in flower—the beautiful pale yellow N. gracilis and the single and double varieties of Poet's Narcissus, with the last blooms of the tiny N. juncifolius. Varieties of Scilla nutans are in full beauty, best seen in some shady place; how much more graceful they are than their relations of the campanulata section! The earlier Alliums are coming into flower. I do not think many are worth growing. A well-chosen six would include the best kinds, one of them being the true and rare A. cœruleum, with its perfectly spherical heads of real blue, but I cannot boast of possessing it. The double Saxifraga

granulata, so common in gardens, is a pretty flower, and a mass looks well, but it lasts a very short time and then goes off, leaving a patch of brown untidiness; for this reason it wants planting with some forethought. A wealth of Pansies is in flower—French, German, Scotch, English—in every variety of blotching, belting, lacing, and splashing, and of colouring from the palest tenderness to the most sumptuous splendour. How fine a plant is Megasea crassifolia, well grown in a large mass, with red flower-stems now 3 feet high, and the fresh young leaves newly developed! M. cordifolia is even finer, the leaves being more solid in texture and boldly waved at the edges.

In the mixed border the white Iris florentina has a good effect carpeted with blue Pansies. The white perennial Lupine, rather earlier and less coarse than the blue, is a good plant; a mass of pale red-purple Clematis (Sir Garnet Wolseley) on the wall behind makes a piece of satisfactory colour-grouping. Close by, also partly trained to the wall, is a bush of Choisya ternata smothered in flower for the first time in its five-year-old life, and making vigorous new shoots. A little further on, also partly supported by the wall, Rosemary in flower mingles prettily with China Roses. Why does Fortune's yellow Rose shed its new leaves? Now when it ought to be in full vigour and coming into flower the leaves drop off, leaving whole branches bare. Clematis montana is a thoroughly satisfactory plant, and seems to like climbing into trees and over all sorts of rough places. The large-flowered kind is very fine, but much more sparing of its flowers; perhaps it is more feeble in constitution. A wall draped with Clematis montana, with a bed of Lily of the Valley at the foot, is a cool, refreshing sight. The first Oriental Poppies are out in the big border, and P. umbrosum is in full flower. A stately clump of the true P. bracteatum, not yet in flower, carries its great buds perfectly erect, in distinguished contrast to its brethren, the other big Poppies. One of the brightest patches is the good old double pot Marigold, an invaluable garden plant. St. Bruno's Lilies and Trollius remind one of Alpine meadows. Pyrethrum Tchihatchewi, of no great value as a garden plant, shows itself at its best planted between the joints of the stone edging of the border and allowed to run into the path; in this way it is easily kept within bounds and flowers abundantly. Many such plants are encouraged to encroach on the path to break the hard line. The claret-leaved Ajuga reptans is a capital plant for the same use, with its dark red foliage in winter and its abundant blue flowers at this season.

Lithospermum prostratum is a sheet of bloom, and looks well against the fresh green foliage and cheerful little flowers of an alpine Strawberry that bounds it pathwards. Looking over it to a spreading patch of Alyssum saxatile is a startling contrast of strong colour. Celsia cretica, wintered in a frame and now planted out, is a plant highly to be recommended; it grows 6 feet high and blooms the whole summer; the individual flowers are 2 inches across, pale yellow and sweet-scented. Some plants of Balm of Gilead (Dracocephalum canariense) that have stood the winter against a south wall are now 6 feet high. The deep red Valerian (Centranthus ruber) is a fine border plant; it looks well grouped with the double Ranunculus aconitifolius (Fair Maids of France). The great Asphodel, with its starry white flowers tinged with warm colour and its curious black-brown bracts, reminds one of gallops in the Roman Campagna, where it abounds. Delphiniums are already 5 feet high. Their size and vigour is much increased by a fearless thinning when they are a foot high. A strong clump will throw up fifty or sixty shoots; if these are reduced to seven or eight or fewer on a feebler clump, those that remain will acquire the whole strength of the plant. Veratrum foliage was destroyed by the cold winds and frosts of April. Scilla peruviana, or rather the Algerian kind, possibly S. ciliata, has flowers of a dirty white, rather like the colour of a Hoya, but a trifle greyer. These Scillas do not seem to like a sandy soil; I have had them much better on chalk. Cistuses and Helianthemums are full of bud, and promise a fine display in a fortnight's time. The beautiful Helianthemum formosum, with large yellow flowers blotched with black at the base, is very vigorous and well set with buds. The pure white Rocket (true), I am glad to find, does not get infested with some sort of aphis or other blight that every year attacks the not quite white kind.

On the rock wall opposite the mixed border are some good sheets of flower. Portugal Furze, yellow Alyssum, Cheiranthus alpinus, and C. Marshalli, backed by double Gorse, make a dazzling mass of strong yellow and orange. Aubrietia græca and A. purpurea clothe a part of the top and face of the wall, and London Pride puffs out in pink clouds. Some of the large Saxifrages of the Cotyledon kind are throwing up massive spikes; those intended to flower strongly have had all the side-growths removed, to throw all the strength into the single stem. Sedum Sieboldi, very much at home between the stones of the upright face of the wall, has been cruelly browsed down by large black slugs, but two have been caught in the act and executed. On the upper ridge of the wall, where it slopes away in rockwork to a higher level, Arnebia echioides does well; also Onosma tauricum. Pelargonium Endlicherianum looks in good strength, and I hope will flower well. The beautiful Æthionema grandiflorum, a neat bush-like plant, is full of bud. The small pink bloom of Iberis jucunda is well set off by the milk-white flowers and blue-green foliage of Potentilla alchemilloides, which with us is a good rock plant, though in stiff soils I am told it grows too freely and is shy of flower. Silene acaulis is in wide tufts closely clinging to earth and stone, and showing the form of both through its even thickness. Iris cristata, this year rather sparing of flower, is pretty against a creamy-flowered mossy Saxifrage. The rather rare American Iris verna has been in flower, but it is now over. Linum alpinum is a delicate little gem. It shows well brought near the eye on the crown of the wall. Here also is a many-flowered patch of Dianthus glacialis, rather earlier than D. alpinus, and with smaller and dwarfer flowers. Cheiranthus longifolius is curiously brilliant and varied in colour—brick-red, purple, and intense crimson like that of Primula japonica, but with a brighter flash of colour in it, occurring in the same head of flower. Corydalis ochroleuca is a pretty pale yellow coloured species, and does not increase in such a troublesome way as the native C. lutea. The pale cool blue Veronica rupestris is one of the prettiest of its family; it looks well carpeting tufts of Edelweiss. A tiny orange alpine Poppy is seen well on the wall near the eye. Welsh Poppy is also quite at home on the wall and in the path at its foot, and a self-sown yellow Pansy growing out of a joint of the stones groups well with it. Erinus alpinus and its white variety clothe part of the perpendicular face of the stonework; the same position suits Arenaria balearica, now covered with its little white starry flowers. This charming little plant, if first planted in crevices between the stones, will grow all over them, clothing them with tiny greenery. The path at the foot of the wall is rather moist and shaded, and advantage is taken of this spot, rare and precious on dry hilly land, to plant a few things that are grateful for such conditions. The walk is here fringed with Saxifraga Wallacei, Gentiana asclepiadea, Hepaticas, and Alchemilla vulgaris, for the sake of its pretty leaves, while on the border side of the path the Snowdrop Anemone is allowed to encroach, forming a diminnendo of flower and leaf as it gets into the poor sandy path soil.

On the Alpine garden a five-square-yard straggling patch of Myosotis rupicola is a goodly sight. Perhaps it is the best of the true blues, and the short, tufty growth of the plant intensifies the colour in the mass by huddling the little flowers close together. It was sown in place, and one of the mossy Saxifrages that has creamy white flowers is planted in an adjoining patch as a good companion for colour. Æthionema coridifolium, also sown in place, is kept very small by the nibbling of rabbits; Æ. persicum, browsed down very closely last year, they have spared this season. A patch of Sempervivum Laggeri, the dowdiest of the Cobweb Houseleeks, is daily getting whiter; next to it is a large patch of S. Doellianum, a very pretty kind, but I believe very little in cultivation. Between and among some of the groups, the natural mossy surface that the heath ground acquires in winter is carefully preserved. Now it is like rich brown velvet, a very becoming ground to all small plants, particularly to those with pink flowers. Phloxes of the setacea group are now at their best; the one named Vivid, one of the Nelson seedlings, is better in colour than the rest, and of a very neat, compact habit. The first flowers have appeared on some strong plants of the lovely Omphalodes Luciliæ. Primula farinosa is thriving for the second year on a dry, exposed spot. Encouraged by its example, I am trying Nierembergia rivularis as a companion patch in an equally dry position; it has failed to flower in a bog bed. The perverseness of some plants is surprising. I had Anagallis tenella, a true marsh plant, in a carefully prepared bog, but it crept out and on to a dry, sandy bank where it grew and flowered profusely. We can do nothing with Mule Pinks; they evidently do not like sand. With our neighbours on the Weald of Sussex (clay) they are no trouble at all, but all the charming varieties of rock and wall Pinks do very well. Erodium hymenodes has been in flower since March, and seems hardy. Houstonia cærulea and the white variety are a mass of flower and grow quickly in damp peat; I have tried them in a dry place and failed. Rhododendron ferrugineum is flowering sparingly as usual; it has a broadly spreading carpet of Linnæa borealis on one side and of Pyrola on the other. A little further on Daphne Cneorum is covered with its lovely and fragrant pink flowers. The ground about it has a carpet of Cornus canadensis, whose pale green young foliage and dead-white flowers are in pleasant contrast to the dull, dark foliage and lively pink flowers of the Daphne. Of the smaller Primulas, Monroi is one of the most satisfactory and a fast grower. P. Wulfeniana, usually a shy bloomer, has been flowering well this year. The frost of April destroyed the first leaf of my one plant of Podophyllum Emodi, but a flower with its leaves soon followed, now safely set for fruit. Anemone alpina, from seed sown in November, 1881, soon after being collected in the Alps, is now flowering for the first time. Waldsteinia fragoides is a pretty plant when well placed; I like it on a shady, mossy bank, where its yellow flowers are particularly brilliant. Tiarella cordifolia, beautiful alike in flower and leaf, is a good plant much neglected. It will grow almost anywhere and looks well in sun or shade in any position, but best on rockwork. Trollius laxus, from the Northern States of America, is worth growing. The flower is not globular, like most of the family, but open, like a Marsh Marigold. A tuft of Haberlea rhodopensis had eleven flower-stems destroyed by frost; happily one has survived and bears its pretty Gloxinia-shaped flowers in company with the Ramondias. Cypripedium Calceolus is now well in flower. What can exceed the delicate loveliness of Trientalis europæa? Some now in flower have strayed into a sunny place where they were not planted, and they will certainly be shrivelled up by hot sun. Viola rothomagensis I once discarded as rubbish, and later saw it looking so charming on the rockery of a friend who had given it an asylum, that I begged it back again. Silene pennsylvanica is a desirable rockery plant; the flowers are a good pink, varying in different plants from pale to deep. Viola pedata is coming strongly into flower. If anyone wishes to enjoy a mysteriously delightful smell, rather like that of the dying Strawberry leaves, that some persons are supposed to be incapable of perceiving, let it be looked for among the branches of a bush of the large Gum Cistus.

G. J.

West Surrey.

CLOVE PINK MRS. SINKINS.

M. JEAN SISLEY's interesting communication (p. 422) has induced me to ascertain the origin of this wonderfully hardy and floriferous Pink, which has lately attracted much attention, and as it bears some resemblance in its origin to the type upon which M. A. Alegatière has been working, and which he succeeded in obtaining in 1881 after 1500 artificial fertilisations, by crossing the garden Pink (Dianthus plumarius) with a Carnation (D. Caryophyllus), it may interest your readers to know that Mrs. Sinkins was raised by the lady whose name it bears (in conjunction with her husband, Mr. Sinkins, of Slough) by crossing the common white Pink with the white and red Clove Carnations so long ago as 1868, although the stock did not until about 1878 pass into the hands of Mr. Charles Turner, by whom it was afterwards exhibited, and he obtained for it a certificate from the Royal Horticultural Society's floral committee. The habit of Mrs. Sinkins approaches that of the common white Pink, but the flower-stem is more like that of the Carnation, and after removal of the top flower the stem usually gives a succession of side blooms. The individual flowers are larger than those of the old white Pink, are produced continuously over a more protracted flowering period, and are fully Clove-scented. The colour of Mrs. Sinkins is also pure white, whilst the new race of M. Alegatière appear to be mostly coloured, and from the printed descriptions the stems of the latter are evidently developed higher and the habit of the plant less branched than in Mrs. Sinkins.

I know of no plant so suitable as this for a town garden, or for any neglected corner, either in shade or sunshine, hot or cold, wet or dry. No situation or adverse circumstances seem to thwart its growth, and it will thrive where few other plants will live. In addition it can be most freely propagated, and for a supply of white cut flowers from June to November in the open air it is unequalled. M. Alegatière is a most zealous and indefatigable cross-breeder, as well as a most skilful propagator, and in whatever direction he proceeds he rarely fails; but it is probable that the difficulty which he experienced in getting the Pink and Carnation to cross may have arisen from the use of too highly interbred and delicate varieties as parents, and grown, perhaps, under glass, thereby intensifying the artificiality, always a hostile condition in intercrossing. On the other hand, Mrs. Sinkins adopted for her purpose ordinary hardy garden sorts in the open air. My own impression is that these latter are not difficult to intercross, and it is certain that Mrs. Sinkins' Pink is a free seeder, but whether or not either of the new breeds can be classified as a species learned biologists must settle. Should the Lyons race be as hardy as the English, the former will, from the varieties in colour already afforded, prove of great value, and in another respect it would seem that some of M. Alegatière's seedlings, which are described as semi-double, have an advantage over Mrs. Sinkins, for since perfection is not given to mortals, she, like all good terrestrials, has at least a weak point—the one drawback—of at times bursting the calyx. Perhaps some of your readers may endeavour to approach one step nearer to perfection by forming an Anglo-French alliance, and intermarrying the two races. Mr. Sinkins has since sent me blooms of a very fine white Clove Pink raised from Mrs. Sinkins, but which appears to come earlier and is larger than its parent.

Bedford. THOMAS LAXTON.

SHORT NOTES.—FLOWER.

Carnation (*J. K.*).—The flower sent from a seedling plant is very promising. Its colour, a pretty, soft pink, is good, but the form is not so perfect as that of some others of about the same colour. Grow it well and show it before the floral committee at South Kensington.

Ranunculuses sporting (*Y. & O.*).—It is difficult to say with certainty what has caused Ranunculuses to sport in the way yours have done, but it is probably due to some sudden change in the weather, such as a high temperature setting in after a cold period.

Indian Androsaces.—Of the few kinds of European Androsaces tried here from time to time, we have not succeeded in getting one plant established; some of the Indian species seem better suited to this damp climate, at least if partially covered with glass during winter and spring; still even fine plants of A. sarmentosa are apt to die off now and then, and one must not count too certainly on the silky A. lanuginosa not doing the same. A plant of the rare A. rotundifolia (one of the many plants introduced by Mr. Anderson-Henry) has survived last winter here planted almost vertically on rockwork and partially protected by glass. A head of the little blossoms, each flower set in its green framework of calyx segments, is very pretty. I may add that the use of cloches does not end when they are broken, an accident rather apt to happen on rockwork. The pieces of curved glass are invalnable for placing over crevices amongst the stones, where neither flat glass nor small bell-glasses would fit. These pieces also give protection without excluding air, a needful point where damp is an especial danger. —C. M. OWEN, *Knockmullen, Gorey, Ireland.*

CHOICE DAHLIAS.

ONE thing is quite certain, that if the present weather continues, with low temperature at night and especially in early morning, those who make a practice of planting out Dahlias will hesitate to do so until the weather is more definitely summer-like. At best, the first and second weeks in June are quite early enough to trust our tender plants to the mercies of our variable climate. Should anyone be desirous of planting a collection of Dahlias, and especially with a view to exhibiting flowers, he cannot do better than make a selection from the following show varieties: Burgundy (Turner), dark puce and purple; Cardinal (Fellowes), rich scarlet, very fine; Clara, pale lilac-pink, extra fine; Champion Rollo (Keynes), orange, with pale edges; Ethel Britton (Keynes), blush-white, edged with purple; George Barnes (Keynes), as a self, rich deep lilac sport from the fancy flower of that name; George Rawlings (Rawlings), very dark maroon, extra fine; the Hon. Mrs. P. Wyndham (Keynes), yellow, edged with deep rosy purple; James Cocker (Keynes), purple; John Neville Keynes (Keynes), rich yellow; John Wyatt (Keynes), crimson-scarlet, very fine; Joseph Green (Keynes), bright crimson, extra fine form; Lady Wimborne (Keynes), deep pink, very fine; Major Cornwallis West (Fellowes), scarlet, shaded with orange; Mrs. Harris, white, edged with lilac; Ovid (Turner), rich puce; Pioneer (Fellowes), rich glossy black, probably the finest dark Dahlia yet raised, very constant and effective; Prince of Denmark (Fellowes), dark maroon, shaded with crimson; Royal Queen (Eckford), pale yellow, heavily edged with purple; Walter H. Williams (Keynes), bright scarlet; and William Rawlings (Rawlings), crimson-purple.

Of fancy Dahlias the following may be depended upon: Fanny Sturt (Pope), red, tipped with white; George Barnes (Keynes), lilac striped with crimson; Grand Sultan, buff, striped with red; Henry Glasscock (Keynes), buff, striped with crimson; James O'Brien (Keynes), yellow, with crimson and rose stripes; John Forbes (Keynes), fawn, striped with maroon; Laura Haslam (Fellowes), pale yellow, tipped with white; Magician (Fellowes), deep yellow, distinctly tipped with scarlet; Mrs. Norman Halls (Rawlings), crimson, tipped with white, very fine; Miss Browning (Keynes), clear yellow, tipped with white; Mrs. Saunders (Turner), yellow, tipped with white, extra fine; Professor Fawcett (Keynes), dark lilac, striped with chocolate; and Robert Burns (Keynes), lilac, flaked with dark maroon. In the foregoing selection we get the very pick of the fancy Dahlias.

The early planting of Dahlias sometimes proves to be very risky. I have heard of a whole collection being cut down by frost as late as May 29. It is scarcely safe to trust our tender plants outside until the second week in June, and the development of the plants is greatly aided by giving them two or three shifts while they occupy a cold frame previously to being placed in the open ground. The ground in which Dahlias are to be grown should be dug and heavily manured previously. In order to afford them good space for development the plants should be at least 4 feet apart. Some who plant adopt the practice of first of all placing a stake 4 feet to 5 feet in height firmly in the soil, and then planting close to it. This serves as the main support of the plant during the summer. Should the weather prove dry after planting, all Dahlias will be greatly assisted by sprinkling the plants overhead for a few days until the roots begin to lay hold upon the soil. There is nothing like a good start, and the drier and warmer the weather after planting, the greater will be the attention required. In planting a space of ground, it is well to place the tallest in the centre and the dwarfer plants round the sides. R. D.

TREES AND SHRUBS.

RHODODENDRONS IN DIFFERENT SOILS.

NOT many hardy plants are perhaps more difficult to understand as regards what they like and what they dislike than Rhododendrons. In one place one finds them growing in the most satisfactory manner in a soil that in its composition bears no resemblance whatever to peat or loam. In another one may find them in what to all appearance is a suitably prepared soil, only lingering, not living, in the ordinary sense of the word, although in the preparation of the bed many pounds may have been expended. In another place they may be found growing vigorously in a kind of black kitchen garden soil which all vegetables like so well, while on the estate from which I write and in some few other places about the country they may be seen growing and thriving as well as any one can wish in a yellow loam. How to account for this diversity in their behaviour I do not know, yet it is probably not a difficult matter. It seems to me that we only require to know more of the character of the soils with which we have to deal to ascertain the exact conditions that suit them. A casual observer cannot, I think, decide this. A certain kind of soil may appear to possess the desired qualities, but the plants soon settle the question by refusing to thrive in it. If we knew the component parts of any particular soil that suited them, we would be able to ascertain pretty accurately whether any other kind of compost would prove agreeable to them or not, and this might prevent much disappointment. Certain it is that the poor, half-starved condition in which Rhododendrons are frequently seen abundantly proves that we are not yet in a position to decide what kind of soil will or will not suit them, or else they are planted with a lamentable amount of indifference as to their requirements.

THE SITUATION of Rhododendron beds, too, does not always receive that amount of attention which should be given to it, or we should not, as is sometimes the case, see them planted in a peaty soil on the side of high and dry banks quite in the eye of the sun, where in dry weather they suffer severely from want of moisture. The fact that they are moisture-loving plants, though they dislike stagnant water, is not recognised so much as it might be with manifest advantage to the plants. In dry gravelly soils the surface of the beds should be 4 inches below the surrounding level, and nowhere, unless it be in a water-logged and badly drained soil, should the surface be above the surrounding ground. In selecting a position for the beds, it is as well to take notice what amount of shade the plants are likely to encounter, for although they will grow and flower perhaps better in the full sun than elsewhere, they do not object to some shade, especially if in raised beds or banks. Another point of importance is when forming new plantations, and when all the soil has to be prepared, is to keep the position of the bed quite clear from the roots of trees, especially those of the Elm, Chestnut, and Sycamore, for if once the roots of such trees as these reach the bed

they will in a few years get such a hold of the soil as to rob the plants of a good deal of moisture. In places, however, where the staple soil is favourable to the growth of American plants, the same care of avoiding roots is not necessary. However well a peaty soil may grow Rhododendrons, I have no hesitation in saying that a suitable loam will grow them equally well, if not better, than peat. In our loam the growth is stronger, and consequently the foliage is more abundant, larger, and has more substance than in peat, and though the number of trusses of blossoms may not be greater than in peat, the individual flowers are larger and the depth of colour in every case quite two shades deeper. The flowers also last longer in good condition than they do in a lighter soil. Our loam may be described as of a soft, mellow character, quite destitute of either grit or fibre. It comes off the red sandstone, and in its natural bed it is abont 8 inches deep. We have also a number growing in a heavier description of loam, which contains some amount of sand, but the choice varieties do not thrive so well in this as in the other. It is evident that Rhododendrons require a soil made up of minute particles; the thread-like character of their roots cannot grapple with hard lumps, and the only kinds of soil that answer to this description are peat and loam of the kind I have just described. I believe it to be quite possible to prepare a compost that would suit them from thoroughly rotten leaves and the surface of an old pasture dug up 3 inches or 4 inches thick and allowed six months in which to get rotten. To this should be added some sand, but I should not like to say that this mixture would grow them equal to a bed of peat or loam.

The depth of the beds is another point of importance, because if the plants are ultimately expected to make large specimens they must have sufficient root room, or in other words the roots must have room in which to extend as well as the branches. In forming plantations where the staple soil is naturally suitable this point will not cause any anxiety. Where, however, all the soil has to be prepared the beds should be taken out to the depth of from 2½ feet to 3 feet. In regard to watering, position and nature of the soil must decide when water is necessary. In our loamy soil they do not require any in the driest of summers, unless it be a few single specimens that stand on higher ground, but plants growing in a newly moved peat soil require to be carefully attended to if the position is in any way raised above the surrounding level. I find that in naturally dry soils established plants suffer more during a dry autumn than at any other time. J. C. C.

RECENT PLANT PORTRAITS.

Tropæolum Gartnerianum (Regel's *Gartenflora*, plate 1146).—An apparently strong growing variety introduced by Messrs. Haage & Schmidt, of Erfurt, and flowered by them in April of last year. Its flowers are pendulous, and are produced from the axils of the leaves; their tube is bright orange-red; the outer petals are green, the inner ones bright canary-yellow, beautifully fringed at the eyes like those of the well-known annual T. canariense. This variety has also been described under the name of T. digitatum by Karsten.

Tulipa Elwesi, Stenomesson incarnatum (Regel's *Gartenflora*, plate 1147).—The first is a small and thin-flowered pure white Tulip, also known as T. cuspidata, and is a native of Algeria. The second named is a bulbous plant, producing pairs of orange-scarlet tubular flowers on the top of a stout stem, over which they stand perfectly erect.

Aceras anthropophora, Orchis pauciflora, Orchis undulatifolia var. fol. maculatis, Serapias cordigera (Regel's *Gartenflora*, plate 1149).—A rather uninteresting group of small flowered and somewhat dull coloured hardy terrestrial Orchids.

Æthionema coridifolium (Regel's *Gartenflora*, plate 1150).—A well known and pretty little hardy rock plant with bunches of flowers resembling those of a small rose-coloured Iberis.

Saccolabium giganteum var. illustre (*Illustration Horticole*, plate 517).—A very handsome double plate of this really splendid variety of a well-known family of Orchids, showing a fine long pendulous raceme densely covered over its entire length with beautiful pure white medium-sized flowers spotted with rose colour on the upper petals and with a veined rosy purple lip This is said to be one of the most lovely Orchids yet known.

Leea amabilis var. splendens (*Illustration Horticole*, plate 518).—An extremely beautiful and highly ornamental foliage plant introduced from the mountainous regions of Central Borneo by M. Teuscher, the collector of the Compagnie Continentale d'Horticulture of Ghent. Its varied and strikingly contrasted hues and beautiful bright red stems quite throw the type (L. amabilis) into the shade.

Impatiens flaccida albiflora (*Illustration Horticole*, plate 519).—A beautiful and apparently most free-blooming variety of Balsam with good sized, flat, pure white flowers, standing erect on stout foot-stalks and looking you well in the face. It is a native of Ceylon, where it is found at heights varying from 3000 feet to 6000 feet above the sea level; it is of easy cultivation in a cool stove. W. E. G.

OVERCROWDING FRUITS AND VEGETABLES.

If we were to take an unbiassed view of our work in the garden, I think we might trace some of our failures to overcrowding. Let us take, for example, the case of Vines. If we make a tour of inspection over a dozen different gardens, and note the condition of the Vines, we shall find that quite half of them are in an overcrowded condition. In many cases we shall find the old rods only 2 feet apart, and some even closer than that, with the lateral growths overlapping and mingling with each other in a way pitiful to behold. How, therefore, can the leaves carry on their functions when so inadequately supplied with light and air? As a matter of fact, they do not do so; they have not, as it were, room to breathe, and the result is small leaves, thin and flimsy in substance—the natural outcome of adverse conditions. Now I maintain that the true test of a healthy, vigorous Vine is the condition of the leaves; these should be large, thick, and leathery, with stout foot-stalks about 8 inches long. Such leaves can, however, only be obtained where they stand nearly clear of each other, so that the upper portion may receive the direct rays of the sun and light. Without such leaves in sufficient numbers it is impossible to obtain for any number of years good crops of Grapes. To secure the conditions necessary for a long and continuous success in Vine culture the old rods should be 4 feet apart; then there will be room enough for the lateral growths to develop into sufficient length and produce leaves of a size and substance that may be expected to maintain the vigour of the Vine.

In regard to Peach and Nectarine trees trained to wires or nailed to walls, it is not an infrequent occurrence to see the branches laid in so close together that one-half of the leaves overlap each other. In dealing with the summer growths of these trees I am aware that in order to secure sufficient bearing wood for next season it is not always possible to prevent a little overcrowding, but sufficient space should be left at the spring pruning for the summer growth; then any serious overcrowding can be avoided. If when the trees are leafless each shoot was laid in 6 inches apart that would give ample room for the summer growth. Care must also be taken that more summer growth is not retained than is wanted to produce fruit for the next year, regard of course being had to the increase of size and form of the tree.

Overcrowding in the kitchen garden is an error commonly committed. Such strong-growing Potatoes as Magnum Bonum are often planted 2 feet apart row from row when 3 feet is not too much space, and in the row the sets are put in much too near each other. Kidney Beans, both tall and dwarf, are crowded in the same way. There would be quite as good a yield, and crops would not become so soon exhausted if they had more room. The tall sorts should stand in single rows and the Beans should be put in 9 inches apart. The rows of dwarfs should be 3 feet apart and the Beans 8 inches. Large Marrow Peas, too, suffer more than most crops from the same cause. Instead of being sown loosely from the hand, every seed ought to be planted singly from 1 inch to 3 inches apart, according to the character of the variety. Where birds or slugs are troublesome it may, however, be necessary to plant thicker, but in that case it is an easy matter to thin out the plants when they get up out of the reach of their enemies. Large and tender Lettuces cannot be grown if they stand near to each other. In order to get them fine every plant ought to be 18 inches every way from its neighbour. J. C. C.

GARDEN FLORA.

PLATE 442.

ISMENE ANDREANA.*

The latest revision of the genera of Amaryllidaceæ has resulted in the merging of the genus Ismene in Hymenocallis, so that really we are no longer justified in calling them Ismenes, although they are still kept together as a subgenus of Hymenocallis. The introduction of H. macrostephana a few years ago, the characters of which are those of Hymenocallis and Ismene combined, indicated the way to a reduction of one of the two genera, and they are now united with the Choretis under the one genus Hymenocallis. At present, however, it is not proposed to notice any but what have hitherto been called Ismenes, and therefore the old generic name may here be used to prevent any confusion that might arise from calling them Hymenocallis. The plant represented in the accompanying plate was introduced last year by M. André, after whom it has been named by Mr. Baker. It is a beautiful addition to greenhouse summer flowering bulbs, and may be treated along with the well-known I. calathina (the Sea Daffodil), which is easily managed, and which flowers freely if potted in rather sandy loam, watered freely, and allowed plenty of sunlight during its leafing period. On the leaves commencing to decay, which should take place in autumn, water should be withheld until the following spring, when growth should recommence. The flowers of I. calathina are white, as in the plant herewith figured. Herbert used to cultivate this and several other species of Ismene in the open border, planting the bulbs in April in sandy soil, and taking them up again in October and wintering them in a cool greenhouse. He says if they are planted in the open border a large potful of soil should be taken out of the bed and the hole filled in with white sand; and unless the summer is very wet they will succeed well. It is only, however, in warm, well-sheltered positions in the south of England that planting out-of-doors is suitable for these plants. I. nutans, once called Pancratium narcissiflorum is a white-flowered species from Carolina. Its flowers are drooping, but in other respects they are very similar to those of I. calathina; they are produced in March or April. I. virescens bears greenish white flowers, the tube of which is long and slightly curved, the

* Drawn from a plant sent by M. André, January 30.

edge of the corona or cup being ciliated or serrated. They are borne in pairs in the summer, and have a sweet Lemon-like odour. I. pedunculata of Herbert is apparently a larger flowered form of this. I. Macleana is a stout-growing, long-necked plant, with a flower-scape bearing about half a dozen white sweet-scented flowers, which are about half the size of those represented in the plate; it was introduced from Lima into the Glasgow Botanic Gardens. Whether grown in a stove or in a cool house, this species appears to be perfectly healthy and to flower freely, the one great essential to its well-doing being perfect rest during the time when it is without leaves. I. Amancaes (the Peruvian Daffodil) is a large yellow-flowered species, with a fragrant odour (Herbert says it is disagreeable). In the colour and form of its flowers this plant might be mistaken for a Narcissus. From Narcissus it differs, however, in the cup being formed by the united edges of the broad-winged stamens, the filaments of which are seen running from top to bottom of this cup-like expansion. The scape is 2 feet high, and bears an umbel of rich yellow flowers. Under liberal treatment this species will flower twice, and even thrice a year. A variety of this named I. sulphurea, which is supposed to be the result of a cross between the type and I. calathina, is sulphur-yellow in colour, and bears flowers measuring sometimes nearly 4 inches across the cup. The name Amancaes had its origin in the flower festival at Lima, which corresponds somewhat with our May day, and is celebrated on June 24. "At that time a flower peculiar to Peru, called the Amancaes, is in the height of bloom, and to gather it the citizens of every class in the afternoon of that day hasten as a gala to a spot in the vicinity of the city deriving its name, as well as the festival itself, from the flower which grows more abundantly there than in any other place." Large multitudes of people assemble together, everyone decorated with the Amancaes flowers, as well as horses and their riders. These flowers are much worn by the Peruvian ladies as ornaments for the hair. Elisene longipetala is sometimes called an Ismene. It is a pretty white-flowered plant, with an umbellate scape of curiously flattened curved blossoms. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

LILY OF THE VALLEY can now be had in abundance. Large handfuls of it may often be seen bunched up together and placed in a vase with but a small proportion of foliage. A better way in which to arrange these lovely flowers is to first place a goodly amount of their own foliage in any vase sufficiently deep to avoid shortening the spikes, which should then be inserted one at a time till sufficient have been arranged to allow each individual spike to show itself off to the best advantage, and somewhat after the manner in which they are seen growing. We have found a few growths of Myosotis dissitiflora to harmonise exceedingly well with them, being likewise very durable where the receptacle holds a fair amount of water. For a somewhat bold arrangement, and one adapted for a sideboard or entrance hall, select the graceful arching spikes of Solomon's Seal; a vase with a black or dark ground would suit well for these. Sprays of Laburnum are very pretty used along with Wistaria sinensis. The former also look well associated with the foliage of the purple Beech. Trusses of the yellow Ghent Azaleas are now very useful; we employ them in many ways. In specimen glasses with a few pieces of Forget-me-not mixed with them they are most attractive. A leaf or two from the young growths of Berberis Aquifolium, with its fine bronzy colour, is a valuable addition. Violas and Pansies can be turned to good use by way of variety in the arrangements. These look well in a flat dish with Moss to keep them fresh; a few pieces of either ground Ivy or of any other creeper may be interspersed amongst them. Rhodanthe, pink and white, can now be had, and they make excellent subjects for cornucopias of centre-pieces for the dinner-table when used in conjunction with any of the ornamental Grasses, either wild or cultivated. For the bases of centre-pieces just now the bold, showy flowers of the Clematis, both white, pale blue, and lavender, and also deeper shades, are all excellent adjuncts where variety in arrangement is indispensable. These flowers may also be recommended for their durability. Tea-scented Roses are at all times appreciated for their lively tints; when arranged by themselves, I think they display their beauty to the best advantage. When carelessly grouped together in a trumpet vase (using their own foliage) nothing looks better. Pieces of Clerodendron Balfouri in flower have a pretty effect when used in conjunction with a few spikes of Begonia nitida odorata. A stray blossom of Datura Knighti (the double form) we recently cut and placed in the entrance hall, where its perfume was not found to be too powerful, as might have been the case if placed in a close room.

FLOWER GARDEN.

GIANT FENNELS.—For planting by the side of water and in other moist positions there are few hardy herbaceous perennials equal to the giant Fennels; certainly none excel them in elegance of foliage and habit of growth. The varieties communis and gigantea are those most generally cultivated, and indeed they are the only kinds worthy of a place in ornamental gardening. They are of the easiest culture; the seeds should be sown in February in heat, and as soon as germination has taken place the young plants should be grown on in an intermediate house and planted out in permanent positions in May. The soil should be a stiff, deep loam, and if not naturally moist, abundance of water should be given during the summer time. The first season the plants will not grow more than 3 feet or 4 feet in height, but in the course of a year or two they will reach 8 feet or even 10 feet. We have a large bed of the variety gigantea and Bocconia cordata, another hardy herbaceous perennial, planted alternately, and the effect is all that can be desired, the tall flower-spikes of the Bocconia being shown off to the best advantage by the giant Fern-like foliage of the Ferula.

ROSES, CLIMBERS, AND ANNUALS.—Roses being very forward, owing to the mild winter, the east winds terribly injured the tender foliage and shoots, an injury which it is to be feared will render the plants an easy prey to the attacks of fly and mildew. It will, therefore, be advisable to keep a strict look-out for the appearance of both of these pests in order that remedial measures may be at once taken. To destroy fly, there is nothing better than clear water, applied with force through a syringe or garden engine; for mildew use soapsuds, and whilst the plants are still wet dust them over with sulphur. Should leaf-rolling maggots be troublesome, the only sure cure is to pick them off and burn the leaves in which they are ensconced. Keep all that have been recently planted thickly mulched, and in dry weather water freely. Brier stocks should be kept clear of all shoots except those that are to be budded, and root suckers should be destroyed as soon as perceived. The foregoing remarks are equally applicable to Roses on walls and verandahs, with this addition, that where there are projecting eaves that prevent rain reaching or washing the plants, artificial watering will be more frequently requisite. Clematises and other climbers now need weekly attention as to direction of growth and training; sticks or strings should be placed to such annual climbers as Canary Creepers, Nasturtiums, Convolvuluses, Scarlet Runners, and Sweet Peas before there is any danger of the growth getting matted together. Seeds of all these may still be sown, and also of the quickest growing dwarf annuals, such as Virginian Stocks, Candytufts, Clarkias, Limnanthes, and Nemophilas, and finish planting out Asters, Stocks, Phlox Drummondi, Zinnias, Indian Pinks, French and African Marigolds, ornamental Grasses, and Everlastings.

GENERAL WORK.—At the present time there is no lack of this, and good generalship as to the direction of work is necessary if the varied operations are to be done at the right time; with this object, let each day's work be arranged the preceding evening, and be done in the day, even though the usual hours of work be exceeded, for only by such persistency can we hope to keep pace with the daily increasing labours of this season of the year. Just now bedding out is the principal operation—work that whilst it lasts too often monopolises the entire labour of a garden, but for which there is no occasion if an early beginning be made, say early in May, and the hardy kinds be planted first, finishing up the tender sorts early in June. In this way time may intermittently be spared for hoeing and weeding shrubberies, picking off dead flowers and seed vessels from Rhododendrons and Azaleas, tying up perennials, clipping verges, weeding walks, mowing, and any other jobs that tend to the perfection of neatness.

FRUIT.

ORCHARD HOUSES.—The weather at the present time is highly favourable to the colouring and ripening of Peaches and Nectarines in the early forced houses, and under the judicious use of water and liberal ventilation the flavour also should be good. When the fruit begins to soften for ripening, syringing may be discontinued and the supply of water to the roots considerably reduced, but at no time must watering be discontinued, as a flagging state of the tree will soon destroy the sprightly flavour if it does not lead to the premature ripening and dropping of the fruit. As safeguards, trees which have rooted into beds or borders should not be disturbed, as feeders of this kind always send up a steady supply; and the pots after being well watered should be heavily mulched to keep in moisture. When the time arrives for gathering the fruit, remove every Peach before it is ripe enough to fall from the tree, place them in shallow boxes well bedded with soft, dry Moss, and convey them to a dry, airy fruit room for use when in condition.

In the late or general house fruit of all kinds is now swelling away freely, and good syringing twice a day will be indispensable. Always use soft water if it can be obtained, and see that every part of the tree is well bathed, otherwise aphis and spider will soon attack the Peaches, Plums, and Cherries. Pay daily attention to pinching and thinning where strong upright growths are robbing the lower parts of the trees. Give an abundance of water to the roots, and add stimulants where feeding is considered necessary. As the fruit gets more advanced and the stoning process begins to draw upon the trees, frequent additions of the richest material to the mulching and constant feeding with warm, diluted liquid may be indulged in without fear of forcing a gross habit, as is sometimes the case when this treatment follows immediately after the flowering period. Thin out the fruit of Peaches, Nectarines, Pears, and Cherries where too thickly set, always bearing in mind that light crops of fine fruit give the greatest amount of satisfaction to producer and consumer, and pay best when sent into the market. If Strawberries still occupy the shelves, an effort should be made to keep them quite clear of the trees, and in a position favourable to copious feeding and good syringing without fear of injury to the permanent occupants of the house.

FIGS.—When all the fruit has been gathered off the early pot trees, the foliage must be regularly and copiously syringed to insure the destruction

of any red spider which may have gained a footing. Old mulching may be removed, as far as practicable, without disturbing the surface roots, and a fresh supply of rich manure may take its place, to be washed in at future waterings. With the exception of the daily ventilation, which will be more liberal, the treatment of bringing on the second crop will be precisely the same as that recommended for the first. As there is now little danger of fairly well-managed trees casting their fruit, a liberal hand must be directed to the thinning of the second crop; otherwise the Figs will be small, and they will ripen in a glut instead of giving a succession of full-sized fruit up to the end of the season. Trees permanently planted in succession houses will now take an abundance of water through the syringe, and good feeding with generous liquid will be imperative. Go over the trees once a week and thin out all superfluous growths. Keep all leaders neatly tied in, and guard against shutting out solar heat and light by allowing the foliage to become crowded. Many people make a rule of pinching the point out of every shoot to induce a fruitful habit; but this end can be much easier attained by annual lifting and replanting at the fall of the leaf by thinning out all shoots which have reached the extremity of the trellis at the winter pruning, and by laying in at full length the young growths of the current year. When treated in this way, prolific kinds become perpetual bearers, as they are constantly growing and producing a young Fig at the base of every leaf.

Hardy fruit.—With the exception of Peaches and Nectarines, which are tolerably clean, fruit trees of all kinds are a good deal infested with insects; therefore timely and continuous washings with the engine must be kept up until they are brought under subjection. By this time the disbudding of Peaches and Apricots will have been brought to a close, and heeling in and the stopping of gross shoots will require attention. It is a common mistake to suppose that trees trained upon the full extension principle are very liable to rush into a too robust habit of growth, but such is not the case, at least in our experience, and it rarely happens that we find a single watery shoot in a tree which requires pinching to maintain the proper balance of the sap. If the broad copings have not been removed, frequent syringing will be necessary and highly beneficial to the fruit and foliage, and copious waterings on well-drained borders will be found a powerful aid in keeping the trees clean and healthy. Pears on south and west walls, also the most forward pyramids, will now be sufficiently advanced in growth to require attention to stopping and thinning. In years gone by it was the practice to allow a free and unrestricted growth of breastwood until the middle of July, but now we find that the continuous pinching of the strongest shoots invigorates the weak ones and leads to the formation of blossom-bearing spurs, whereas the July pruning produces a violent check at a time when the half-swelled fruit is in the greatest need of encouragement. The early thinning of the fruit on Pear trees should not be entered upon rashly, as many promising fruits fall off after the inexperienced have set them down as safe; heavily cropped trees may, however, be relieved by the removal of all badly formed and inferior fruits, which cannot grow into value if allowed to remain.

INDOOR PLANTS.

Pentas carnea.—Free-flowering, quick-growing plants like this well deserve cultivation. P. carnea strikes freely in the usual way in warmth if kept moist, close, and shaded. If cuttings are put in now they will make good flowering plants by the end of summer. Old examples well cut back now, if given moderate pot room, will push up a quantity of shoots that will flower in a short time, as every shoot produces bloom. It succeeds in any kind of tolerably good soil that is not too heavy.

Panicum variegatum.—Wherever there is a stove or intermediate house, a good stock of this prettily variegated drooping plant should be grown; it looks well in hanging pots or baskets, and is never seen to better advantage than when forming an edging, so as to hang down in front of the side stages. A sufficient quantity of cuttings should be put in from time to time, as old plants get too large for some purposes.

Reidia glaucescens and Grevillea robusta.—These are two of the most elegant of all plants for table decoration or similar uses. The Reidia is somewhat tender, and on that account best adapted for summer use; it strikes freely from cuttings, provided they are taken off with a heel when about 3 inches or 4 inches in length. They are best obtained by cutting off the heads of such old plants as have got bare at bottom; thus treated, they will quickly push out young growths if kept in a warm house; as the shoots get large enough to strike and are taken off, the old stems will go on breaking out afresh, thus affording a considerable stock before the end of the season. The Grevilleas, of which the variety just mentioned is the best for use in this way, will strike from cuttings procured and treated like those of the last named plant, but they are nevertheless best grown from seed, as in that way they make more elegant plants in a comparatively short time. Their leaves are not so persistent as those of some things; on the contrary, they fall off at the bottom and leave the base of the plants bare; on this account the stock should be kept up by successional sowings. Seeds put in now will soon germinate, and if well supplied with warmth and moisture will grow apace.

Daturas.—Old plants of these cultivated in pots and wintered out of the reach of frost will have now broken into growth. If they are in want of more root room they must be shifted at once into larger pots or tubs, giving them good rich loam. Where there is a large conservatory to keep furnished, several of these showy plants may with advantage be grown so as to give a succession of bloom, which can easily be obtained by starting them at intervals. Those that commenced growth and which were potted earlier will now have got hold of the new soil, and should have plenty of air and light to prevent the shoots from becoming drawn, a condition in which they do not flower freely.

Mignonette.—In large greenhouses and conservatories large examples of this plant are often preferable to small ones, and in order to have them of the required size and with the requisite amount of healthy foliage, they will require proportionate pot room, but with this plant we have not found it well to give too large shifts. It is better to move them frequently. Mignonette likes fairly rich soil, keeping the plants stopped as they require it; a good place in a light house or pit and plenty of air to insure stout leaves that will maintain a healthy condition are indispensable. Plants with indifferent foliage are unsightly, however full of flower they may be. A little more seed may be sown now, and if well attended to the produce will yet attain a useful size. The new white variety is very beautiful; the flowers are individually very large and so double that it produces little, if any, seed; it has therefore to be propagated by cuttings. For pot culture, however, this is no serious obstacle, and the plant has such a fine appearance that it deserves all the attention needful to insure success.

Fuchsias.—Certainly the most popular Fuchsia ever raised is Mrs. Marshall. It is the best market variety, and the way in which it is produced for sale in 4½-inch pots is marvellous, tens of thousands of plants 18 inches high, having from six to a dozen stems or shoots, all tied up to an erect position, each plant full of fine bloom. Then Lady Heytesbury, having a darker corolla and more massive tube, comes in for a limited share of culture. It is of the two, perhaps, the more pleasing flower. The plant produces but two or three more massive stems, but blooms freely when well grown. One other very handsome white kind is Mary Queen of Scots, the corolla of which is of a reddish hue. We like this kind very much, perhaps all the more that one does not see too much of it. Red kinds never are in such favour as white ones, and are sold usually in the proportion of about one to three or four early, but there is a larger demand later on. That grand double Avalanche is a favourite; so also is War Eagle, and Black Prince is another excellent sort. All these are now being pushed rapidly forward.

Cinerarias.—Market growers of these spring decorative plants who have a good strain seem to be somewhat in advance of the ordinary florist and seedsman in the matter of habit and quality, even though the latter no doubt strives to obtain good kinds. Somehow it appears to be the case that one or two men have in the market trade a good reputation for their strain of Cinerarias for a few years, then the mantle falls upon others; and thus, whilst a fine strain is always to be had, it is not always in the same hands. Dull colours, let the flowers be ever so good, are not in favour; rich reds and crimsons with a white centre and good dark selfs also are liked, because these kinds look unusually rich and telling under artificial light. Given flowers as large and rounded as a penny piece, plants from 10 inches to 12 inches high, and heads 12 inches across, and we get the ideal of a market Cineraria. Raised so easily from seed, it is one of the simplest to grow in all the florist's list, and as a rule sells well and is very profitable. The great fault of the average Cineraria is legginess. The German strain grown so well at Chiswick was dwarf and compact enough, but the flowers of very poor quality. A good selected strain would show something much better than those.

KITCHEN GARDEN.

Tomatoes may with advantage be grown wherever there is a small portion of wall at liberty, as is often the case between fruit trees; a south wall is best, but they will frequently succeed on a western or eastern aspect. On the two latter we should recommend the greater part of the shoots being continually pinched in close, so as to bring them into bearing early. In all cases it is better to confine Tomatoes to a much less number of shoots than is often done, thereby enabling more plants to be grown on a given space. The thinner the shoots are kept the earlier they produce fruit. In warm districts Tomatoes will frequently succeed on a sheltered border fully exposed to the sun. Plant them out singly, using two or three sticks to each plant for support, to which they must be kept regularly tied as the growth advances; otherwise, from their fragile nature, they get broken by wind. Where they are so grown, the ground is better for being poor, as their natural habit of making too much growth is still further increased where the soil is rich. The plants should stand about 3 feet apart each way, so as to avoid their shading each other. Brussels Sprouts should now be planted. They do not require so much room as winter Broccoli; but they must by no means be planted too closely, or they will never attain that vigorous hardy condition which alone enables them to withstand a severe winter. The character and condition of the soil in which they are grown have much to do with the space they should occupy. In good, well-manured land they should be put in 2 feet 3 inches apart each way; in shallow, poor soil they may be placed 6 inches closer, both in and between the rows. Move them, as far as possible, with their roots entire, and if the weather be dry give them a good watering. Make successional sowings of Lettuce, and at this season it is a good practice to draw shallow drills 12 inches or 15 inches apart, and to sow the seeds in the bottom; the plants can thus be well soaked with water when they require it; advancing crops will be benefited by the application of manure water. Early crops of the Cos varieties should, as they approach maturity, be tied up with bast, which is of much assistance, even in kinds that are the most disposed to turn in their leaves and blanch naturally, and, moreover, it improves the quality. Amateurs who have not had much experience in

Lettuce growing are apt to tie the ligatures too tight, which bruises the leaves and causes them to rot. All that is required is to draw the leaves together gently with the hand and tie them sufficiently close to exclude light. Keep the surface between advancing crops frequently stirred; and where the soil is of a retentive character, and was at all wet when dug, its condition will be greatly improved by forking it over to the depth of 6 inches or 8 inches, care being taken not to disturb the roots of growing crops. Small salads should be sown about once a fortnight, otherwise the supply will be interrupted. When the weather is hot and dry let such plants, and especially Radishes, be watered, or they will be tough and stringy.

ROSE GARDEN.

ROSES IN DIFFERENT POSITIONS.

MONTHLY ROSES—a name commonly applied to the old blush and crimson China sorts—have, during the past winter and spring, equally with several others of the Tea kinds on south and west walls, kept on opening their autumn-formed buds each succeeding month until the ordinary spring growth has come into bloom. The natural disposition existent in the Tea kinds to keep on perpetually growing, unless stopped by severe cold, has seldom been so apparent as in the past winter, and this in situations absolutely sunless in winter. On north walls this season Gloire de Dijon is not more than a week later in opening its spring crop of flowers than when occupying a similar position on the sunny side. This most useful of all Roses has no equal on a north wall; consequently, it should be used freely in such situations, supplementing it with others of the stronger-growing Tea sorts, which collectively in positions of this kind give much more satisfactory results than are attainable in the case of any other section of the Rose family. In order to make the most of them, however, when so grown, they must be plentifully supplied with water and manure in either a solid or liquid state, without which their growth is poor, and they become a prey to aphides, red spider, and mildew. The importance of this cannot be too often urged, as Roses, in common with other plants, require more attention when growing under the unfavourable conditions of an aspect that does not admit of the vivifying influence of the sun reaching them to the extent they like. Maréchal Niel on open walls has been more than usually favoured by the season. Its single effort in forming flower-buds, if cut off, as they have often been of late years, is destroyed for the season; this spring it has escaped, and in many places is producing a fine crop of flowers. It is essentially an indoor Rose, as under glass it attains a greater size, its flowers coming larger, more numerous, and the yellow colour deeper than obtainable in the open air, but, nevertheless, it well deserves a place on an outside south wall, where it blooms so as to give a succession after the inside crops are over. With me it is now finer than I ever saw it out-of-doors; its roots are under the pebble pavement of a yard where there is no chance of assisting it save by artificial manure or manure water. I use the former (Clay's) applied liberally two or three times during the growing season, washing it well down between the interstices of the paving stones with plenty of water so as to soak the earth beneath thoroughly; the strong shoots have prodnced bunches of three and four buds each. As will have been noticed by those who grow this Rose in houses, the flowers are of the deepest colour where least under the influence of the sun. On a south outside wall the flowers are not protected by the leaves in the way that occurs when grown under a glass roof where they hang down beneath the foliage. I find that a piece of thick canvas hung in front of the plant whilst the sun is on it does much to prevent the flowers being bleached in the way that occurs when exposed. T. BAINES.

5190.—**Fortune's yellow Rose** is a vigorous grower and not likely to do well on a pillar 10 feet high. I should say the wood of "T. C. H.'s" tree (p. 422) was not sufficiently ripened to produce flowers. If very crowded thin out the old wood and let the young branches ramble about until late in the autumn when they may be loosely tied up, but not pruned. The plant must have plenty of light, air, and root moisture; our plant of this Rose produced a flower last year on every small twig which it made.—J. C. C.

5198.—**Gloire de Dijon Rose.**—"Lady C." (p. 422) will find that this Rose will make a most excellent stock for any other strong-growing climbing variety, besides Maréchal Niel, and if she has not Climbing Devoniensis I would recommend her to get it, and put in some buds at the proper time; it is a fine kind, and one that affords lovely-tinted, well-formed blooms, especially when they are half expanded, a state in which they are perfect in shape. If forward buds can be obtained from plants under glass budding may be done at once. Gloire de Dijon, being in a greenhouse, will have made a sufficiently early growth for the bark of the young wood to run, and by putting in the buds now, and cutting back the stock after they have taken, quite long shoots will be made in time to ripen by the autumn, and they ought then to flower next year.—S. D.

MESSRS. CANNELL'S NURSERY.

THE visitor to this now well-known establishment is always sure—no matter at what season of the year he may chance to beat Swanley—to find something to interest him. Having recently paid it a visit, a brief record of what I saw may not be out of place. Let us begin, then, with what has made Swanley famous—viz., the Pelargoniums. These are in grand condition, and are, many of them, bearing Hydrangea-like heads of flower and of such brilliant colours as to almost dazzle one. Five or six houses, each 100 feet long, are devoted to this kind of stock—a perfect blaze of bloom. As the older sorts have been so often described and are cultivated in most gardens, I will confine my remarks to a few of the best new kinds not yet sent out.

SINGLE-FLOWERED ZONALS.—Advance, rightly named, a brilliant scarlet, large, and of fine form: Mrs. Deane, a kind bearing an abundance of large, well-formed flowers of a distinct and pleasing shade of white, tinted with soft lake, and with a rich, fiery, rosy lake coloured centre, an acquisition; Queen of the Belgians, pure white, flowers large and bold, a decided improvement in this particular class; Mrs. Bowen, blush-coloured, of quite a distinct and pleasing tint, dwarf and bushy in habit, foliage light green, and covered with large, well-formed trusses of flowers—a decided acquisition; Cosmos, a sort with large, well-formed flowers, orange-salmon, with brighter colour towards the centre: Lord Derby, fiery pink, trusses large and well formed, very free and fine in habit.

DOUBLE-FLOWERED SORTS.—Hollyhock, somewhat resembling in miniature the favourite autumn flower after which it is named; its guard petals stand well out beyond the double rosette of centre petals, which are of a brilliant scarlet, shaded yellow—a novelty; Banquise, flowers of the finest form, and of the purest white; Gil Blas, flowers of the brightest crimson, tinted red, trusses large and compact; L'Andalouse, flowers and trusses full and large, creamy white, very fine and effective; Panama, flowers and trusses large and fine, fiery salmon, edged with rosy salmon, distinct.

Golden tricolors: Mr. H. Cox (this is considered to be one of the best); King of the Bronzes, holding the same position in the golden bronzes; and the same remark applies to Mrs. Miller in the silver tricolors.

MISCELLANEOUS PLANTS.—Amongst these must be named herbaceous Calceolarias, of which there is a well-varied collection just coming into flower. Petunias will also soon be an attractive and pleasing feature. Of tuberous Begonias a very large collection is grown, these being a speciality at Swanley. Later on and in June or July next, when they may be expected to be at their best, anyone in search of a feast of flowers need not be disappointed. While so much attention—and deservedly so—is being paid to these, the Rex class is not forgotten, an extraordinarily fine collection of this section being gathered together. Being plants of easy culture, this class of Begonias is deserving of every encouragement. Whilst referring to Begonias grown for the beauty of their foliage, especial mention must be made of the Coleuses, of which all the best varieties in cultivation are grown here, and for variety and richness of colouring they are perhaps unequalled by any other class of plants. The single-flowered Cineraria March Past, a sterling sort distributed from Swanley, I saw in perfection, and it is a sort that well deserves all that has been said in its favour. Of double kinds some fine sorts are grown, and how attractive they are, the plants being covered with numerous button-like flowers which last uncommonly well; one specially noted was named William Goldring, a seedling of this year and a kind that bears very deep blue flowers, and plenty of them. Other things consisted of Mignonette, Gloxinias, Heliotropes (Swanley Giant), and what is considered to be the best Ageratum yet sent out; it is named La Superbe. I had no time to critically inspect the treasures—and they are many—in the outdoor department. The collection of Pansies in about a fortnight's time will be in full bloom. Here and there flowers were peeping up, giving us, as it were, a foretaste of what may be when the whole mass is in flower. J. BARRY.

FERNS.

BEST CULTIVATED FERNS.

(Continued from page 365.)

MESOCHLÆNA JAVANICA.—This strong-growing species, which is found in great abundance all over the Malayan Archipelago, where it attains gigantic dimensions, is of a very decorative character, though in cultivation it seldom attains more than from 30 inches to 36 inches in height. Its herbaceous fronds, whilst soft in texture and slightly hairy, are pinnate, and produced from an erect caudex; they are borne on short tufted stalks, and measure between 2 feet and 3 feet in length and from 12 inches to 18 inches at their widest part. The pinnæ, which are alternate and vary from 6 inches to 9 inches long by only half-an-inch in breadth, are very numerous, closely set, and so deeply serrated that they are cut on both sides half-way or more down to the rachis, being in that respect similar to the better-known Lastrea patens. The plant known as M. asplenioides seems to be but a villose variety of it, but with narrower pinnæ than usual and short, oblong-deltoid lobes. This rare species requires a somewhat substantial soil in which to grow luxuriantly and develop its handsome and finely divided fronds. A mixture of fibrous loam, peat, and leaf-mould in equal parts is all it requires, with a great abundance of water at the roots at all times of the year. Stove.

MICROSORIUM IRIOIDES (Pleopeltis irregularis).—This singular-looking species, forming of itself a genus, has an exceedingly wide habitat. It is found in quantities in the Malay Island, Australia, and the East and West Indies. Its simple fronds, which are of a conspicuously erect habit and which attain from 20 inches to 24 inches in height and about 2 inches in breadth, are produced from a decumbent rhizome, and borne on short round stalks of very hard substance. This singular plant is rendered more attractive still by its peculiar light green colour, and by very small sori, of a brown aspect, scattered all over the under sides of the fronds. It associates well with other Ferns with foliage more finely divided, and succeeds well on a cool rockery, planted in peat and sand only; care must, however, be taken not to have it in a low place, as anything like stagnant water at the roots will soon kill it. There exists also an interesting and decorative form of it which attains about the same dimensions, but which

differs in having the fronds profusely crested or tasselled. Greenhouse.

Mohria thurifragra.—A handsome South African Fern possessing a gracefully pendulous habit, and essentially distinct in general appearance from that of any other drooping Fern. It is also the only species of the genus in cultivation known. It is exceedingly useful for growing in hanging baskets of small or medium size, as its elegant bipinnate fronds, which are produced from a tufted crown, measure from 8 inches to 20 inches in length, and have a peculiar arching appearance, which is most pleasing, especially when the plants are sufficiently strong to produce fertile fronds. These greatly differ from the barren ones by being conspicuously contracted, and by having their pinnæ rounded at the edges; whereas those of the barren fronds are deeply laciniated. Both sorts of fronds are borne on long, flexible, round stalks, densely clothed, as well as the rachis, with brown reddish scales. This species has also produced a very interesting variety (M. achilleæfolia), which is still extremely scarce in collections, but which is, nevertheless, very handsome, and deserves more general cultivation. Unfortunately, it increases but slowly, for although fertile fronds are freely produced, we know of no case in which seedlings were ever raised from them. Its propagation is thus confined solely to the division of the crowns—a very slow process. It is of tufted habit and differs essentially from the typical species through its fronds being much more finely divided—so much so, in fact, as to give them a tripinnatifid appearance; they are also borne on much more slender stalks, but their most distinctive character lies in their habit, which, instead of being pendulous, is strictly erect; the barren fronds are produced in greater abundance than those of M. thurifraga, but seldom exceed 8 inches or 10 inches in length; whereas the fertile fronds are prostrate and much shorter still. Both species and variety are of very easy culture, and it is surprising that both—or the species at least—should not be grown more extensively. All they require in the way of soil is a mixture of about equal parts of peat leaf-mould and sand, with the addition of small pieces of sandstone or soft brick. All syringing overhead must be carefully avoided, or it will cause the fronds to turn black and decay in a very short time. Greenhouse.

Monogramma Junghuhni (linearis). — A little miniature Fern from Ceylon, and one which seldom attains more than 3 inches or 4 inches in height. It forms little tufts of linear, filiform, Grass-like fronds, produced abundantly from a slender and very hairy creeping rhizome. Although generally simple, the little fronds, which are very narrow, are sometimes forked, and present a very peculiar appearance, owing to the sori, which are produced in two parallel rows, and cause a greater expansion of the costa on one side than on the other. This little gem needs a very light, peaty material in which to grow. Stove.

Nephrodium.—This is an extensive genus, comprising for the most part plants of decorative habits, among which some really fine and ornamental kinds are to be found. Botanically, they are closely related to the Lastreas, from which they are only distinguished by the joining together of the veins. Like them, the majority of Nephrodiums are of easy culture, a property which market growers have not been slow in appreciating at its full value, as may readily be observed by the thousands of the different kinds disposed of every season. Even the commonest of all, N. Molle, which for years was considered no better than a weed, has of late sprang up in market gardens in which its rapid growth and the handsome shape which it assumes when properly cultivated greatly contribute to make it a most valuable addition to the list of decorative Ferns. When plants of this are put out on the rockery, where all Nephrodiums seem to thrive, they soon become objects of great beauty, but whether grown in that way or as pot plants they require a richer soil than most other Ferns: a compost of equal parts of fibrous loam, peat, and cow manure, previously dried and well mixed together with an additional good dash of silver sand, will suit most of them; and although they require a tolerable amount of water at the roots all the year round, great care must be taken that their foliage is kept dry at all times, as being of very soft texture it soon gets spotted, and loses its beauty if allowed to get wet, and it suffers just as much if the plants are at any time directly exposed to the strong rays of the sun.

N. abruptum (ensorum).—This handsome species from Ceylon is of robust habit and rapid growth. Its ample fronds, which are of a fresh pale green colour, generally measure from 30 inches to 36 inches long by 15 inches or even 18 inches broad, rise from a short stout caudex, and are borne on particularly stout stalks 20 inches long, and sometimes more. They are of a leathery texture and slightly hairy throughout; pinnate, with pinnæ alternate, from 6 inches to 10 inches long, and about 1 inch broad, and oblong in shape; these are finely acuminated, and divided about half way down to the rachis with rounded obtuse lobes shortly pinnatifid at the margin; the lowest ones are often much dwarfed. A noticeable feature quite peculiar to this species is that though the fertile fronds are sometimes considerably contracted, they are at other times quite as broad as the sterile ones. Stove.

N. albo-punctatum.— This elegant species, though peculiar in appearance, is found growing abundantly on trees in the Bourbon and Mauritius Islands. Its pinnated fronds, which are produced in great profusion from a slender creeping-branched rhizome varying in thickness from that of a crow's quill to that of a lead pencil, are of a soft texture, and vary from 10 inches to about 15 inches in length; they are of a dark green colour and ovate-lanceolate in shape, with firm membranaceous opposite pinnæ, about 2½ inches in length; these are marked with from eight to twelve white dots on their upper surface situated near the margin. They spread horizontally with the exception of the lowest pair, which generally affect a deflexed position and quite attached to the rachis. These fronds are borne on more or less downy stalks from 6 inches to 10 inches long and of a dark purple colour, quite distinct from that of any other species. Stove.

N. arbuscula (Aspidium puberulum). — A handsome East Indian species of medium size and peculiarly distinctive in character. Its fronds, which are freely produced from a creeping caudex, are of a firm membranaceous texture and borne on stalks from 8 inches to 10 inches long. Their shape is oblong lanceolate, and they measure from 18 inches to 20 inches long by about 8 inches in breadth; they are pinnate with pinnæ alternate, long, narrow, and slightly dented on the margin, the four or five lower pairs being much contracted and frequently auricled above. The whole of the plant is slightly hairy and of a most pleasing shade of pale green. Stove.

N. aridum (Aspidium obscurum).—This gigantic growing Malayan species is particularly well adapted for planting out in the warm conservatory, where its magnificent fronds, which are of a somewhat upright habit, can attain full development. These are produced from a thick decumbent rhizome and borne on naked or only slightly hairy round stalks about 12 inches long. They are pinnate, with pinnæ alternate, from 6 inches to 8 inches long and about 1 inch broad, and cut into sharp-pointed lobes about one-third of the way down to the rachis. The whole frond, which is of a pleasing light green colour and leathery in texture, often measures from 3 feet to 4 feet in length by about 15 inches wide. Stove.

N. articulatum.—A handsome strong-growing species from Ceylon, whose gigantic pinnate fronds, produced from a decumbent rhizome, generally attain from 3 feet to 4 feet in length. They are quite smooth and of a bright dark green colour. This is a species which requires a very substantial soil to grow in, and also a great abundance of water at the roots at all times of the year. Stove.

N. costatum.—This is a Himalayan species of medium growth and very elegant habit, whose pinnate fronds, which are lanceolate in shape and borne on round stalks about 15 inches high, often measure from 20 inches to 30 inches in height. The pinnæ, which are numerous and rather distant, are sometimes alternate, but in most cases opposite, sessile, and somewhat narrow compared with their length, which often exceeds 6 inches. They are of a leathery texture, and have their margins coarsely and sharply serrated. The principal attraction belonging to this plant is the colour of the rachis, which is at all times strongly tinged with red, and contrasts singularly with the dark green colour of the upper sides of the fronds. Greenhouse.

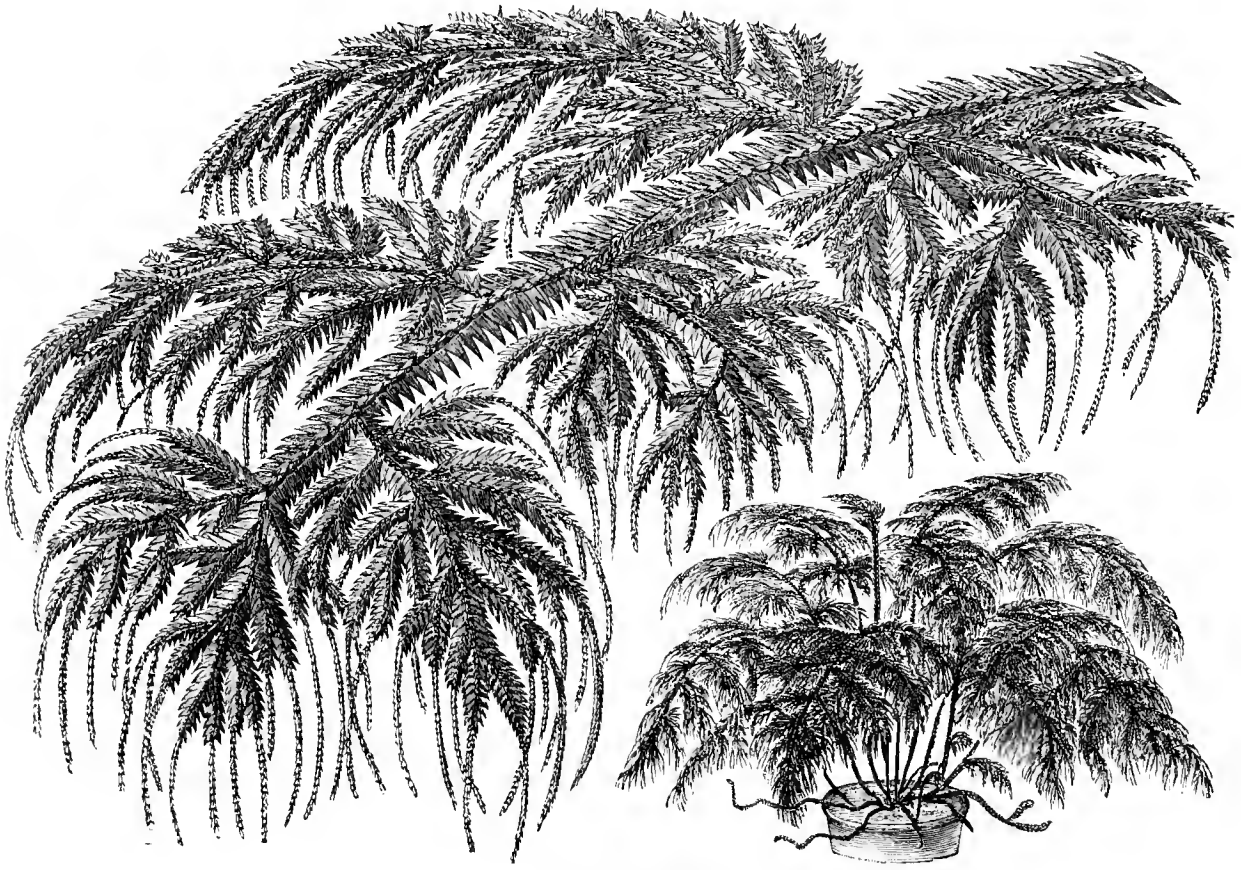
N. crinipes.—Another Himalayan species, of peculiarly erect habit and hairy appearance throughout. Its fronds, which are seldom over 2 feet in length, are borne on stalks about a foot long. They are very stout and singularly upright, and densely covered with copious, long, flexuose, shaggy, dark brown scales, which even extend some way up to the rachis. They are copiously pinnated, with long, narrow pinnæ often measuring from 5 inches to 6 inches in length, whereas their breadth is seldom more than half an inch. They are deeply dentate—in fact, cut half-way down to the rachis, and the whole fronds, which are of a leathery texture and bright dark green above, are very conspicuously hairy underneath. It is a species which is particularly averse to any watering overhead. Greenhouse.

N. cuspidatum.—This, a native of Ceylon, is one of the most interesting of the whole genus. Although of medium growth only, it possesses several attractions and good qualities which render it most valuable either as a pot plant or as an entirely distinct kind for the rockery. It is of compact habit and of easy culture, producing from a fleshy decumbent caudex its handsome pinnate fronds in great abundance; they are borne on succulent round stalks about 10 inches high, scantily furnished on their whole length with pale straw-coloured chaffy scales. The pinnæ, lanceolate in shape and slightly serrated at the margins, are numerous, though set somewhat far apart, and most conspicuously disposed, inasmuch as they are of nearly the same size throughout the whole length of the fronds, which seldom exceed 20 inches in height; the terminal pinnæ are much elongated, and more deeply serrated at the edges. The whole plant is of a glossy dark green colour, which is, however, relieved by the beautiful and refreshing claret-coloured stems, forming with the tint of the foliage a pleasing and most decided contrast. Greenhouse.

N. cyatheoides.—This beautiful species from the Sandwich Islands is, unfortunately, still very seldom met with in general collections; this is all the more surprising, as its distinctive characters render it quite striking in appearance. Its very handsome pinnate fronds, which seldom exceed 20 inches in length, are produced from a thick decumbent caudex, and are of a good leathery texture, but the whole plant possesses a most massive, yet graceful habit, and a highly decorative character is imparted to it by its numerous broad and very long pinnæ of a bright light green colour, regularly and deeply toothed on the margins. Stove.

N. extensum (Aspidium multijugnm).—A very massive-looking species from Southern India, and one of particularly easy culture and great usefulness; its large and copiously pinnate fronds, pinnatifid towards their extremity, are of a remarkably membranaceous texture and lanceolate-acuminate in shape. They rise from a fleshy decumbent rhizome and are borne on slightly scaly stalks, very stout, and measuring from 12 inches to 18 inches high; whereas the fronds themselves vary in length between 2 feet and 3 feet, and measure about 15 inches in breadth. The pinnæ, which are very numerous and closely set, are disposed almost horizontally; their great length, from 8 inches to 12 inches, makes them hang down and show to great advantage their finely cut and narrow segments pinnatfid about half way down to the rachis. The whole plant is of a pleasing bright green colour. Greenhouse.

N. FEROX.—This handsome species, native of Java, is of particularly robust habit, and attains very large dimensions when planted out in the warm conservatory; its ample and handsome pinnate fronds, which attain 4 feet or even 5 feet in length, often measure 30 inches in breadth. They are very rigid and leathery in texture, and borne on stout stalks varying from 12 inches to 18 inches in height, and possessing a very peculiar and pleasing appearance, through their being densely clothed with long and somewhat coarse blackish scales, which are not limited to the stalk only, but extend more or less to the rachides. The pinnæ, which are numerous, are closely set, so much so as to touch one another and form a very striking mass; they are finely acuminated and cut about one-third of the way down to the rachis. This handsomely decorative plant is also known under the names of Aspidium scabrum and Goniopteris aspera. Stove. PELLÆA.



A new Selaginella (S. viridangula).

SELAGINELLAS.

THIS interesting group of plants, most of which, in grace and beauty, equal and even surpass some of our most popular Ferns, is every successive year gaining in popularity. The well-deserved increase in their cultivation is doubtless due partly to the merits of these Fern-like plants, which adapt themselves so well to decorative purposes, and partly also to the ease with which the majority of them may be grown. In private establishments especially, where the demand for decorative plants is great, and where numberless difficulties are encountered in the propagation of Ferns, these useful plants may be increased at a rapid rate and with comparatively little trouble, a great point doubtless as regards rendering them popular. In colour they vary from the palest of green, as in S. lepidophylla and viticulosa, to the dark coppery tints of S. atroviridis; there is, moreover, the inimitable bluish tint of S. cæsia and its handsome and more robust form, S. cæsia arborea. To the charming S. grandis, of Bornean origin, have been added in rapid succession the extremely curious S. involvens variegata and the remarkable S. canaliculata. The former appears to be a natural sport of the dwarf, dense-growing tabulæform species introduced from Japan, and which for years has been cultivated under the name of S. japonica; the new comer differs essentially from the parent plant, a certain quantity of the branchlets, freely mixed all over the plant, being creamy white. Like the original species, this variety forms a pretty dwarf tuft, consisting of a series of branches overlapping each other and surrounding the central axis. Selaginella canaliculata is a remarkably handsome tall-growing species introduced from the South Pacific Islands, and belonging to the sarmentous section, which comprises only plants of scandent habit. It is particularly striking on account of its stout fleshy stems, which root freely from the base, being tetragonal, and tinted with pale brownish red, and furnished with unequal-sided leaves. The branches, which attain the length of 15 inches and are tripinnate, are clothed with leaves of different sizes, the larger ones being semi-ovate in shape, whereas the smaller ones, which are by far the most numerous, are acuminate.

Among new Selaginellas which have made their appearance this year must be named S. viridangula, the subject of the annexed illustration. It is being distributed by Mr. B. S. Williams, and is certainly most striking in appearance. It has been recently imported from the South Sea Islands, and belongs to the sarmentous section, to which it forms a valuable addition. In general habit it resembles the well-known S. cæsia arborea. It grows several feet in height; its robust stem produces numerous alternate branches a foot or more in length, both being furnished with scattered leaves, while the pinnæ bear distachous leaves about two lines long, and rounded at the anterior base. The pinnæ, too, as will be seen, all terminate in long, elegantly drooping, quadrangular spikelets. Taken altogether, it must be regarded as a welcome addition to the members of the genus that need stove temperature. S amœna, sent out by Mr. Bull, is a beautiful Mexican species, which on account of its neat and elegant habit is very interesting. It belongs to the caulescent group, and grows to about a foot in height. It has an erect stem furnished with small scattered leaves; the branches occupy a horizontal position and the whole plant is of a bright and cheerful green. In S. cognata we have a fine species from the islands of the South Pacific with sarmentous, stout, upright-growing stems clothed with obliquely ovate spreading leaves loosely set, at about half-an-inch apart. The branches, which are alternately pinnate, grow to nearly 10 inches long, and are ovate in shape; the primary branchlets, which are of a similar shape, grow to about 3 inches long, and produce from six to eight alternating secondary branchlets. A somewhat peculiarly bristly appearance is produced by the leaves becoming gradually smaller on the successive series of branchlets, and the small intermediate ones converging with their points turned upwards. This is certainly a distinct and very interesting species. The plumose group is also represented among this year's novelties by a handsome species, which grows up into a tufted mass. It is named

S. Pervillei, a plant whose novelty lies principally in the upright stems, which are of a red hue, and bear a pinnately triangular frond, whose upper part is densely ramose, and furnished with leaves of a fine dark green colour. The fructification, which is very elegant, and situated at the tips of the branchlets, is spicate and quadrangular.

Among the older species particularly striking through either habit or colour may be mentioned S. africana, caulescens, erythropus, hæmatodes, the still rare Lyalli, and viticulosa, all of which belong to the stoloniferous section; atroviridis, inequalifolia, rubella, rubricaulis, and Wallichi are about the best among the sub-erect kinds. The sarmentous section, which contains plants well adapted for the covering of pillars, walls, &c., is best represented by S. cæsia arborea, conferta, and Lobbi. Amongst the tabulæform species, all of which are of slow growth, are many gems, the best being S. convoluta, lepidophylla, and pilifera. The section in which we find nearly all the most useful kinds—those generally used for decoration on large scales—is the one confined wholly to dwarf kinds, the best of which are S. apoda, helvetica, Kraussiana, or, as it is commonly and erroneously called, denticulata, and its golden and silver variegated forms, Poulteri, serpens, and uncinata, generally known under the name of S. cæsia. Considering that a close and moist atmosphere, with a degree of heat varying according to the different species, is all that is required to ensure success in the cultivation of Selaginellas, and that a mixture of chopped Sphagnum, fibrous peat, and sand in equal proportions suits nearly all of them, it is not surprising that their culture is on the increase.

A.

Fruit Garden.

COMPARATIVE EARLINESS OF VINES.

As "J. C. C." rightly remarks, there is nothing striking in the fact of his Vines of Black Hamburgh, Golden Queen, and Black Alicante being respectively about a week in advance of each other in the same house—all being treated alike, I presume, from the commencement. The only lesson to be learnt therefrom is the relative earliness of the different varieties and the unwisdom of planting sorts in a house which ripen at such wide intervals apart. At any rate such early sorts as Black Hamburgh and Sweetwater are best separated from those later in ripening. I would not, however, separate Golden Queen from the Alicante, as I find both to require a rather high temperature in order to bring them to perfection. The most perfect examples of Golden Queen and the best flavoured Alicantes I have seen or tasted were grown in a house principally devoted to Muscat of Alexandria and Canon Hall Muscat, and if both generally received higher temperatures from the time of flowering up to the time when they were ripe, we should hear less frequent complaints of bad colour in the case of the Golden Queen and indifferent flavour in that of the Alicante. True, the Black Alicante frequently produces large bunches which coloured remarkably well in a Black Hamburgh house; but how often are such sufficiently sweet and long keeping to be satisfactory? The Golden Queen, being very vigorous and robust, may also succeed fairly well under the same treatment, but I have had no experience in this matter. As to the comparative earliness of Vines, I think I can adduce a few facts which if not new are at any rate somewhat striking. In no instance that has come under my notice is the truth of the old saying, that "habit is second nature," more strongly exemplified than in the case of forcing Vines. Everybody at all experienced in the matter is aware that if Vines are started early one or more years, they will naturally break earlier the following season, even if not forced. That is why I prefer pot Vines for early work raised from cutbacks to those grown into fruiting size from eyes in one season, the former being easily induced to break at about the same time as they did when in a small state. In Grape forcing, appearances are sometimes rather deceptive. For instance, one end of the house may be much warmer than the other, especially if it is built on or down a slope. Such a house is to be seen at Longleat, and though filled with one Vine of Black Hamburgh only, there is always a difference of at least fourteen days in the time of ripening between the upper and lower portions of the house, this being simply owing to the warmest, and therefore lightest, air finding its way to the highest point. Here one end of our Muscat house is fully a week in advance of the other, owing to its getting most artificial as well as sun-heat. I introduced a rod of Black Hamburgh into this house as a stock for Muscat of Alexandria, but owing to its not having been forced before, it is later than the Muscats, and the latter are fully a week behind Madresfield Court. Some of your readers perhaps are aware that it is quite possible to fill three houses with one Vine, and to have these three houses at least three weeks behind each other, much as if filled with separate Vines. Such a state of affairs at one time existed in a noted garden in the midlands, and in a small garden in Kent a Vine of Mrs. Pince partially fills two divisions, one being forced so as to have the Grapes ripe early in July, and the other allowed to start naturally. Mrs. Pince perfectly black and quite ripe in July rather surprised many Grape growers at the Tunbridge Wells Show, where some of these Grapes were exhibited, and if the grower had staged a quite green bunch and stated that it was cut from the same Vine he would perhaps not have been credited. I shall not attempt to explain these phenomena; I merely record them as interesting facts.

W. I. M.

FRUIT CRACKING.

Few things are more perplexing than the cracking of fruit, as even when most of the conditions of cultivation are under control it is not always possible to prevent it. I could never thoroughly master the cracking of the Madresfield Court Grape, but by reducing the supply of moisture to the roots I was able to lessen the evil. Just now, however, I am more concerned about Peaches and Nectarines than Grapes, for these crack more or less, and what is to me very singular is the stones of Peaches crack, but not the skin. In the case of Nectarines it is the skin that cracks, not the stone. Why should this be so? One thing is plain, and that is that although these two fruits are so closely allied, constitutionally they differ, or the same conditions would affect them in the same way. With me the only Peaches which crack are Royal Hâtive, Grosse Mignonne, and Salway, but the means adopted to prevent it (comparative dryness at the roots) are not so efficacious as when the same measures are adopted in the case of Nectarines. Amongst the latter Sir C. Napier cracks more than any other sort, and the evil can only be prevented by keeping the roots pretty dry. Half measures, in fact, are of no use in our case. After the fruit has finished stoning we only give the roots just sufficient water to keep the leaves from flagging; even syringing is dispensed with, and attentions such as these must be seen to in good time, for if the skin has but slightly cracked nothing will prevent its extending. There are other sorts of Nectarines which also crack more or less, and the only satisfactory way to prevent it is paying particular care regarding the watering. The quantity of water needed by trees to enable them to finish off their fruit, if well supplied up to the time the second swelling commenced, is but very small, but under comparatively dry treatment the fruit is not so large as those from trees liberally supplied with moisture. The small fruit has, however, often been the best flavoured. I advise all who are liable to have cracked Nectarines to give plenty of water up to the time when the stoning period commences, and then to lessen the quantity considerably; in bad cases syringing of the trees even should be discontinued. In the case of Rivers' Pine-apple Nectarine we are troubled with a good many deformed fruit, the cause of which is not easily traced. It seems clear, however, that the skin is very susceptible of injury, either through pressing against a branch or nail, or a slight bruise from the hammer. In short, wherever the skin is broken from whatever cause there will rise large deformed lumps, sometimes as large as a Hazel Nut, which appear to me to be analogous to gumming, and which the moisture from the syringe seems to aggravate, for if the syringing is discontinued the swelling of these nodes stops. The condition of the soil in which the roots are growing, whether wet or dry, has no effect on the affected parts.

J. C. C.

FIG CULTURE.

There are two ways of growing Figs—the cool way and the forcing system, and each requires different treatment in the plants, a fact that should be early understood by all having anything to do with Fig culture. Figs in cool houses, like orchard houses, perfect only one crop in the season; at least I never knew those fruits which appear towards autumn on the current year's growth to reach their second swelling, and hence pruning should be conducted in conformity with the mode of bearing, *i.e*, the shoots should never be shortened back or pinched, but be allowed to ripen to their extremities, where the earliest and best fruits will be produced the following season. The article on Grape culture at Argenteuil in last week's Garden, however, reminds me that the Fig growers there adopt another plan; they pinch the bearing shoot above the fruit and keep it pinched and train another successional shoot from its base, cutting away the bearing shoot, I suppose, at the end of the season Branches with ripe fruit on them treated in this way bore the greatest quantity of fine fruit I ever saw. This plan is practised, I presume, in order to drive the sap into the fruit, and at the same time to promote a successional shoot lower down. In principle the practice is the same as our own, as the terminal points of the successional shoots are depended on to bear the crop, but they are not permitted to show a second crop.

In forcing the Fig in our own gardens I prefer the pot system and the method of pinching to induce a second crop, which is always the best as well as the surest. Three crops can be had, but two are sufficient. The first crop is borne on the points of the last year's shoots, and ripens about this season. If the plants have been re-potted the previous autumn the first crop is often a precarious one, as the check to the roots is apt to cause a portion of the fruit to drop, but Figs in pots do not need to be and should not be potted annually. With top-dressings the plants will bear well for years if not allowed to root through. I have never allowed pot Figs to go without potting longer than two years, but I have seen a houseful of pot plants that had not been potted for ten years under a good gardener, who assured me they never failed to bear a fine crop, and the fruit on them was as fine for Brown Turkey as any I ever saw. I state this to relieve the doubts of those who may have Figs in pots several years. Pot plants soon get very much pot-bound; still, with abundant supplies of water and top-dressings, I do not think there is any great risk in letting them alone for five or six years. In pinching the shoots for the second crop three leaves should be left if the shoots are strong, and four if they are weak. These pinched shoots will generally show a fruit at each joint, and all will ripen. If the growth be strong they may be pinched once again, but not more, and weak plants only once if two crops only are desired. In any case the main object should be to finish the growth of every shoot with a growing point or point bud. If the last pinching is performed too late this growing point will be lost, and although the shoot may show fruit, it may have no leaves beyond, and the fruit will come to nothing. In fact, it may be laid down as a maxim to be strictly adhered to under any system of Fig culture that every shoot of the current year should ripen off with a terminal bud. No matter how short the shoot may be, there will the best fruit appear the next season.

Soil.—Although the Fig is a wonderfully strong rooter and does well in most soils, still it cannot

do with a too tenacious or hard loam, especially if firmly potted. Its roots make no headway in such a medium unless it is well mixed with broken lime rubbish and vegetable mould. In any loose *débris* of which leaf-mould forms a good proportion it roots amazingly, and for plants in pots firmly potted there is no better compost than rotten hot-bed compost, loam, and old lime rubbish, all thoroughly mixed up together and well drained. S. W.

Benefits of glass coping.—I send you a small Apricot branch taken from under a 2-feet-wide glass coping on the Apricot wall here. It has been in use for several years, and we always have fruit under it—at least, as far as the influence of the glass goes. On April 23 and 24 we had 12° of frost, and although the wall had a covering of strong canvas from the ground up to the glass, considerable damage was done right from the bottom to where the glass reached down to.—A. Henderson, *Thoresby Park, Notts.*

No protection.—I have sent you a branch to show what a set of fruit we have on our Apricot trees growing on a south aspect, but very much exposed to easterly winds. The trees have received no protection whatever—only what the wall to which they are trained affords. My opinion is, if the trees receive proper attention during their growing season and a good supply of young wood is annually laid in, most of the shading material may be stored away.—Wm. Wilkinson, *Elloughton Lodge, Brough, E. Yorks.*

*** In both cases the branches sent to us were loaded with fruit, the only difference between the two being that that from Notts was larger than that from Yorkshire.—Ed.

Pine culture.—In reply to "H. J. C." (p. 406), allow me to say that the Pine pits to which reference has been made are lean-to's, fully exposed to the sun from morning till late in the afternoon. Their dimensions are 12 feet wide from the top of the back wall to the top of the front wall; their pitch is 3 feet; they have top and bottom lights and no path inside; air is given from the outside by pushing down the top lights. It is immaterial whether the walls are hollow or solid provided they are substantial. Hollow walls in Pine pits were used when Pine growers had an idea that Pines could not be grown successfully without the aid of fermenting material in the way of linings. I have tried the Queen Pine on the planting-out system and have found it to succeed remarkably well in summer and autumn, but the fruit during the winter months became very acid, and inclined to be black at the core. I therefore discontinued planting it. That does not happen, however, with the Cayenne, from which I have had very fine fruit throughout every month in the year. I have had no experience with span-roofed pits, having never had any under my care—at least for Pine growing.—D. Murray, *Frogmore House, Windsor.*

Look to the ligatures.—So much permanent injury is done to the stems and branches of fruit trees by cord and wire used in the form of ligatures, that it becomes absolutely necessary to establish a rule that there should be an annual inspection for the purpose of examining the trees on which ligatures are used. Stakes and ties of a substantial character are often required, and when properly looked after they do no harm, but, owing to the stems and stakes becoming displaced by rough winds, the ties are apt to seriously injure the trees. Stems and branches swell, and thus the material used for the support of the tree may grip it so firmly as to do serious mischief if not attended to. Many a valuable tree has been ruined through a ligature. The injury is caused either through wind-waving or by the circumference of the stem or branch increasing naturally. By the former the bark is rubbed through, opening the way for an attack of canker and the lodgment of insects. By the latter the ligature will in time cut through and permanently disable the tree. The remedy is to remove such as are likely to do any harm, and where necessary replace them by new material, only giving sufficient room for the increase of growth. We have lately made our annual tour of inspection, and, notwithstanding that we do it punctually, we found several instances in which the cords had begun to press more closely against the bark than we liked. I have even known the small string attached to the nurserymen's labels when left upon the branches to cut half-way through them before the evil was discovered. The younger and more vigorous the tree the greater is the danger to be apprehended from tight ligatures.—J. C. C.

Thinning and shouldering Grapes.—At the commencement of my gardening career I was taught to use a Birch stick with a fork at one end and a hook at the other for the purpose of holding the bunches when thinning Grapes. Later on in another garden, where in the capacity of foreman I had the greater portion of the thinning to do in five large vineries, I took the gardener's advice, and discarded this in favour of a plain-pointed stick, and soon found that this was much the handiest. Mr. Tallack (p. 432) advises me to re-adopt the forked stick, which he considers the best, and which, perhaps, is the best for beginners or nervous people, but those who have accustomed themselves to the use of plain sticks will not change them. I should not recommend anyone to employ very fine wire for suspending the shoulders of the bunches. What we have used without injuring the stems is a size midway between what is known as binding wire and that used for stems for Camellias and other flowers in bouquet making. With such wire shouldering is easily accomplished, and being fairly stiff the bends are not liable to straighten out when the weight of the shoulders increases. If extra large shoulders are reserved, one tie or wire is not sufficient, but as a rule the bunches are improved in appearance by having all large shoulders considerably reduced.—W. I. M.

Societies.

CRYSTAL PALACE SUMMER EXHIBITION.

May 23 and 24.

It was the generally-expressed opinion among frequenters of the Crystal Palace flower shows that that held on Friday and Saturday last was not only one of the most important, but at the same time one of the most striking exhibitions that has yet been held at the Palace. It was indeed a remarkable show—remarkable in two ways, first, for the unusual high quality of the exhibits, and, secondly, for novel arrangement. Hitherto the Palace shows have been held in the building, in which a flower show, however skilfully arranged, has invariably a formal appearance. On this occasion, owing to the Palace being fully occupied by the International Industrial Exhibition, recourse was had to some capacious tents adjoining the north end of the building; in these Mr. Head, the garden superintendent, was enabled to carry out what we considered to be a really effective arrangement—one indeed on which he deserves to be congratulated. The innovation seemed to be appreciated. It is, therefore, to be hoped that the directors will henceforward see their way to continue to hold their floral gatherings in this way. The tents, four in number, leading from one to the other, were well filled. The chief centre of attraction was the huge tent connected with the Palace. In this Mr. Head had arranged all the grandest exhibits of the whole show, and very skilfully arranged they were. On entering the visitor was confronted on the right by Messrs. Jackman's magnificent group of Clematises, which formed the main attraction at the Regent's Park show a few days before. These in themselves constituted an exhibition both rich and rare. Each plant stood some 5 feet or 6 feet high, masses of bloom, and such blooms!—some as much as a foot in diameter. Fine as was the appearance of this group at the Regent's Park, it had an even better effect here, as the plants were sunk some 3 feet or 4 feet below the pathway, thus enabling visitors to look down upon the plants and see their flowers to advantage. Near Messrs. Jackman's Clematises were two creditable collections of stove and greenhouse plants. Further on were groups of Heaths, and, continuing the path round the tent, the visitor passed in succession the groups arranged for effect—an important element of the show. These were from Messrs. Laing and Messrs. Hooper, both of whom we thought surpassed all previous attempts as regards the effective arrangement of plants. Opposite the Clematis group were the combined first-prize groups of stove and greenhouse and fine-foliaged plants, associated with a group of gigantic specimens of Azaleas from Garbrand Hall, which fairly lit up the whole place with their gorgeous masses of colour. The central arrangement of this tent was, however, the most remarkable. Facing the entrance was a prodigious bank of fine-foliaged plants, the chief portion of which was contributed from Canon Bridge's wealthy garden at Beddington. This mass of foliage had a grand effect in such a position, being flanked on either side by the glowing colours of the Clematises and Azaleas. Passing this group of foliage, the visitor was confronted by the great central group, disposed in a most artistic manner in and around a huge fountain, the statuary composing which, mingled with stately Palms, Tree Ferns, and other fine-foliaged plants, produced an effect such as one seldom witnesses at a flower show. This immense mass of statuary and noble-leaved plants was lit up by the glowing colours of the finest collection of nine Azaleas in the show from Mr. Turner's nursery at Slough, while immediately opposite was the wonderful group of pot Roses which Messrs. Paul, of Cheshunt, showed at the Regent's Park. These grand specimens were a source of astonishment to all, and, as may be supposed, received a fair share of attention. Next to this main tent was one set apart solely for the productions of amateurs, there being about a dozen classes entirely confined to them. In this tent were some remarkably fine Caladiums shown by Mr. Hatchell's gardener from Grove Park, Lee. The Pelargoniums from Mr. Little, the stove and greenhouse plants, and some fair groups of Orchids were also here. The third tent was filled on one side with a gay, not to say gaudy, mass of Calceolarias, which would have had a decidedly better appearance had they been toned down a little by foliage and separated a bit. Here also were the bouquets, dinner-table decorations, and table plants, none of which, however, exhibited any novelty, all being on the conventional style. Orchids, Pitcher Plants, and specimen stove and greenhouse plants occupied the fourth tent, which was highly interesting to the visitors. The show was quite a representative one as regards plants, as may be inferred from the fact that there were forty-four classes, all of which were open, except the dozen set apart specially for amateurs. Every class was represented more or less numerously, while the miscellaneous class, which comprises all that is not provided for in the schedule, was a numerous one. These were all awarded extra prizes, apart from the prizes awarded in the competitive classes, which amounted to over £400.

Stove and greenhouse plants were grandly represented, and at the top of the list must be placed Mr. Chapman's collection of nine in the open class. These were much the same as were shown at the Regent's Park, but they had a finer appearance here, inasmuch as they were not on banks, but sunk below the surface, so that they could be looked down upon. The finest plants in this group were the huge specimens of Erica affinis and Cavendishi; Tremandra ericæfolia, a mass of bloom; Anthurium Scherzerianum, carrying a sheaf of spathes; Statice profusa; Ixora Dixiana; and a matchless plant of Hedaroma tulipifera. The second best nine in the open class were from Mr. James, who also had a fine lot of plants, his Anthurium Andreanum, bearing about a dozen spathes, being very prominent. Some gigantic Azaleas, and well-grown Heaths, were also shown in this group, as well as by Mr. Tudgey in the third group. His Erica coccinea minor was really

a wonderful plant, as perfect in shape as is possible to obtain it, and profusely flowered. In the amateurs' classes Mr. Chapman and Mr. Rann were the only two competitors of stove and greenhouse plants. Here, too, Mr. Chapman was first with a fine set, his best specimens being Tremandra ericæfolia, which he evidently knows how to grow to perfection, Ixora Reginæ, and Erica Cavendishi. Mr. Tudgey showed the first prize group of Heaths, the other collection being disqualified by the judges on account of two plants being of the same kind. These were labelled E. Cavendishi and E affinis, two Heaths very similar, it is true, but abundantly distinct to those who know them.

Orchids have been more plentifully shown at the Palace than on the present occasion, though altogether there were a good many. The prizes offered for collections of nine specimen Orchids, we think, are scarcely valuable enough to tempt owners of Orchid collections to risk their plants for two days, and to this circumstance no doubt the fewness of the collections exhibited was attributable. There were but two collections of nine plants in the open class, the best being that from Mr. James, who had a few creditable specimens, notably Lælia purpurata alba with three spikes, a mass of Cattleya Mendeli, Aerides Fieldingi grandiflorum, and Oncidium Marshallianum. The amateurs showed better, and for the first prize group Mr. Salter had some really fine specimens, among them being a fine mass of Dendrobium Jamesianum, Odontoglossum citrosmum with seven spikes, Cymbidium Lowianum, Masdevallia Veitchi equal in size to the grandiflora variety, and the beautiful new Cattleya Mendeli marginata. Mr. Child had in his next best group his well-known specimen of Aerides Fieldingi, a grand plant, and Mr. Crowley's gardener had the old Oncidium sphacelatum with six spikes, Dendrobium chrysotoxum with seventeen spikes, a mass of Phalænopsis Luddemanniana with a dozen spikes, and a similarly fine mass of Odontoglossum cirrhosum. There were three prizes (£10, £6, and £4) offered for groups of Orchids arranged with foliage plants for effect on an area of from 150 feet to 200 square feet. For these prizes there were only two competitors. Mr. James' first group contained a rich assortment of choice varieties, prominent among which was Schomburghia tibicinis, the Cow's-horn Orchid of Honduras, which is rarely seen in flower. There was also numbers of other commoner kinds, which, interspersed as they were with elegant foliage plants, made an attractive display. Scarcely inferior to this was the other group exhibited by Mr. Salter from Mr. Southgate's garden. This also contained a great number of noteworthy Orchids, many of them admirably flowered, but the most remarkable were some uncommonly fine specimens of the large white Bladder-wort (Utricularia montana), large and peculiarly shaped white flowers, so much resemble those of an Orchid, that it is often mistaken for one. There was a class for single specimen plants, but it was a poorly represented one, there being but three plants only. Of these the judges selected a large and finely flowered specimen of Dendrobium nobile as the best; a Cymbidium Lowianum, with two spikes, for the second prize; and a Vanda tricolor, with three spikes, for the third place.

Fine foliage plants.—There was a keen competition among the exhibitors of these, particularly between Mr. Rann and Mr. Penfold, both of whom showed some grand productions. In the open class Mr. Rann carried off first honours with nine prodigious plants, similar to those shown at the Regent's Park, while Mr. Penfold had huge specimens of Dieffenbachia Bausei, Anthurium regale, and Spathiphyllum pictum among his group. This exhibitor showed the best in the amateurs' classes, while Mr. Rann was second. The finest single specimen of a fine-foliaged plant was a grand Pritchardia pacifica from Mr. Rann. Crotons, Dracænas, and Caladiums have rarely been shown better than on this occasion, particularly the Caladiums, of which there are now such handsome new varieties. Messrs. Laing, of the Forest Hill Nurseries, who make a speciality of these plants, had a grand collection of nice plants in the open class. As all were such first-rate varieties, we give the names. They were: Mad. Hunnibelle, Sanchoneathon, Comtesse de Condeixa, Paul Veronese, Albo-luteum, Souvenir de Mad. Bernard, Mad. Fritz Kœchlin, Anna de Condeixa, and Luddemannianum. We are pleased to see such an advance made with regard to raising new varieties, but the credit is due chiefly to Continental raisers. There was one collection in the amateurs' section which eclipsed all the rest; this was from Mr. Sharpe, gardener at Grove Park, Lee. These were really noble specimens, fully a yard through, and furnished with huge foliage. The sorts, however, were all old, and did not exhibit much variety of colouring. The best Crotons in the show were those from Mr. Bird, who generally shows them well at this place, as well as Dracænas, but on this occasion he was outdistanced by Mr. James, who had a fine group in the open class. His sorts were Shepherdi, Cooperi, Baptisti, Mooreana, elegantissima, Gladstonei, amabilis, Reginæ, and Goldieana—a first-rate selection, and all admirably grown. Mr. Rann's collection was composed chiefly of seedlings—an admirable set, mostly all with narrow, erect foliage and brightly coloured. Nepenthes were shown well by Mr. James, and Sarracenias by Mr. B. S. Williams, and both collections attracted a good deal of attention from the visitors. Ferns were not so well shown as one would have expected, having regard to the liberal prizes offered. Canon Bridges' garden contributed the finest in this as well as in the amateurs' classes. The most noteworthy of these were Davallia fijiensis, Microlepia hirta cristata, Dennstædtia davallioides Youngi, and a Davallia polyantha fully 7 feet across.

Pelargoniums, always indispensable to the completeness of a summer show, were here in large numbers, and the chief exhibitors about London—Mr. Turner and Mr. Little—were rarely in better form. Mr. Turner carried all before him in the classes for nine show and nine fancy sorts, his plants as usual being marvels of skilful culture, huge specimens as much as 4 feet in diameter. Another feature in the Pelargonium class was the grand collection of decorative or market varieties which Mr. Little showed for the first prize. These were all large bushy plants in the rudest health, and profusely set with bloom, the whole making a most attractive display. There were several new sorts among them, the most beautiful being those named Dr. Diamond, Mauve Queen, Miss May Gill, Aurora, Sunbeam, and Vivandière. A collection of rather smaller plants was shown by Mr. Turner, the pick among which were Garibaldi, Comtesse de Choiseul, Venus de Milo, Mdme. Marie Knecht (pure white), and Grand Lilas. Gloxinias were shown particularly well by Mr. Wakeham, who was first, and by Messrs. Laing, whose second collection contained some splendid new sorts.

Calceolarias were a fine feature throughout the show, and they contributed largely to its attractiveness. Rarely have they been seen better grown, and certainly there has not been exhibited such a wonderful strain as regards richness and variety of colours as that which the noted Calceolaria raiser, Mr. James, of Farnham Royal, showed. This strain is far ahead of any we have seen, the deep crimson selfs and yellows of various shades being particularly striking. Mr. James's plants, however, were not so large as those shown by some other exhibitors, particularly by Mr. Ford, the gardener at Pains Hill, in Surrey. The eighteen plants shown by this exhibitor were marvellously fine, being as much as 2 feet across and carrying huge sheaves of bloom. Mr. Salter's groups, both in the open and amateurs' classes, were uncommonly fine, though not so large. A great display of Calceolarias was contributed by Messrs. Carter, and also by Mr. James. In addition to the competitive exhibits there was a large number of a miscellaneous character, which contributed in a large measure to the attractiveness of the show. These included choice groups from Mr. B. S. Williams and Messrs. Laing, Azaleas from Mr. Turner, cut flowers from Mr. Chard.

A full list of prizes is given in our advertising columns.

SPRING FLOWER SHOW IN PARIS.

The show of the Paris Horticultural Society, which closed on the 25th inst., has been a very successful one. It took place, as of late years, in and around the Pavilion de la Ville du Paris, in the Champs Elysées. What struck us as a novelty was the annually increasing numbers of exhibitors of Orchids. Formerly there were only, as a rule, two collections of these plants, one from the late M. Luddemann, and one from Thibaut and Keteleer. This year, however, we counted seven, and, moreover, in nearly every lot of miscellaneous plants Orchids were to be found. The Grand Prix d'Honneur went to M. Charles Verdier, the Rose grower, for a grand lot of well-flowered standard Roses. Amongst Orchid exhibitors we noted Messrs. Duval, of Versailles; Chantin, of Paris; Nillson, of Paris; Truffaut, of Versailles; and, not for competition, M. Jolibois, gardener at the Luxembourg, who had two grand Cypripedium caudatum, each with ten flowers; M. A. Bleu, who staged a few amongst his Caladiums; and M. Godefroy-Lebeuf, who had a grand mass, which contained also a well flowered specimen of Anthurium Scherzerianum Rothschildianum, well grown and with very attractive flowers of good size. The most remarkable Orchids in these different collections were the following: Cattleya Skinneri, Mendeli, Mossiæ, Aclandiæ, Schilleriana, Phalænopsis amabilis and Schilleriana, Odontoglossum Alexandræ, Pescatorei, caudatum, vexillarium, luteo-purpureum, Roezli, Andersonianum, nebulosum, Lælia purpurata, Vanda tricolor and suavis, Cypripedium Lawrenceanum, caudatum, Dauthieri, calurum, ciliolare, Darwini, caudatum, Lowi, lævigatum, &c. M. Nillson had a fine basket of cut Orchids mixed with Anthurium Scherzerianum and Nepenthes. Amongst some well-grown Dracænas staged by M. Duval, of Versailles, we found Gladstonei, Wilsoni, salmonea, Chelsoni, Liudeni, Massangeana, Goldieana, and others. M. Thristen, of Versailles, had a good bank of Clematises. M. Chantin, of Montrouge, had the best and largest group of Palms, Tree Ferns, Pandanus, &c. Messrs. Vilmorin-Andrieux & Co., the well-known seed growers, were as usual in strong force with groups of annuals, especially a good group of double Cinerarias, blue, violet, and red. M. Dallière, of Ghent, the only foreign exhibitor, showed a small group of new plants, including Dracæna Kerchoveana, Dieffenbachia memoria Corsi, Schismatoglottis Robelini, Sonerila Hendersoni, &c. Two of M. André's introductions were shown, the Philoderdron Mamei and the Streptosolen Jamesoni, a new shrub, hardy in the south of France, and which in spring is covered with numerous reddish yellow flowers. M. Vallerand had some good Gloxinias and many new seedlings not yet named. M. Bleu showed, not for competition, a few hundreds of his Caladiums, conspicuous amongst which were Charlemagne, red ground, with the veins of a darker red; Perle du Brésil, Ibis Rose, Emilie Verdier, L'Aurore, and L'Automne. The Messrs. Chantrier had a fine lot of their own seedling Crotons, including some novelties such as Empereur Alexandre III. and Eugène Chantrier. There were three exhibitors of Rhododendrons—viz., Messrs. Croux, of Sceaux; Moser, of Versailles; and Honoré Defresne, of Vitry. The plants in Messrs. Croux's group were especially fine, and in another collection they showed some good American Azaleas and well-bloomed Kalmias. Amongst Indian Azaleas, which were not plentiful, there was nothing new nor striking. Messrs. Dallé, Savoye, Poignard, and Delavier furnished some fine groups of Palms and various stove plants; M. Lachaume some good hand bouquets and flower baskets; M. Truffaut, of Versailles, a grand mass consisting of various plants, including Orchids, alluded to above, and other stove plants, such as Dracænas, Anthurium Scherzerianum (fine), Andreanum, magnificum,

Warocqueanum, Laucheanum, crystallinum, and ferrierense, Alocasia Thibautiana, metallica, Tillandsia tessellata (very fine), musaica, Aralia Chabrieri, &c. M. Levêque showed some good Roses, and M. Etienne Salomon, of Thomèry, contributed some very good forced Grapes in pots, Peaches and Cherries; also some well-preserved Grapes kept fresh since last autumn. M. Margottin had also some forced Grapes. There were many exhibitors of annuals, Cactuses, vegetables, horticultural implements, shrubs, &c. Next year in May takes place the International Flower Show, when it is hoped English nurserymen will muster in strong force.

ROYAL HORTICULTURAL SOCIETY.

THE fruit and vegetable show, combined with the usual fortnightly gathering, made an attractive and interesting exhibition in the conservatory on Tuesday last. There were, however, comparatively few exhibits submitted to the committees. First-class certificates were awarded to

CATTLEYA SCHROEDERIANA.—A new species, best described as being intermediate between C. bicolor and C. Walkeriana. The pseudo-bulbs vary from 6 inches to 12 inches high, terminated by a pair of thick ovate leaves. The flowers are about 4 inches across, with plum-colonred sepals and a broad labellum of a bright glowing magenta. It is an attractive plant, and distinct in appearance. A plant was shown by Mr. Ballantine from Baron Schroeder's garden at The Dell, Egham, and also by Mr. Salter from Mr. Southgate's garden at Selborne, Streatham, to both of whom certificates were awarded.

PHAIUS LURIDUS.—One of the most beautiful new Orchids we have seen for a long time, and, moreover, abundantly distinct from any other in cultivation. It possesses the growth of the old P. grandifolius, though it is scarcely so robust. Its leaves are broad and similarly ribbed, and the spikes grow erect in much the same way. The flowers, however, are only about two-thirds of the size of those of P. grandifolius, but resemble them in form. The sepals are brownish orange; the large lobe of the labellum is a rich plum-purple, which affords a pleasing contrast to the bright golden yellow in the throat. It is indeed a handsome Orchid, and we imagine it is unique. The fortunate possessor of it is Baron Schroeder, whose gardener showed it on the present occasion.

PASSIFLORA CONSTANCE ELLIOTT.—Apparently a white-flowered variety of the common hardy P. cœrulea, the flowers being similar in size, but the sepals, as well as the fringe, is white instead of blue. Shown by Messrs. Lucombe, Pince & Co., Exeter.

CARNATION W. P. MILNER.—One of if not the very best pure white Carnation yet raised. The flowers are remarkable for purity, large size, good form, and breadth and substance of petal. It moreover possesses a first-rate constitution, and is a free flowerer. Shown by Messrs. Veitch, Royal Exotic Nursery, Chelsea.

PELARGONIUM ISIDOR FERAL.—One of the Ivy-leaved section, and among the finest yet raised. The flowers are very double and produced in large trusses. The colour is a lovely soft pink. It is apparently a floriferous and strong-growing variety. Exhibited by Mr. W. Bealby, Roehampton.

MIMULUS CLOTH OF GOLD.—A very dwarf growing variety of the Musk. It forms a dense carpet-like mass only about an inch or so high, and the green mass of foliage is studded with numerous large, bright yellow flowers. The perfume is even stronger than that of the common Musk. Shown by Mr. R. Dean, Ranelagh Road, Ealing.

Besides the plants certificated there were several others of interest shown. These included the new Masdevallia racemosa Crossi, a species not before seen in flower in this country. Its flowers are of a bright vermilion shaded with orange, and about the size of those of M. amabilis, and are borne numerously on long, slender spikes. The plant shown had one expanded flower and a bud, and came from Mr. Fellowes, Churchfield, West Bromwich. Mr. Lee showed an interesting group of Orchids from his garden at Downside, Leatherhead. These included four rare Masdevallias, viz., M. cucullata with almost black flowers of triangular shape, M. calura, also very dark, M. tridactylites and M. Armini, both gems in the genus. Mr. Lee also showed several Odontoglossums, forms of O. mulus, also Cattleya Mossiæ alba, an exceedingly beautiful variety with large, pure white flowers save a slight tinge of colour in the labellum. Mr. Vanner, Camden Wood, Chislehurst, also sent a few choice Orchids, among them being a lovely variety of Cattleya Mendeli named alho-marginata. This had white sepalled flowers and an amethyst-tinted lip, broadly margined with pure white. Mr. Vanner also showed Cymbidium rhodocharis with tall erect spikes of greenish flowers barred with black. Among some Orchids sent by Mr. Dorman, The Firs, Sydenham, was an admirably grown plant of Masdevallia rosea, carrying no fewer than thirty-five flowers, which had a pretty effect. The same exhibitor also had flowers of the rare Oncidium lamelligerum and Zygopetalum rostratum, and an uncommonly fine spike of Epidendrum vitellinum majus. A marvellously fine specimen of Odontoglossum Halli leucoglossum came from Baron Ferdinand de Rothschild's garden at Waddesdon Manor. This huge plant bore several tall branching spikes carrying in the aggregate no fewer than 100 flowers, a most attractive specimen. A medal was deservedly awarded to the gardener Mr. Bradshaw.

Besides the exhibits placed before the committees, there was a large gathering of flowers and plants in the conservatory, chiefly consisting of hardy flowers, though most conspicuous among all was a magnificent group of a dozen Clematises from Messrs. Jackman, of Woking, similar to those shown at the Regent's Park and the Crystal Palace. These were smaller plants, but quite as finely flowered. The sorts were much the same, except Otto Froebel, a large white variety, which has never been shown in greater perfection. For this exhibition Messrs. Jackman were appropriately awarded a gold medal. Another great attraction was a grand array of cut hardy flowers from Mr. Ware, Hale Farm Nursery, Tottenham. This comprised, we should say, the pick of the flowers in his large nursery, so fine were they. There was infinite variety, too, the sorts being too numerous to name. Most conspicuous were the double and single Pyrethrums, Irises, early Lilies, such as Lilium tenuifolium and pyrenaicum, Oriental Poppies, double Poet's Narcissus, hardy Cypripeds, Ixiolirion tataricum, Campanula glomerata speciosa, Phlox amœna and varieties of setacea, Aquilegias, Dianthus Fischeri, Delphinium nudicaule, Dodecatheon splendidum, Iberis cordifolia and gibraltarica, and numerous Orchises. These made a highly attractive group and attracted crowds of visitors, and a silver-gilt Banksian medal was awarded to Mr. Ware. Messrs. Barr, of Covent Garden, also took a silver Banksian medal for a similar group composed chiefly of Pyrethrums, Poppies, Pæonies, late Narcissi, Sparaxis, Tulips, Ixias, and other bulbous plants. Messrs. Veitch took a silver Banksian medal for a fine display of cut hardy plants, such as Pyrethrums, Oriental Poppies, Brompton Stocks, Anemones, and Aquilegias, among the latter being several beautiful hybrids, as well as A. glandulosa, one of the finest species. A large gathering of Pyrethrums and Pæonies won for Messrs. Kelway, of Langport, a bronze Banksian medal, and a similar award was taken by Messrs. Hooper, Covent Garden, for cut Pæonies, Irises, Lilium Harrisi, and other flowers. Among other exhibits was a group of Japanese Maples and Mocasson flowers, from the New Plant and Bulb Company, Colchester.

FRUIT.— There were but a few exhibits placed before the committee, seedling Meloos being the principal. Mr. Howe, of Benham Park, Newbury, sent several. One named Pink Perfection, between Hero of Lockinge and William I., the committee considered of good flavour, and desired to see it again. Another named Benham Beauty, between the same parents, was also considered good, but was too ripe; therefore needs to be shown again. Mr. McIntosh, of Ashby Hall, showed a seedling between Bloxholm Seedling and Hero of Lockinge. It was named McIntosh's Ashby Hall Seedling. The committee thought highly of it, and desired to see it again. Mr. Taylor, Luneevan, Weybridge, sent a seedling between Scarlet Gem and Hero of Lockinge, as did also Mr. Breese, of Petworth, the seedling of the latter being the result of crossing Colston Bassett with Cox's Golden Gem. Mr. Hudson, Gunnersbury House, sent a fine dish of well-preserved Winter Queening Apples, plump and sound. Mr. Gilbert, Burghley, sent his new Late Queen Cauliflower, which were recommended to be tried at Chiswick, as were also a Broccoli named Latest of All from Mr. S. Ford, Leonardslee, and Eckford's May Queen, from Mr. Eckford, of Boreatton Park. Messrs. Veitch sent a large collection of Cabbages numbering some fifteen sorts, including all the best, and Mr. Barter, Lancefield Street, N., was accorded a cultural commendation for some excellent samples of the Mushrooms he grows so largely for market.

Fruit and Vegetable Show.

This was the first series of fruit and vegetable shows which are to take place here this season in connection with the Health Exhibition. The programme on this occasion was a thoroughly representative one, there being no fewer than twenty-eight classes, with three prizes in each class ranging from £6 to 7s. 6d. The exhibition was a better one than was expected, having regard to the early date for fruit. Every class was represented, with the exception of that provided for four imported fruits of Pine-apples, but that was a class for the fruiterer rather than the gardener. There was but one collection of six kinds of fruit, but this one was excellent, being shown by Lord Carington's gardener (Mr. Miles) from Wycombe Abbey. It comprised good examples of Foster's Seedling and Black Hamburgh Grapes, Elruge Nectarine, Golden Queen Melon, and Stirling Castle Peach, evidently a first-rate early sort, judging by Mr. Miles' fine fruits of it. Seven sets of two bunches of black Grapes were shown, Black Hamburghs in each case, and those from Mr. Robins, who was first, were really fine. There was the same number of white Grapes. A fine pair of bunches of Foster's Seedling was first, and came likewise from Mr. Robins. Foster's Seedling was also second, while the Buckland Sweetwaters from Wycombe Abbey were third. There were some creditable dishes of Strawberries, though not plentiful. The two best dishes were from Lord Braybrooke's garden at Audley End, the sorts being Sir Joseph Paxton and James Veitch. The other couple of dishes were Sir Joseph Paxton and President, from Ashton Court. Among the ten single dishes the best was Sir Charles Napier, a fine dish from Crosby House Gardens, Hounslow. Sir Joseph Paxton, from Lord Radnor's gardener, was second, and Sir Joseph Paxton third, from Ashton Court. Other sorts shown well were La Grosse Sucrée, Duke of Athole, and James Powell. There was a class for six plants of Strawberries in pots, but there was only one poor half-a-dozen, to which a third prize was awarded. The best among four dishes of Peaches was Stirling Castle from Mr. Miles. These were first-rate, as was also Early Alexandria from Mr. Robins. Royal George was third, the other dish being Early Alexandria, though the fruits were much inferior to those from Mr. Robins. Only two dishes of Nectarines were shown. Dr. Fuller's garden supplied the best—a fine dish of Violette Hâtive, while Mr. Miles had good fruits of Lord Napier. Lord Carington's garden also contributed the best dish of Cherries (Black Circassian); the other came from a garden at Grantham. There was, as usual, quite an array of Melons—no fewer than two dozen. Out of these the judges selected for the first prize Mr. Herrin's seedling, which he has named Chalfont Favourite; it is a good-sized, round, green-fleshed fruit, well netted. Mr. Austen showed the next best, a fine fruit of William Tillery, while Mr. Howe, of Benham Park, had his seedling named Benham Beauty for the third; it is a round, red-fleshed sort of delicious flavour.

Other sorts of Melons shown were Gilbert's Netted Victory, Hero of Lockinge, High Cross Hybrid, Masterpiece, Heckfield Hybrid, Scarlet Premier, Earl Beaconsfield, and Preston Hall Hybrid. There was a class for miscellaneous fruits, which was represented by a few commendable exhibits. The most noteworthy was some fine fruits of the Vanilla from the Duke of Northumberland's garden at Syon Honse, Brentford, where Mr. Woodbridge grows this Orchid to perfection, and ripens its fruits plentifully. There were a score of long black pods shown about the size and form of Kidney Beans. Their delicious perfume pervaded the atmosphere around, and of course attracted a good deal of attention from the visitors, who at the same time were interested in seeing the fruits from which the vanilla extract is derived. Mr. Woodbridge took a first prize for this exhibit, and a first prize was also deservedly awarded to Mr. Ross, of Welford Park, for a capital collection of Pears, Apples, and Pine-apples. There were five dishes of Pears, the sorts being Beurré Rance and Uvedale's St. Germain, the last named being enormous fruits in excellent preservation. The Apples included Cornish Aromatic, Cox's Orange Pippin, Sturmer Pippin, Mannington's Pearmain, and Cockle Pippin. Some excellent dishes of Figs were shown also in the miscellaneous class, likewise a collection of a dozen fruits of Melons from Mr. Robins.

Vegetables.

There were seven collections of eight kinds, all of which were a credit to their respective exhibitors. There was snch high quality running through about four of the collections, that it must have been a difficult task to the judges to award the prizes. They selected Mr. Waterman's collection as the best. This was a uniformly fine display, the sorts represented being Connover's Colossal Asparagus, a fine bundle, White Italian Onion, Vick's Criterion Tomato, Canadian Wonder Bean, Early Milan Turnip, Culverwell's Telegraph Pea, Brown Globe Artichoke, and Cucnmbers. The second, from Mr. Miles, was also excellent, and better in some points. It contained Stamfordian Tomato, Early Forcing Cauliflower, The Queen Onion, Little Gem Pea, Tender and True Cucumber, Asparagus, Early Nantes Carrot. The third collection, from Mr. Lockie, consisted of Purley Park Hero Cucumber, The Queen Onion, Woodstock Kidney Potato, Negro Bean, Advance Pea, Munich Turnip, and Asparagus. Some of the most noteworthy dishes in the other collections were Moore's Vegetable Cream Marrow (shown by several), Epicurean Cucumber, Hathaway's Excelsior Tomato, Leamington Broccoli, Veitch's Ashleaf Potato, Leviathan Onion, and Sir Joseph Paxton Bean. Asparagus was a great feature among the vegetables, and four classes were set apart for it. One was for fifty heads from amateur growers. The two best bundles of fifty came from Colchester, the finest from Mr. Cheshire; the second came from Mr. Cole, both being first-rate. The third bundle was also from an Essex garden. There were seven bundles of fifty shown. Among four bundles of 100 heads from market growers the finest was from Mr. Simpson, of Colchester, which was undoubtedly the best in the show, the heads being long, of fair size, and well blanched. Mr. Harwood, also of Colchester, was second; while Mr. Poupart, of Kew, was third. There was but one bundle of heads of French growth; this was from Messrs. Webber, of Covent Garden. The heads were enormous, and many thought a deal too large. The other class was for "fifty heads grown in the most natural manner," whatever that may mean. This naturally grown Asparagus was represented by no fewer than eleven bundles. Mr. Miles showed the best bundle, the heads in which were nearly a foot in length, of medium size, and not blanched. This naturally grown Asparagus we take to be identical with the produce of any ordinary garden where no particular trouble is taken with Asparagus culture beyond the conventional method practised in England. It is a noteworthy fact that the majority of the Asparagus prizes were taken by Essex growers, mostly all from Colchester and its neighbourhood. Cauliflowers (three heads) were shown best by Mr. Gilbert, of Burghley, who had three fine samples of his new Late Queen, all of which were enormons heads enclosed by tender foliage. The Leamington sort took the second and Model the third, while other sorts shown were Early Forcing, Snttons Late Queen, and Sutton's First Crop. There was a goodly array of Cabbages, for which prizes were offered for the best collections. In the first prize collection were Webb's Imperial, Sutton's Imperial, Sutton's Improved Cocoa-nut, Wheeler's Improved; while in the other collections were Veitch's Matchless, Ellam's Early Dwarf Mammoth Hearting, Moore's Imperial Early York, Cattell's Alpha, and Myatt's Early. Among twelve dishes of Tomatoes, the first was Read's Perfection; the second, Stamfordian; the third, Trophy, while of others shown were Hackwood Park, Carter's Dedham Favourite, Hathaway's Excelsior, Acme, and Gough's Selected Red. The best brace of Cucumbers among thirteen were Royal Windsor; the second, Challenger; third, Purley Park Hero. Others shown included Epicurean, Telegraph, and Duke of Edinburgh. The best four heads of Lettuces, two of Cos and two of Cabbages, were Hick's Cos, Brown Cos, Wheeler's Tom Thumb, and Dutch Cabbage. Mushrooms were excellent, and there was a good show of salading.

SPECIAL PRIZES.—On this occasion Messrs. Carter offered prizes for the best brace of their new Captain Larks and Emerald Melons. The finest of these were shown by Lord Barrington's gardener (Mr. Meads), whose fruits well represented these excellent varieties.

A full list of awards is given in our advertising columns.

ORCHIDS IN FLOWER.

Dendrobium Falconeri (*G. N. L. S.*).—An uncommonly fine variety, perhaps worthy of a distinct varietal name, though we are not able to judge from individual flowers; it is certainly not identical with D. Falconeri giganteum. The colours, too, are rich and well defined.

White Odontoglossum vexillarium (*E. A. Bevers*).—The flower sent represents a lovely variety of this Orchid, though not uncommon—at least in Orchid collections about London. A pure white variety without the faintest tinge of colour would indeed be a rarity. We have not seen one yet.

Odontogloseum Alexandræ (*C. H. P.*).—Very fine blooms indeed, identical with what Orchid fanciers term the best type, *i. e.*, large broad-sepalled flowers crisped at the edges and richly marked. A plant of this Orchid carrying thirty blooms on four spikes must be considered a good specimen.

Cattleya Mossiæ.—Mr. Fowler seods us from Ashgrove, Pontypool, a two-flowered spike of a magnificent variety of this Cattleya cut from an imported plant bearing ten fine flowers and growing in crocks only without peat or Moss. The flowers sent are not only large, but extremely delicate and distinct in colour.

Dendrobium suavissimum.—I send you a spike of this Dendrobium cut from a plant sent me from Rangoon a few years ago by a friend. On the spike now sent there are twenty flowers, and the plant has other five spikes bearing from fifteen to eighteen flowers each.—P. NEILL FRASER, *Murrayfield, Edinburgh.*

*** An uncommonly fine spike of this old, but favourite Orchid.—ED.

Cypripedium caudatum roseum.—A three-flowered spike of this remarkable Orchid has been sent to us by Mr. Hugh J. Scott, of Ashfield House, Belfast. The tail-like sepals measure just upon 2 feet in length. The colour of the flowers of this variety is much richer than that of the ordinary form, the pouches being of rich chestnut-brown.

Cattleya Mossiæ grandis.—A flower, one of three, has been sent to us of an uncommonly fine variety of C. Mossiæ under this name from Mr. De B. Crawshay, Rosefield, Sevenoaks. This flower measures just 8 inches across the petals, the width of which is 3 inches, while the lip is 2½ inches across. The colour of the sepals is pale lilac, that of the lip a bright amethyst edged with lilac. It is a lovely variety, and one of the finest among the numerous varieties of C. Mossiæ, which render Mr. Crawshay's Orchid houses so gay at the present time.

Sale of Orchids.—The sale of Sir William Marriott's Orchids from the Down House, Blandford, took place at Stevens' Rooms, Covent Garden, on May 20, 21, and 22. The sale comprised about 700 lots, and some of the plants realised high prices. A fine specimen of the rare Cattleya exoniensis fetched 38 guineas, and another plant of the same realised 34 guineas. A variety of Dendrobium nobile, named nobilissimum, fetched 17½ guineas, and the beautiful Odontoglossum crispum Dennianum, illustrated and described in THE GARDEN some time ago, went for 14½ guineas. A large plant of Cypripedium Stonei realised 19 guineas, Cattleya gigas 14 guineas, C. labiata (true autumn variety) 9 guineas, C. Dowiana 7 guineas, C. Warneri 5 guineas, C. Skinneri 5½ guineas, C. superba splendens 7½ guineas, the white variety of Vanda teres, named Aurora, 10 guineas, Odontoglossum Ruckeri 7 guineas, Lælia purpurata 9 guineas, and Oncidium macranthum 7 guineas.

Hellebore seed.—At an early date I shall have a good crop of Hellebore seed ripe, and will be pleased to send a pinch to any of your readers who may care to enclose a stamped directed envelope to me at Eastcott, Pinner. My plants are fine varieties of guttatns, colchicus, &c., and were raised from seed received from one of your correspondents a few years ago. Hellebore seeds germinate freely, but only if sown directly they are ripe. At least that is my experience with regard to them.—A. KINGSMILL.

Food plants injured by Insects.—In connection with a flower show to be held at Frome on August 4 there will be a novel competition, being none other than one for the best collection of food plants injured by insects, accompanied by specimens of the insects injuring them. Each of the collections must be accompanied by a short and simply written account of the attacks represented and what was done to get rid of them, and whether successful or not. No scientific descriptions are needed, but only a simple statement of facts. The prizes offered are £3, £2, and £1, and are given by Miss E. A. Ormerod, consulting entomologist to the Royal Agricultural Society. They are open to the whole of the United Kingdom. As the entrance fee is only 2s., and as the competition is the first of the kind ever held, this ought to be a most interesting feature of the flower show. The hon. secretary is Mr. Henry F. Moore, Frome.

Seeds (*W. T. Burn*).—Try Mr. Thompson, Tavern Street, Ipswich.

Laburnum.—The enclosed appeared in two separate places on an ordinary yellow Laburnum. Is it unusual, or what is it?—DELTA.

*** It is Cytisus Adami, supposed to be a hybrid between the Laburnum and Cytisus purpureus.—ED.

Gloxinias (*D. D.*).—The blooms sent were too much damaged in transit to enable us to judge of their merits. You should have used a larger box and more packing material.

Names of plants.—*A Barker.*—We have been unable to ascertain the name of the Rose; please send another specimen later on, and from an out-of-door plant if possible.——*W. Fyfe.*—The Rose seems to be Rêve d'Or, but the petals had nearly all fallen before the flowers reached us.——*Tahiti.*—Appears to be Scilla italica, but cannot be certain without seeing leaves.——*R. V. & Son.*—Veronica gentianoides; please send Silene again.——*A. Elder.*—1, Lychnis alpina; 2, Heuchera americana; 3, Doronicum Pardalianches.——*F. R. S.*—Brassia maculata; we still think your Epidendrum is phœniceum.——*Subscriber (Cork).*—1, Ruscus racemosus; 2, apparently Clematis cirrhosa; 3, Veronica gentianoides; 4, Ornithogalum umbellatum.——*W. Spencer*—1, Iris florentina; 2, Trollius europæus; 3, Lychnis dioica fl.-pl.; 4, Erigeron strigosum.——*H.*—The Tulip is a variety known as the Parrot Tulip; it can be perpetuated by bulbs.——*W. P.*—1, Sparaxis grandiflora; 2, Streptocarpus Rexi; 3, Fuchsia microphylla.——*Mrs. M. W.*—Leaf is from Ruscus Hypophyllum, not the Butcher's Broom, which is R. aculeatus; other is Centaurea montana alba; varieties of Polygala vulgaris (the common Milkwort)——*B. A. R. R.*—Apparently Lilium (Fritillaria) Thompsonianum.——*J. B. B.* (*Fairoaks*).—Masdevallia xanthina.——*W. H. M.*—Juniperus virginiana.——*R. R. Whitehead.*—1, Iris florentina; 2, I. tingitana; 3, I. plicata.——*J. S.*—1, Galium cruciatum; 2, Pedicularis sylvatica; 3, apparently Carex humilis——*K. A. S.*—Scilla Fraseri; Saxifraga Wallacei; shrub is Spiræa hypericifolia; white flower, Maianthemum bifolium.——*G. C.*—1, Rhodiola sibirica; 2, Spiræa callosa; 3, Clematis montana; 4, common Periwinkle (Vinca major).——*W. Sheppard.*—1, Acropera Loddigesi; 2, Pansy of some sort; 3, Mesembryanthemum next week.——*D. D.*—1, Auchusa sempervirens; 2, Fumaria Borœi; 3, Plantago lanceolata; 4, Cardamine pratensis.——*W. C. W.* (*Whetstone*).—We are unable to name the flower you sent to us some time since.

No. 655. SATURDAY, June 7, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

EARLY MARKET APPLES.

DURING the past few years the demand for young trees of early varieties of Apples has greatly increased, especially in the case of those who grow largely for market; and, as their popularity is likely to be maintained, a few words as to the varieties which are most in demand may be of service. No fruit is so well adapted for what may truly be termed fruit farming on a large scale as the Apple. The season during which it lasts fit for culinary or dessert purposes is longer than that of any other fruit which we cultivate. In fact, there is no difficulty in having good Apples the whole year round; and, although for the supply of private families, varieties that keep sound far into the spring, when fruit is at its lowest ebb are most in request, for market purposes varieties that mature early are the most profitable. Foreign competition is now an established fact, and home-growers, in looking around how best to meet the difficulty, find that they have the early part of the Apple season to themselves, as the American barrels do not begin to arrive until October, and as the early sorts are fit to commence gathering in July, there are at least three months in which the bulk of the crop can be disposed of. While some growers regulate the supplies sent to market by the prices obtainable, others make it a rule to gather all crops as soon as they are fit for use, thereby avoiding the cost of storing, repacking, &c. This is a system which is growing in favour with the majority of growers. It does not necessarily follow, however, that all the Apples sent to market are for immediate consumption. They are bought up by factors, who sell them again according to the demand. As American Apples arrive late in the season, for some time to come our markets will be likely to depend on home-grown fruit from July to November; and, as the cost of transit prohibits them from being profitably sent any great distance by rail, it follows that local growers will have the best chance in their own local markets; for, although we speak of London prices, it does not follow that there are not equally good markets in other towns of any great size. As to productiveness, it is decidedly in favour of varieties that mature early. It is obvious that a tree cleared of its crop in August and September, while the leaves are yet green, has a better chance of perfecting its flower buds for another year than one on which the crop hangs until the leaves are dropping in October; and since a race of free-bearing early Apples has been encouraged, the crops of home-grown fruit have undoubtedly greatly increased in quantity. For instance, Keswick Codlins are the type of a never-failing crop for culinary use, and we may confidently look to new sorts being produced to suit the requirements of market growers. Good-sized Apples of striking appearance are the ones to aim at. The question of how to minimise labour, and thereby reduce the price at which Apples can be grown so as to be profitable, is one of the most potent arguments in favour of early sorts; for with a good crop they can be gathered and sent to market direct at from 2s. 6d. to 3s. per sieve, and yield more profit to the grower than if he stored them for three or four months, and then realised an advance on them of 1s. per sieve.

The following is a selection of varieties that have already made for themselves a reputation as reliable market sorts, and which are all suited for sending direct from the tree as gathered in the order named:—

KITCHEN APPLES.	
Keswick Codlin	Lord Grosvenor
Manks Codlin	Warner's King
Lord Suffield	Belle Dubois
Old Hawthornden	Dutch Mignonne
Stone's, or Coddington	New Hawthornden
Cox's Pomona	Lady Henniker
Gascoyne's Scarlet	Queen Caroline
Fchlinville	Small's Admirable
Stirling Castle	Grenadier
Golden Noble	Blenheim Orange
DESSERT APPLES.	
Mr. Gladstone	Ribston Pippin
Red Juneating	Cox's Orange Pippin
Irish Peach	Hick's Fancy
Red Quarrenden	Premier
Duchess of Oldenburgh	Gravenstein
Red Astrachan	Summer Nonpareil
Worcester Pearmain	Mannington Pearmain
Kerry Pippin	Peasgood Nonsuch
Summer Golden Pippin	Wykeo Pippin
King of Pippins	Premier

In advocating the more extensive planting of varieties that can be disposed of before the bulk of the American crop arrives, it must not be concluded that we cannot profitably grow Apples to compete with all-comers. Nevertheless, there can be no question as to the wisdom of planting most extensively varieties that can be sent direct from the tree as gathered in preference to sorts only suitable for spring use. J. GROOM.

CERTIFICATING OLD PLANTS.

THE plant called Phaius luridus, to which a first-class certificate was awarded by the Royal Horticultural Society last week, and which is described as "a most beautiful new Orchid," was exhibited under a wrong name, and is neither new nor unique, as will be seen by comparing it with the *Botanical Magazine* figure of P. bicolor, t. 4078, to which, and not to P. luridus, Baron Schroeder's plant must be referred. P. bicolor was introduced into English gardens over forty years ago, has been one of the stock plants in the Kew collection for some years, and is now represented there by a good plant bearing three strong spikes, each of which carries about a dozen flowers. In the same collection it flowered well both last year and the year before. Baron Schroeder's plant has flowers with a deeper coloured labellum than those represented in the figure just referred to, but beyond this character, attributable possibly to superior cultivation, there is no difference between the two. I am not acquainted with a figure of P. luridus, but I have seen dried specimens of it in the Kew herbarium, and also Dr. Thwaites' description of it in his "Enumeration of Ceylon Plants," and from these sources I gather that true P. luridus is a small-flowered species with little claim to any particular floral beauty. I learn that on several occasions plants of P. bicolor have been received at Kew under the name by which Baron Schroeder's plant is called, and this apparent confusion of the two species may in all probability account for the Society's blunder in certificating as "new" an old and well-known species of Orchid, or at least if not well known, one which was cultivated by our grandfathers, and which was figured more than forty years ago.—B.

Miniature Orchids.—Amongst "botanical" Orchids now flowering in the Kew collection there are two tiny gems whose small posies in the way of flowers might be worn in the hat of Queen Mab; they are Masdevallia trichæte and Restrepia prorepens. The first has little Grass-like leaves an inch or so long, forming a tuft of pale green foliage, which may be likened to a cushion, from which the slender stalked flowers spring like tiny scarf-pins. Each hair-like stalk bears a single flower of a delicate texture and purple and pale yellow in colour. On the side of each lateral sepal and on the top of the upright or dorsal one are orange tails, or rather antennæ, for they are more like the little feelers of a butterfly or moth than anything else. Of this there is a nice little patch in flower in the cool house at Kew. The second plant, Restrepia prorepens, has leaves not more than 1½ inches long and about a line in width and hair-like flower-stalks, each bearing a pale yellow flower. From the tip of the upright to the tip of the lateral sepals these flowers measure about 1½ inches, and as these parts of the flower are almost in a line with each other, and the two short antennæ-like petals stand out at right angles, the whole flower is not unlike a pale yellow cross. We all like Masdevallias and Restrepias, and even small as these two are, they as much deserve a few inches of space and a few minutes' share of attention as the big and brilliant among Orchids. The Masdevallia shown by Mr. Lee last week under the name of tridactylites is apparently the same as the Kew M. trichæte.—B.

OUR CLIMATE.

THE subject of the deterioration of our climate is one of extreme interest, and it is only by collecting a large number of facts and observations that we can arrive at a conclusion of even the slightest value. Towards this object I wish to offer the following remarks: If we refer to Gilbert White's summary of the weather from 1768 to 1792, we shall find that the general aspect of the whole year was much what it is now; certainly spring seems to have been as often ungenial as in our time. Still, the extreme cold of winter seems to be greater in this century than in the last. White's observations extend over a period of twenty-four years, in which the thermometer once fell (December 10, 1784) to 1° below zero, and once (January 31, 1776) exactly to zero, which he calls "a most unusual degree of cold for the south of England." Now, in the last twenty-four winters there have certainly been four, if not more, in which the thermometer has fallen below zero, and even to 5° below it. It should be noticed that from its position the thermometer falls lower at Selborne than in most places in the neighbourhood. With regard to the "old inhabitant," if he tells us how much hotter the summers were in his early days, he usually adds how much colder the winters were. I have been struck with the number of Lombardy Poplars of all ages which have died in the last five or six years, and which must be attributed to the unfavourable seasons. I think I have read that the lake of Constance was only once frozen over in the last century, and it has been already twice frozen over in the present one.

Binsted-Wyck, Alton. WILLIAM WICKHAM.

Herbaceous Calceolarias—These are being improved in at least three directions—in the increased size, stoutness, and form of the flowers; in the depth and variety of their colours; and in the stout, vigorous habit of growth apparent in the plants. Growers generally are now becoming alive to the fact that these Calceolarias must no longer be coddled or starved before flowering, as they used formerly to be; on the contrary, they must be grown as hardy and vigorous as possible. The mild winter through which we have passed has been favourable to giving air night and day, and not only does this promote the development of healthy foliage, but it tends to keep green fly in check and lessens the necessity for fumigation Further, there is not so much risk attending early potting in a mild season as in a severe one. The present has, perhaps, proved one of the earliest seasons known for the Calceolaria. Messrs. Sutton's collection at Reading has been particularly fine. The plants are admirably grown and grandly flowered, vigorous, and yet compact and half shrubby, with large and finely formed flowers of a great variety of colours. Tall Calceo-

larias are becoming things of the past; now-a-days if growers find any in their collections showing a tendency to become tall, they reject them, and on no account attempt to obtain seed from them. The Reading collection consists of over 200 plants, the majority of them being fine specimens in 10-inch pots. Some of the combinations of colour were particularly attractive—scarlet, white, crimson, and yellow mottled with brown and gold, pink with crimson blotches, netted crimson with brown tracings and maroon bars crosswise, cream intensely veined with chocolate, scarlet veined with yellow, maroon with darker tracings, white ground with crimson dots, scarlet shaded with buff, lemon, and crimson—all the result of carefully fertilised flowers.—R. D.

PLANTS IN FLOWER.

Schizanthus Grahami.—This is perhaps the handsomest of the family. Its flowers are 1½ inches wide, deep rose, with the upper petal bright orange striped with crimson—a fine harmony of rich colouring. It appears to be stronger in habit than the ordinary varieties. Though classed among half-hardy annuals, this has done well autumn-sown in the open ground, but it was no doubt favoured by the late unusually mild winter and a warm dry soil.—G. J., *West Surrey.*

Gladiolus The Bride.—In March we potted a number of this Gladiolus, putting five bulbs in a 6-inch pot, and they are now charmingly in bloom. The spikes are about 18 inches high, and clothed with many blossoms of the purest white. In habit and form they resemble the large varieties of Gladiolus, but in size they are diminutive and very pretty. The bulbs are cheap to buy by the dozen or hundred, their cultivation is simple, and the results highly satisfactory.—J. MUIR, *Margam, S. Wales.*

Finely flowered Anthurium Scherzerianum.—In the garden of Mr. H. Coghill, Newcastle-under-Lyne, Staffordshire, there are at present two plants of Anthurium Scherzerianum with four flowers on one and seven on the other, the spathes of which are 7 inches long and 3 inches wide. The spadix in several cases measures 8 inches in length. The plants are healthy and beautiful, and the colour of the blossoms remarkably brilliant. These plants have been grown by Mr. Coghill's gardener, Mr. Evans.

Buddleia globosa.—This with us is a bushy plant, about 6 feet high, in a shrub bed, and very ornamental it is just now. The leaves are not unlike those of a huge Sage plant, and the flowers are produced in long, graceful clusters. Each of the blooms is a compactly-formed ball of dark yellow petals, about the size of a schoolboy's marble. The plant is said to be rather tender, but it has always appeared to be quite hardy here, and as a yellow flowering shrub we have nothing to equal it at this season. It is both singular and showy in appearance.—J. MUIR, *Margam.*

Echinocactus mammillosus.—A short dumpy Cactus with numerous ridges on which are bunches of dark brown hair-like spines. The flower, which is produced on the top of the plant, is about 4 inches in diameter, tubular-campanulate in form, and composed of a close whorl of bright yellow petals, round the inner side of which is a circle of purple filaments. It is one of the most beautiful of this brilliant large-flowered section of Cacti. There is a plant of it now in flower in the succulent house at Kew. In the same house E. multiflorus, a purplish flowered species, is flowering, as are also several kinds of Mammillaria.—B.

Rhododendron Championæ.—For the first time in Europe this distinct Rhododendron has just flowered at Kew. Many years ago a figure of it was published in the *Botanical Magazine*, prepared from a Chinese drawing and dried specimens procured from Hong Kong, where this plant is a native. The flowers in this figure are represented to be rose coloured, but in the text it is stated that a white-flowered variety was known, and it is this variety that has flowered at Kew. The leaves are ovate in form, and are borne in whorls on the stem, the whole plant being covered with rather long papillose hairs. The flowers are produced along with the new growth, and when in bud are enveloped in a sheath composed of numerous sticky brown scales. In size the flowers are somewhat like those of Azalea alba; they are white with a blotch of pale yellow on the inside of the upper petal. As compared with the fine hybrid Rhododendrons now cultivated, this species cannot take rank as a useful kind. The Kew specimen is about 18 inches high and is cultivated as a cool greenhouse plant.—B.

Dutch-grown Anemones.—Again Messrs. Ant. Roozen send us some lovely Anemone blooms from their nurseries near Haarlem. This time they consist entirely of double varieties of A. coronaria, and very fine they are, being not only very double and large, but of rich and varied hues. Most of the tints are extremely bright and effective, and from amongst these we singled out the following, viz.: La Plus Belle, rich purple; Hecla, centre bright red, guard petals whitish; L'Eclair, vivid scarlet; Sans Souci, red; Angelière, red, flaked with white; Reinwardt, red centre, outer petals white; William I., soft salmon-pink; Rosine, red, flaked and edged with white; Cedo Nulli, red; Franciscus Primus, rich purple; General Mendiri, purple centre, outer or guard petals white. This selection fairly represents the beauty of this rich series of varieties, though no doubt some might fancy some of the duller-tinted sorts.

Seedling Columbines.—I send you flowers of some seedling Aquilegias which have come up from self-sown seeds. They are in a small bed where it was intended to grow a collection of the purer types. That, however, has been found all but impracticable; it is easy enough to pull up all the isolated seedlings, but such as spring up in the midst of the old crowns escape, and the results are at once amusing and tiresome. In the case of A. californica there are four other distinct forms and shades of colour, but in this case the effect is scarcely to be despised.—JOHN WOOD, *Woodville, Kirkstall.*

*** A beautiful series of Columbines, representing a singular diversity of colours, some red and yellow, others purple and white, violet and white, and pure white, whilst the majority are bluish purple of varied tints.—ED.

Phyllocacti.—If it were more generally known that the Phyllocacti are among the most beautiful of flowers, we think that they would be oftener grown than they are. Many are quite unaware of the splendour of their flowers, and how easy they are to cultivate. In richly-stocked botanical gardens they can be seen, but in very few private gardens. Anyone seeing the Phyllocacti as they are now in flower in Mr. Peacock's collection at Sudbury House, Hammersmith, could not fail to admire them. Here may be found, we imagine, every species of the genus in cultivation, all of which are for the most part now in flower. Those which attracted us most were P. multiflorus and P. Imperator, both remarkable for the profusion with which their gorgeous flowers are produced. The last named possesses the finest flowers and the most richly coloured—indeed, the striking hues of these are indescribable. They consist of a combination of tints such as are rarely met with even among Cactaceous plants.

Hardy Lady's Slippers.—I send you a flower of Cypripedium acaule from a plant grown quite exposed, which I take to be an unusual form. I have not before observed the lip either so large or divided; the colour, too, is also paler than ordinary, I think. The specimen of C. pubescens sent was grown in a sticky peat and sand well mixed, the position shaded against the midday sunshine, and of a rather boggy character; three years planted; growth robust. C. Calceolus sent is cut from plants in pots, which have been plunged in Cocoa-nut fibre for two years; otherwise quite exposed even to full sunshine. Other plants of this Lady's Slipper grown under an Apple tree in ordinary loam have got stronger and stronger during these past three years. They were planted five years ago, and after the first year, when they flowered well, they scarcely made any leaves. Now, however, they are flowering, and have quite a normal appearance.—J. WOOD, *Woodville, Kirkstall.*

*** The Cypripedium acaule sent by Mr. Wood is indeed a fine bloom, but whether it be the result of good cultivation or a finer variety than ordinary we are unable to say. The flowers of C. pubescens and C. Calceolus are both large and fine, and show what beautiful hardy Orchids these two Lady's Slippers are when well grown.—ED.

Marechal Niel Roses.—We have received four of the finest blooms we ever saw of this Rose from Mr. D. T. Fish, who states that they were gathered from a plant grown in the open air on the north-west side of Rose Cottage, Hardwicke, Bury St. Edmunds, where it has been in bloom fully a fortnight. They were very large, richly coloured, and delightfully fragrant—in short, all that a good Rose should be.

Hoya bella in baskets.—As a hanging basket plant in a stove it would not be easy to name a more beautiful object than a well-flowered specimen of this Hoya, which is without doubt the gem of the genus. Its clusters of flowers look like stars of frosted silver set in polished amethyst, and, being borne on slender drooping stems amidst Myrtle-like foliage, their beauty is increased. There is now in one of the stoves at Sudbury House, Hammersmith, a perfect specimen plant of this Hoya in full flower, and an extremely pretty picture it is. It measures some 2 feet across, and each of the slender shoots, which droop gracefully on all sides of the basket, is laden with clusters of its wax-like blossoms. Its near, but less graceful, relative, H. Paxtoni, is also grown well here, but it is not so well suited for basket culture, as its growth is more erect. Anyone fond of beautiful basket plants should make a note of these two Hoyas, and particularly of H. bella.

Oriental Poppies.—A handful of these gorgeous flowers is sent to us by Mr. May from Capt. Le Blanc's garden at Northam House, Barnet. If properly placed no hardy flowers can be used with more telling effect in a garden, but there is a fear that they will come to be put to an improper use like the variegated Maple, which gives such a piebald look to many gardens. These Poppies need almost a quiet place to themselves; some spot where their brilliant hues would light up the surroundings and not clash with others. There are no better plants for creating distant effects of colour at this season than these Poppies, but for this purpose they require to be used in masses, or they have a "dotty" appearance. The original Papaver orientale is much more effective in a garden than the bracteatum variety, whose flowers are of a more crimson tint. Mr. May also sends double and single Pyrethrums, now duly appreciated in almost every garden, particularly for furnishing cut flowers.

Clerodendrons planted out.—When the twining species of stove Clerodendrons, such as Balfouri, Thompsoni, speciosum and others, are planted out, they acquire a luxuriance seldom attained when grown in pots, and, moreover, their free root-run does not render them less floriferous; on the contrary, they seem to flower more profusely, and, as regards their immunity from insects, they are incomparably better grown in this way. The other day we saw some plants of C. Balfouri and C. speciosum covering the whole of one end of a stove in Mr. Soper's garden in the Clapham Road, and we thought at the time that we had rarely seen a more beautiful sight in a stove. Formerly these plants were grown in the conventional pot style, and were always a trouble as regards watering and cleaning, but since they were planted out they have grown strongly and rapidly, and have been little or no trouble. There are many other stove plants, especially climbers, usually grown in pots that would flourish much better if planted out; in fact, we have much to learn respecting the embellishment of greenhouses and stoves in the least costly way.

BUSHEY PARK IN JUNE.

"The Chestnuts in Bushey Park are now in full bloom;" so say placards at the London railway stations, an announcement sufficient surely to tempt Londoners to spend a holiday in this magnificent park, and witness one of the most beautiful spectacles of tree beauty that our country can afford. The Horse Chestnut avenue is indeed the glory of Bushey Park, and it is doubtful if it can be surpassed. This triple avenue, planted by William III., consists of Limes and Horse Chestnuts, and is just now in its prime. It is over a mile in length. The towering Chestnuts form the inner lines, flanked on either side by the Limes. The splendour of these trees when each, so to speak, is a mountain of bloom, with the lower branches sweeping the turf, is indescribable, and is well worth journeying a long distance to see. The park is an especial boon to Londoners, the bulk of whom, probably, never have an opportunity of seeing more of the country than is to be seen in this park. It is always a pleasant place in which to ramble, whether the Chestnuts, Haw-

Bushey Park in June, showing the lake and Diana fountain.

thorns, or Limes are in flower or not. It contains considerably over a thousand acres, and being directly opposite and adjoining Hampton Court Palace and gardens, the area is ample and free for the use of the public, to whom both places are always open. Towards the Hampton Court entrance is a large sheet of water almost circular in outline, in the centre of which is a huge bronze statue of Diana. This forms the fountain shown in the accompanying illustration.

According to Thorne's "Environs of London," the park is said to owe its name to the Thorn bushes, for which it has always been famous, and which are still numerous. The same authority states that the credit of securing the privilege of free access to it is due to a local shoemaker—one Timothy Bennet, of Hampton Wick. The following is the inscription to a mezzotint portrait of this Hampton Wick celebrity: "Bennet, 1752, aged 75. Unwilling to leave the world worse than he found it, he, by a vigorous application of the laws of his country, obtained a free passage through Bushey Park which had many years been withheld from the public."

Those who wish to visit this park from London should go by the South-Western Railway from Waterloo to Teddington Station, which is within a quarter-of-a-mile of the gates, and after a straight walk of about a mile through the Chestnut avenue Hampton Court is reached.

NOTES.

Bulbous plants have a great future before them. Looking at the earlier numbers of the *Botanical Magazine*, Redouté's "Liliaceæ," and other picture books, published at one time or other for the amusement and instruction of botanical aspirants, one may also truly say that they have had a most remarkable past. We have specialists who take up Orchids, Ferns, hardy plants, &c., but bulbous plants, hardy or tender, have never yet met with the fate they deserve in this way. Here is an opening for a man who wants to take up a special class of plants out of the usual track. As a rule, no other plants are more beautiful, more variable, or more interesting. We might go further and say that no other plants are more easily grown, because in no other class are the seasons of growth and of rest more sharply defined. What a vision of beauty and freshness, what charm of variety, what vivid glints of colour open out as we think of the loveliness and potentiality of bulbs! Take a few hothouse bulbs—for example, pearly Eucharis, whether E. candida or E. amazonica; graceful Urceolina, with its golden pendants; Pancratiums, that recall the purity of new-fallen snow; Hæmanthus, of a fiery brilliance; and Griffinias, of cœrulean hue, to say nothing of many, many others, not the less beautiful because for the time they are less well known.

Of greenhouse bulbs, what an array awaits us! Amaryllises of many colours—from purest white to rich velvety crimson—from the blue-tinted candelabra-like spike of A. Impératrice Josephine to the softest blush or deepest rose of A. Belladonna. Then the glowing fire of the Nerines must not be forgotten—glowing clusters upborne on slender scapes rising from silvery-sheathed and leafless bulbs. Scarborough Lilies (Vallota) and Guernsey Lilies are rival beauties in many a garden; and Lachenalias, if not glaringly beautiful, have a soft-hued and pleasing beauty of their own; so also have the primrose-tinted Friesias; and then of Ixia, Babiana, and Sparaxis we have a brilliant milky-way of earth stars of the most lovely and varied kind. When we come to consider hardy bulbs, one is quite perplexed where to begin. There are "Daffodils that come before the swallow dares;" and what a world of fragrance and of beauty Narcissus offers us one cannot well describe. Tulips dance like brilliant Poppies in the spring sunshine; Hyacinths and Scillas scent the April breezes, carrying onwards that bulb-wreath of the year's beauty which Snowdrops and Crocuses had begun. The bulbous section of Iris (Xiphion) are lovely as Orchids and as hardy as Tiger Flowers (Tigridias); and even the "Flower of the Gods," the "Pride of Table Mountain," is not more gorgeous than are these Mexican beauties in their garb of orange and scarlet, or of crimson and gold

Outdoor gardening is extending in all directions, and not content with the variety, great as it is, now obtainable in our nurseries, many amateurs now make pleasant little holidays to Algeria, Spain, Madeira, south of France, Smyrna, to the Atlas, or even as far as the Caucasus and the Himalayas, specially for the purpose of collecting new seeds and bulbs or plants for their gardens at home. While employers are thus anxious there is a growing demand for gardeners of a new school, and men of real ability, with a knowledge of hardy plants, bulbs, and trees and shrubs, are as rare as white blackbirds in our gardens of to-day. Perhaps it is difficult for a man to grasp the wide range which gardening now occupies, but among young gardeners more especially there is a morbid craving to work under glass and to underrate hardy things of all kinds, both useful as well as beautiful. A man who knows hardy herbaceous plants and bulbs thoroughly well is far more certain of a good salary and a situation than is a curate or a law clerk. In the coming by-and-by the demand for outdoor gardeners will be even more extensive than it now is; and if our journeymen are wise they will see the approaching cloud, much bigger than a man's hand already, and add a knowledge of hardy ornamental plants to their other accomplishments. Food is of all things of prime necessity, so fruit and vegetable gardening, and the Corn waving on the sunny hillsides, must ever obtain thought and strength; but in this age of much money beauty also becomes food to us, and no one can well produce so much of pure and satisfying beauty as the gardener—that is if he so wills it.

Sunshine and shower.—Climate is of all things of importance to the gardener, and its

vagaries frequently trouble and perplex him. Local surroundings, such as altitude, subsoil, and shelter, alter it even in a limited area. Two gardens may lie in the same plane, and be quite near to each other—less than a mile—and their climate may vary immensely. Of gardens so situated, one may be exposed to several degrees of frost in excess of the other, and the same kinds of fruits or vegetables may be a week or more in advance in the one place without any very apparent reason. Some gardens are so sheltered that they become Dutch ovens—veritable suntraps, in fact—on a large scale, especially if the subsoil is light and warm. A careful record of temperatures and the dates of ripening of fruits and vegetables in a dozen gardens in the same district would give some perplexing results. But after all no record that the thermometer can yield us is quite satisfactory. The true reflex of a climate or a particular soil is the produce itself, and no isolated or abstract measurement of means employed will give us the actual results. We may cultivate and manure our soils, and improve our climate somewhat by shelter and drainage, but the two great factors of successful culture, sunshine and rain, are beyond our control, so that any measurement of them will not do much towards improving our crops. In a word, the scientific cultivator rarely obtains the results that are wrested from the ground by a common market gardener.

The propagating season for hardy flowers is now only just beginning in many places, but in all good gardens seed sowing and the insertion of cuttings are always going on. Propagation is the pivot on which plant culture revolves. Amongst hardy plants especially this is true. Some few thick-rooted plants certainly like to be left undisturbed, and, as in the case of Hellebores, never show at their best until established some years; but herbaceous Lobelias, Carnations, Pansies, Phloxes, Mimuluses, Rockets, Primroses, and a whole host of hardy perennials are rarely seen at their best unless divided or propagated from cuttings or seed every season. In showery weather a man may be usefully employed during the spring months in dividing up herbaceous plants, and in replanting them in suitable positions. Much is saved and gained in this way. Some of us now-a-days never think of dividing hardy plants in autumn, or of purchasing them at that season, as used to be the rule. Spring planting has proved most successful with us so far as hardy plants are concerned, and it is but rarely that we lose any plants, however delicate, which we divide or remove at that season.

Three good early Chrysanthemums not generally met with are Adrastus, a good free-flowering purple, well suited for pot-culture, and when planted out in the open ground rarely exceeding 2 feet in height; Little Mary, or La Petite Marie, quite a gem in its own way, forming a dense little bush scarcely a foot in height, and covered with its little white button-like flowers; and Madame Desgrange, which may be called a hardy Elaine, blooming early in October in the open ground. It is a beauty, and will be largely grown for cut bloom. Outside the flowers open yellow, changing to white, but inside blooms of pure white are obtainable. It has the long slender florets of the Japanese race, of which it may be termed an early-blooming hardy variety. Cuttings or plants of these may now be obtained, and they will be found very useful in the autumn when other outdoor flowers are scarce. To the above may be added the golden-flowered C. Précocité, one of the very best of early-blooming yellow-flowered kinds. There is a great future before these summer-blooming varieties of Chrysanthemums, especially if our raisers can secure varieties of the Madame Desgrange type with large flowers and of various colours.

Gardens near London.—After a few enjoyable rambles around London among good gardens I am pleased to see how the light is spreading, and how rich and tasteful the gardens of to-day have become. It is especially satisfying to see the deep and earnest interest now being taken in the finer phases of flower gardening, as at Wisley, Golder's Hill, or at Bickley, and more especially in the wider grasp which ladies particularly, and amateurs generally, are taking of the hardy-flower question. The old twiddly-twirly bedding arrangement is being supplanted by a little of breadth and repose, and here and there one may find real culture in the garden. The wild garden at Wisley and Miss Jekyll's dainty pleasaunce at Munstead are far before the sacred carpet bedding of our time. Our garden flora was never so rich nor so varied as now; and although we have as yet much to learn, much has already been done. I am almost ashamed to say it, but one must needs speak out the bitter truth, that all this advance is due to the taste and enterprise of amateurs rather than to the exertions of their gardeners. Even although the prophet has been amongst us these twenty years or more, there are not ten gardeners in a hundred who know even the A B C of hardy flowers and their proper cultivation.

White Pinks.—These sweetest of all hardy flowers, coming as they do with the earliest Roses and latest Apple blosssom, are ever welcome in all gardens. They are like old friends, and their full and subtle fragrance reminds one of a thousand happy hours spent in gardens, of a hundred pretty scenes now brought nigh by their sweetness and by that wonderful telescope, the memory. White Pinks are everywhere at home, everywhere welcome; a princess may wear them and a cotter may give them to his wife or daughter, since they are at once regal and homely, beautiful alike amid all surroundings. I know old farmhouse gardens in the Foxshire country where they grow in great patches and rings a yard across, bearing their soft white blossoms by the the thousand. As you walk along the village streets at night the air is redolent with their magic sweetness. So it is also in market gardens near London, and a big bunch of their blossoms is a gift that a duchess will not think a poor one. In the matter of perfume no hothouse blossom can rival them. You could tell a white Pink in the dark from any other flower, and there never yet was a garden that was too full of their swan-down-like beauty and their indescribably satisfying perfume.

Discords.—There are harsh notes now and then in the sweetest of garden music. A thoughtless child snaps off the bud you have waited years to see; or a fat slug must needs sup Lucullus-like from the succulent tips of your strongest Orchid spikes; or a stray dog or the wind fiend snaps your stoutest and most promising Lily stem; or the strongest of weeds crop up where your choicest seeds are sown—Nettles or Thistles, and one finds stings or prickles where one looked for dainty flowers The cast wind is productive of much bad temper; but what may I say, to express a gardener's thoughts, when "fair sixteen" asks for Violets in June or prefers Stephanotis to Niphetos Rosebuds in April or May? Or who shall express his thoughts when beauty of the Georgian type—beautiful, but substantial—steps on his cherished Box edgings or wanders about his hardy flower borders regardless of Lily stems or of a hundred budding shoots just peeping through the soil. Then there is the nursemaid, who likes to sit down on your last made rockery, and whose weight, if it be judged by flattened Gentian or Androsace, suggests that of a steam roller. All is vexing, but you forgive the child; even the slugs and the dogs know not; but Georgian beauties and nursemaids ought to know better.

The King's Signet is merely another popular name for what we more commonly know as Solomon's Seal, and it is a plant pretty common in many old gardens. But these Polygonatums are variable; there are several kinds, and all are beautiful. Mr. Barr has at least two varieties, and Mr. Ware in addition offers a giganteum, which in suitable soil is said to be the Anak of its race, and 5 feet or 6 feet in height. Why is the dwarf old Polygonatum vulgare so rarely seen? It is only a foot in height, and bears a solitary flower from each leaf. Then P. verticillatum is also pretty with its whorled leaves and greenish blossoms, as also is P. stellatum with its terminal tufts of stellate white flowers. There is a very effective variety of the old Solomon's Seal or King's Signet with golden variegated foliage, and a strong purplish-stemmed form called P. japonicum is also worth notice. With the three or four varieties of Lily of the Valley and that dainty little relative, Convallaria bifolia, the above would form an interesting colony in a partially sheltered bay among green Hollies or other shrubs. Once well planted, a top-dressing of leaf mould twice a year would satisfy all their wants.

Celsia cretica.—Of all old garden favourites long neglected this is one of the most beautiful. Until it was figured in The Garden (Vol. XXII., p. 314) some time ago one rarely ever heard its name mentioned, although its relative, C. Arcturus, now and then obtained care and culture in the greenhouse as a really good and showy decorative plant. The Cretian species, however, is a bolder, taller plant, more like a Verbascum in habit, bearing great soft yellow blossoms on a dense erect spike. There are some reddish brown markings in the middle of the flower. When seen at its best no Oncidium can be finer in form or colour. Our plants, given to us as seedlings last autumn, have been wintered in a cold frame, and are now blooming freely in a cool porch. In warm localities the plant is a hardy perennial, or at least a biennial, and seeds sown at once in the open air will flower late in autumn. Plants from seed flower best the first or second year, but in all cold and wet localities the young plants are apt to perish during winter, so that a stock should be kept over in a frame or cool pit. Well grown in pots from seeds sown in July, this old favourite is one of the finest of all plants for conservatory decoration in May.

After rain.—After some weeks of hot, dry weather the rain comes as a most precious boon to gardener and farmer alike. The garden smiles radiant through her tears, and the big red Peony blossoms bow their heads in very thankfulness, and the Oriental Poppies are lovely gazing up at the sun with pearly moisture glistening in their great black eyes. The Wistaria, having for once escaped the biting spring frosts, is now like a "fruitful Vine," thousands of its grape-like clusters dangling among its olive-green leaflets in the warm sunshine. The odour of its lilac blossoms after the warm showers is most delicious. Weigelas on the grass are wreaths of rosy flowers; the Azarole Hawthorn is sweetly beautiful; while purple Beech and yellow Laburnum add colour everywhere. Iris petals open and shimmer in the moist sunshine like butterflies unfoldiog their wings. Graceful Columbines dangle their many-hued blossoms from slender curving stalks. Anemones are as brilliant as Poppies in the sunshine, and every leaf and bud is quivering with fulfilled delight in the sunny warmth that follows rain in June

The wall garden.—I have often wondered what wall plant attracted the attention of our Poet Laureate, and inspired him to write—

> Flower in the crannied wall,
> I pluck you out of the crannies,—
> Hold you here, root and all, in my hand,
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

Perhaps it does not matter what plant, wilding or cultivated, it was, but it matters much whether we like to look at bare walls instead of at beautiful flowers. It is something for us to know that a broken stone or the crumbling edge of a brick may produce in sunshine flower beauty of the highest and best, or that in shade it may yield us feathery drapery of tenderest Fern fronds or of glistening Ivy leaves. A rough stone-topped wall may become a garden of Sedums, Saxifrages, Erinus alpinus, both purple and white, and of many other alpine or rock plants of the choicest and best. There are some mountain plants that never grow better or look more beautiful than when grown on rough-topped walls or in the interstices of stony edgings. The Erinus is one of the best wall plants and sows itself every year. Ramondia pyrenaica and Edelweiss both love to grow wedged tightly in among the stones. So also do

some hardy Cacti and all the Fig Marigolds. In a word, there are many potentialities yet remaining in the garden on the wall.

Painted Lady Carnations.—Some two or three years ago I saw a Carnation under this name in the University Garden, Dublin, and it was referred to in THE GARDEN at the time as a very distinct and effective flower garden plant. It had bright red, almost rose-scarlet flowers, the fringed petals being white beneath. I understood at the time that this variety had been raised by a local amateur florist (Mr. Somers), who had presented plants of it to his friends. This variety is of robust habit and flowers quite freely, and no other Carnation I know of equals it in vivid colour. It is rather surprising that even professional florists do not seem to know of this distinct group of Carnations, to which Miller and most of the old authors on florists' flowers refer. As I understood Mr. Burbidge to say he had given it to many English amateurs, perhaps it is still in existence. I remember he said the florists proper would not look at it because it had fringed petals.

The Shakespeare country.— Everyone will tell you of the luxuriant Ivy on the castle walls at Warwick, but what may one not say of the orchards and quaint old farmhouses of Warwickshire surrounded by white-blossomed Pears, or of the golden Caltha in its ditches, of its woods, and fine trees. By the winding banks of Avon there is much rural beauty, and that Wycliffe's ashes were borne down its silvery tide gives to its waters increased interest. Pretty little cottages nestle here and there surrounded by gardens full of quaint old flowers; many of them we know were there in Shakespeare's time because he wrote of them. The Rosemary of his "Winter's Tale" is here, and the country folk ever say that it never grows well in the garden unless the mistress is master of the house. Here, too, yet lingers the old custom of planting a tree—a Mulberry often—on the birth of an heir, and the vigorous life or the death of the tree was taken as an augury for good or ill. The banks of the Avon are truly beautiful.

VERONICA.

FRUIT GARDEN.

PROTECTION, OR NO PROTECTION.

NOTHING in their way could well be more suggestive than the two accounts given (p. 461) of successful Apricot crops—one where the wall is provided with a glass coping and canvas coverings, the other where no protection at all is given, and with no difference in the results, except that the fruit was further advanced on the protected trees than on the unprotected. Like many other matters connected with gardening, protection or no protection is a question that has always been disputed. Neither are those who maintain views so opposite likely to reconcile their opinions. The first thing that would occur to an unprejudiced individual on becoming acquainted with the results of the two cases in question would be to ask what was the use of glass copings and coverings if as good crops can be got without them as with them. And to those who do not recognise the widely different influences which local circumstances exert in different places, and thus determine the best course to follow in each individual case, the question might be decided conclusively on the merits of the two instances named, but the matter does not admit of being thus summarily dismissed. I may here state that I agree with Mr. Wilkinson, that with such keen spring frosts as, with few exceptions, we have now had for a number of years, the crops on wall trees—Peaches especially—depend much more on the manner in which the trees are managed the summer previous than on anything that can be done for them in the way of protecting the bloom or newly-set fruit, although I know this is not always admitted, some being under the impression that the bloom will succumb to a certain amount of frost, whatever the previous treatment may have been. To refute this, however, it is only needful to note the different results often observable in gardens at short distances apart, where soil, aspect, elevation, and everything of this nature that could exert an influence on the trees are alike. The injurious effects of retaining too much wood in summer on Peach trees so often to be seen is equally fatal to Apricots as regards the bloom or newly-set fruit coming through the ordeal of a sharp spring frost. In Peach cultivation, if at the winter pruning only half the bearing wood often looked on as necessary was kept, and no more summer shoots than required to bear were laid in, combined with keeping the trees free from insects and the roots supplied with sufficient water, I am convinced that much of the protecting materials frequently used, and not always successfully, might be dispensed with. Those who have yearly opportunities of seeing these fruits grown in gardens in widely different localities know that there have been few springs in which the influences of the opposite courses of summer treatment I have named have been so apparent as the present. I may mention one in particular at Manresa House, Roehampton, under Mr. Davis, who is well known to be one of the most successful of Peach growers. Here Peaches and Nectarines covering a large extent of wall are bearing a crop that will require a large amount of thinning—such, in fact, as might have been looked for on well-managed trees had the frost, which has been so destructive in many places, never occurred. The walls are 10 feet high without coping; the trees receive no protection of any kind, and yet there were 13° or 14° of frost in the garden. The trees are kept clean, thin of wood, and get enough water overhead and at the roots. The merits or demerits of glass copings have been discussed, with no doubt the result of those who advocate their use being still disposed in their favour and those who do not approve of them retaining their opinion. Respecting these glass copings, I have so far failed to see that there are any advantages connected with their use commensurate with their cost. If the glass is not movable, they do harm during much the greater part of the year. In places where protection is required a movable board coping at a fraction of the cost I have always found to be sufficient.

T. BAINES.

SCARCITY OF HOME-GROWN FRUITS.*

"THE great scarcity, and consequent high price, of fruit" Mr. Roach Smith, an authority on such subjects, regarded as affecting the health and comfort of the majority of our population, and specially of our town population; in fact, from a sanitary point of view, he thought it the duty of Government to make enquiry in order to help to remedy an evil fraught even with great possible disaster. Fruits and vegetables were intended by Nature, continued Mr. Smith, to constitute at least the chief support of man. They are indispensable to his healthy existence—a fact strikingly proved in the case of ships' crews deprived of such food. When, years ago, the boys in Christ's Hospital were sent home, owing to an outbreak of cutaneous disease, and a medical enquiry was instituted, the evil was traced to the lack of fruit and vegetable diet. Now, if a school so richly endowed and carefully watched over could become infected with disease from the absence of natural food, can we be surprised at such errors on the part of the poor? Of fruits which should be on every poor man's table, but which have become so scarce and expensive as almost to be luxuries on the tables of the rich, first of all stands

THE APPLE. Yet so common were Apples in the time of the Romans in Thule (Shetland), according to Solinus, as to constitue the chief winter food of the people. And if Apples then grew abundantly, they would flourish more plentifully now, both because much waste land has been brought under cultivation, and horticultural science has made us familiar with methods for their abundant production under varying circumstances and conditions. Can too much importance be attached to the Apple? asks Mr. Smith. It is, perhaps, of all our fruits the most valuable. It is extremely wholesome. It tires the appetite less than any; it may be served daily and be ever acceptable. Yet it finds no place on the board of thousands of families, even in the country, and of tens of thousands in towns. It is never served to our soldiers and sailors. If in earlier times Apples were so common in the far north (as Solinus seems to suggest), they could hardly be less so in more southern parts of Britain. During the Middle Ages they were cultivated everywhere. Brand's "Popular Antiquities" contains many references to the Apple. The old custom of "wassailing" the Apple trees at Christmas, to make them fruitful, was universal throughout England, though now the trees no longer exist to be "wassailed." The general cultivation of this valuable fruit has become neglected, while the population has gone on rapidly increasing. Horticulture, too, gives us a wonderful variety of the Apple; and we know, perhaps better than our ancestors, how to produce the choicest kinds quickly and within little space, while Rivers tells us how to grow them on pyramids and dwarf bushes as thick in beds as Gooseberry trees. In ordinary garden culture a single tree will produce from one bushel to six or seven sacks. Where landowners wish to see their labourers industrious and provident, a well-stocked cottage garden should be insisted on. Yet how often is this grand addition to the year's subsistence left out of consideration! How easily can the French workman convert the waste into a garden, wherein he can spend his leisure! Yet how often in England is the garden an unread book! How, then, are Apples to become again abundant in England? Nothing is more easy. Be ever planting trees. Think what might have been done, and can yet be done, by the directors of our railways! Who will calculate for us the exact sum in thousands of miles of unoccupied land by the sides of our various lines? Yet such work presents no serious difficulty. Each square mile would require about 250 trees, costing, say, including the labour of planting, about £15. Good strong trees would within three years repay the original outlay; afterwards the profit would be large. And why are not our highways and byways planted with fruit trees, the Apple especially; also the vast tracts of land which surround our hospitals, fortifications, and other public buildings? Are we reminded about stealing? How is it that in France we see the roadsides for miles lined with Apple trees? Is it that the French are more honest than we? If so, why not endeavour to rise to their standard? The French not only grow large quantities of Apples, and feed on them to an extent unsuspected in this country, but they also export largely to England. Some hints may be needed as to keeping as well as growing this useful fruit. With us Apples are often allowed to hang too long on the trees. The ripening should be anticipated, and the fruit gathered even before ripening commences. It should then be placed in a dry cellar from which the light is excluded. By this sure and simple rule Mr. Smith has preserved Apples in perfection even for months after his neighbours' heavier crops, allowed to ripen on the trees, have rotted.

THE PEAR demands more attention. It comes into bearing more tardily. The old saying has it that—"He who plants Pears, plants for his heirs," a statement quite true as regards some of its varieties. But we may plant and have fruit too, as well as our descendants, with perfect safety, by attending to the rules which Rivers has laid down in his excellent treatise, "The Miniature Fruit Garden." Summer pruning and occasional shortening of roots provoke an almost constant fertility. The trees occupy but a small space, and may thus be planted with certainty of success in the smallest gardens.

THE VINE, like the Apple, might be made a national benefit. How seldom do we see a Vine on the open wall properly pruned! This is owing, perhaps, to the notion that the Vine ripens only under glass. Yet our forefathers knew better; they actually made the Vine productive as a standard in the open. But even their mode of culture

* A paper contributed to the May meetings of the Vegetarian Society, held at Exeter, by R. Bailey Walker, F.S.S.

is now unknown. Where the Vine is understood, we may make sure of an abundance of delicious fruit yearly, at a labour which is so slight that it may be ranked among the most agreeable of horticultural pursuits. How far north the Vine can be made productive on open walls remains to be ascertained. Mr. Clement Hoare says as far as the fifty-fourth parallel of latitude, and "even beyond in favourable seasons." The knowledge required is so simple, and the leading principles of the pruner's art so few and clear, that the whole may be learnt by a few hours' study. On any foot of wall, except that facing north, it is possible to grow a pound of Grapes. How great would be the produce were the now unoccupied walls of our houses, cottages, and gardens covered with these prolific and valuable trees! Indeed, Mr. Hoare maintains that the surface of the "walls of every cottage of medium size, applicable to the training of Vines, would produce annually Grapes worth half the amount of its rental!" Yet even in my own neighbourhood (Rochester) a productive Vine is a rarity, while my own experiments confirm in all respects Mr. Hoare's statements. But growers of the Vine should take care to ascertain, when Vines are purchased to be reared on open walls, that they obtain young ones which have been struck in the open; for if rooted under glass, they will certainly be checked in their growth when planted in an open situation. Of the Cherry, I will only mention the Morello. Now, while the Vine will not flourish in a northern aspect, that is just the one in which the Morello delights. This, the most useful of all Cherries, is also the easiest to rear, as it is by far the most constantly productive; it will bear in most exposed situations. It yields a plentiful crop where others fail, and it is fruitful in all seasons. It can be treated either as a standard or nailed to the wall. The cottage rent might be further helped by the Morello.

PLUMS, GOOSEBERRIES, AND CURRANTS.—The productiveness of the Plum is but little understood. With this fruit Mr. Rivers has been amazingly successful; and the Damson will grow even in hedges. Or it can be cultivated as a bush, like Gooseberry and Currant trees. The produce of a good Plum tree is reckoned worth a pound a year. The Gooseberry and Currant grow almost spontaneously, and are so profitable that a grower in Kent told Mr. Smith how he paid his rent from his Currant trees alone. Why should not such trees be found in every cottage garden? The labour of planting cuttings—thousands of which are yearly thrown away—is the only cost. And let it be remembered that a garden, if well managed, will not grow fewer vegetables from being properly stocked with fruit trees. Our chief writers on horticulture since Evelyn have constantly urged the improvement of estates by the planting of fruit trees. How much is this advice needed at this day, when our plantations of fruit trees, in the opinion of Mr. Smith, do not exceed those of the time of Charles II.! No wonder that, in spite of large imports, fruit has become to many an unattainable luxury. Landowners should not only advise their tenants to plant fruit trees, but they should themselves set the example, and farmer and cottager should alike see to possessing a well-stocked garden. It goes far to exterminate habits of improvidence, and to induce habits of thrift. Here we have to regret our neglect to inculcate gardening in schools. How frequently, throughout France and Germany, do we find a school garden attached to the elementary school! See the neatness and comfort of the cottage—where the garden is attached—of the humble, but industrious labourer! This is a national question. The east may join the west in noble rivalry. Devon may surely challenge Kent. The lessons taught by Mr. Smith, from Stroodley, were practised with masterly skill by the late Mr. Richard Webb, whose gardens at Calcot still show his work. I may, however, be told that this new kind of culture is in practice all but impossible under the existing tenure of land. I cannot deny that this side of the question is beset with difficulties, but I do refuse to accept them as irremovable. The Eden life must be lived on the Eden conditions. The "promised land" may be at any period and in any place the possessed land, flowing with milk and honey; its gardens glowing with fruits of the Olive and the Vine, the Apple tree and the Gooseberry bush; its plains rich with the yellow of its waving grain, if the dwellers in that land are content to read aright the facts of history, and to follow the lessons of the wise of all time. But the possession even of a "promised land" can bring few blessings to a people whose energies are spent in the race for purse and place—whose minds are possessed with speculations about the money market or the betting book. Nor are they more assured to a people among whom the furniture-removing van has become an institution, and the mortgage deed—across which should be quartered the auctioneer's hammer—a familiar instrument. "Dwell in the land and verily thou shalt be fed," were the favourite words of Richard Oastler, the friend of the factory operative, forty years ago. "Roam about in the land, taking root nowhere, ever seeking rest and never finding it," is the sum of the law reversed to which naturally no promise of peace and prosperity can ever be attached.

THE GARDEN INDUSTRY must be recovered if the Eden peace is again to reign among us. "Plant gardens, and grow fruit, and sell it," is well so far as it goes, but it does not go far enough. "Plant gardens, and nurture fruit, and eat it"—he and all his household—must be a first duty of the enfranchised citizen. "Under his own vine" is as much the law of a well-settled land, or of a wisely-led people to-day, as it was in the time of Moses or of Issiah. In such simple life and its conditions as England can yet show is found food, health, purity, and the seeds of national welfare. In such homes may "busy housewife ply her evening care," while the ballad is heard in the twilight of the summer eve, or story-telling goes mirthfully round the winter night's fireside. In such homes heroes are bred, and all domestic virtues thrive.

WHERE TO CUT OFF LIMBS IN PRUNING.

LET me urge upon fruit growers the importance of being more particular about where they cut off a limb in pruning. Judging from many orchards which I have examined, there is woeful ignorance or culpable carelessness about this matter. The damage to a tree resulting from not cutting the limb just where it should be is incalculable. The right place to cut off a limb is just outside a ring or collar, which may be seen near the base of the limb, and near the trunk or body of the tree. If cut any distance from this collar a black dead stub will be seen, and this dead black stub is what causes the mischief. It had been said: "If you will retain and cultivate the lateral branches, you can cut back to 6 inches or 8 inches, and still you do not cut it far enough back to get a dead limb." The sap of a dead limb even will not run down into the tree. Nature makes no such mistakes as that; the mischief is, however, just here: These multitudes of dead black stubs, which may be seen so often in orchards, are constantly drawing the sap, or life-blood, from the living tree, just as a dry napkin, with one end placed in a vessel of water, will eventually drain all the water from the vessel. In the same manner do these dead stubs and limbs exhale the sap, which eventually passes off by evaporation, and one can readily see how one hundred or more of these would soon sap the life-blood of a vigorous tree, and soon render it languid and feeble. In my judgment more damage is done to orchards by careless pruning than from all other causes combined. Always cut off a limb close to the collar or limb or bud, and be sure to cut off at once all the dead stubs and limbs left, and the wound will heal over. If a limb of a tree is accidentally broken off at any place away from this collar it always dies down to it, and has to rot off before the wound will grow over it. Therefore be wise, and take a lesson from Nature.—*Pacific Rural Press.*

The effects of the frost on fruit blossoms here are, I am afraid, disastrous. Pears, Plums, and Gooseberries were fully out when the frost was most severe, and the winds since have been exceedingly cold and piercing, following up as it were the frost in the work of destruction; growth has also been much retarded. Apple blossom has been kept well back. At the present time it is just opening, and it is to be hoped it will have a good season, so that the loss of other crops will be less felt.—A. MACKIE, *The Woodlands, Darlington.*

Thinning and shouldering Grapes—I cannot see what advantage Mr. Tallack derives from thinning and shouldering Grapes in the way he describes (p. 432). I have used both forked and pointed sticks, but I prefer the latter, as the former seems to me to be clumsy. I have never tried sticks instead of matting for shouldering, but should imagine they are troublesome when the fruit is wanted for use. I know only one variety—viz, Alicante—in which the shoulders are frequently on a level with the wires. Therefore, as a rule, matting answers the purpose admirably. We give the matting a twist, push it under the shoulder, take both ends, twist again, and tie to the wires. Sometimes a stick is required to lie crossways on the wires to tie shoulders to. In this way they look neat, and the matting is easily untwisted and removed in cutting the Grapes.—B. BRISTOLE.

FLOWER GARDEN.

THREE IMPORTANT ANNUALS.

SO many annuals are of a flimsy habit and general rubbishness of appearance, that the comparatively few of more solid texture, and that have also handsome flowers, are all the more valuable, and should not be lost sight of.

OXYURA CHRYSANTHEMOIDES is a fine hearty-looking plant from 1 foot to 15 inches high, with handsome composite flowers 2 inches across, of a strong yellow, edged with white. Each plant will cover a foot of space.

LASTHENIA CALIFORNICA, also a Daisy flower, is an important and showy plant. The flowers strongly resemble Corn Marigold, but are of a richer and deeper yellow, with leaves and stalks of a bright yellow-green, a foot high and as much through when well grown.

PLATYSTEMON CALIFORNICUS, a Poppywort, has flowers nearly the size and shape of a large Hepatica, of a sulphur colour inclining to pale buff, and bluish foliage, highly becoming to its delicate flowers. It is of a trailing habit, and each plant will cover a space 2 feet across.

AUTUMN SOWING is highly desirable in the case of these excellent hardy annuals, as indeed in that of many others. All three are excellent for cutting, their flowers lasting well in water.

G. J.

THE ADONISES.

THE genus Adonis is nearly related to the Crowfoots in the Ranunculus family, although different in outward appearance, especially as regards foliage. It comprises not a few really striking and useful herbaceous plants that contribute largely to the gaiety of our gardens in early spring. For general purposes the perennial kinds are the most desirable, combining as they do dwarfness of habit with beauty of flowers. Yet many of the annual species, such as the Pheasant's-eye or Flos Adonis, are well worth attention. A. autumnalis, as its name implies, flowers in the autumn; its seeds should be sown either as soon as ripe or in early spring. There is also another species, A. æstivalis, which has much the same aspect, but which flowers in early spring. Seed of A. æstivalis should be sown in the autumn where it is intended to remain. The young plants do not transplant well, although they stand the winter perfectly without protection. The perennial species, among which are A. sibirica, volgensis, vernalis, pyrenaica, &c, may be grown in most

gardens with a fair amount of success in ordinary borders. Where the soil is stiff, moist without being wet, and partially shaded, perfection may be attained without difficulty. A beginning should be made with good sized clumps, allowing them to remain without much root disturbance. The surface of the soil should, however, be stirred late in the autumn, and a good top-dressing of short cow manure mixed with well-decomposed leaf soil applied. They may be increased by division, but best by seeds, which germinate freely in a cold frame. A. pyrenaica (the Pyrenean Adonis), which is about the tallest of the perennial section, generally grows from a foot to 18 inches in height; its leaves are slightly hairy and much divided, the radical or root leaves having long stalks, while those on the stem are nearly sessile; the flowers,

The Pyrenean Adonis (A. pyrenaica), natural size.

which are large, have from eight to ten beautiful sulphury-yellow petals, oblong shaped, and quite entire, and are produced from June often until August. At Mr. Maw's, Benthall Hall, I saw this plant, nearly 2 feet in diameter and one mass of flowers, growing in an ordinary south-west border, the secret of success in this case being, I think, the supplying it well with water and leaving it alone. A. vernalis, once common, but now rarely seen, except where specialities are cultivated, is much dwarfer than pyrenaica, rarely, if ever, exceeding a foot in height; the leaves, too, are much smaller, more finely cut, quite devoid of hairs, and shiny; the root leaves are abortive. Its flowers, which terminate the stalks, are large and bright yellow, though they often, especially in dry seasons, change to nearly white, as in the Ranunculus Ficaria. It flowers in March and April, and has been recommended along with the variety apennina, which differs from the type in having fewer petals, for spring flower gardening, a purpose for which it is well suited. It is a native of the Alps of Europe. A. Sibthorpi, A. volgensis, A. sibirica, and A. Walziana, the latter a new and pretty species, are all very desirable plants, even for small gardens. D. K.

THE SEEDING OF DOUBLE NARCISSI.

THE vagaries of double Narcissi are very many, since there are those of all stages of doubleness, but so far we have never seen ripe seeds in the ovary of a double or of what was only a semi-double blossom. Mr. Walker recently sent me six flowers of the patellaris variety of N. poeticus, showing as many intermediate stages between a single or normal flower, with a hollow tube and six stamens and a style on the one hand, and a solid-tubed perfectly double flower on the other. Now Mr. Walker brings us a flower of N. poeticus fl.-pl., a good double flower, the tube not fused solid, but stuffed full of petaloid stamens, and the ovary well developed, and swollen as if in the act of seed bearing. Ovules also are there in great abundance, but as the style is quite suppressed or abortive, and as there are no pollen-bearing anthers, it follows that it is quite impossible that these incipient ovules can have been fertilised, or that they can ever develop into perfect seeds. The mere swelling of the ovary in Narcissus, as in Cucurbits and Passion flowers, Hellebores, &c., is most deceptive. Many Narcissi even having single flowers, with style and anthers normal to all outward appearance, constantly swell out their ovaries, just as Mr. Walker's perfectly double Poet's Narcissus has done, but never by any chance bear ripe seeds. The presence of ovules, again, means nothing if, as in this case, the pistil or style is absent. If a double (or rather, to speak more correctly, a semi-double) Narcissus ever does bear ripe seeds, it can only do so by reason of its style not having been included in the "doubling" process. The stigma must ever be present and receptive; then pollen from other single flowers (or from semi-double ones which have developed pollen-bearing anthers) may be transferred to it by wind or insects, the style being the necessary highway down which the pollen tubes must perforce travel ere the ovules which await fecundation can be reached by them. In all the double and semi-double Narcissus flowers which I have examined there is infinite variety; an odd one here and there, semi double only, may have a perfect style, and such a flower may possibly bear seeds if fertilised with pollen from a pollen-bearing flower, but up to this date no one, I believe, has ever seen ripe seeds borne by any semi-double Narcissus or Daffodil, while if so be that the flowers are perfectly double, as in the one Mr. Walker sends me, then albeit the ovary contains ovules; these can never, however, develop into perfect seeds, because there is neither stigma to receive the pollen of other flowers, nor style to conduct it to the incipient ovules. We do know that double Narcissi often become single again under cultivation, and it is quite possible that these singles, if seeds be borne by them, might produce a percentage of double or semi-double flowers, but we want more light. F. W. B.

Primula sikkimensis.—The amount of success attending the cultivation of this pretty Primula in the open air has not hitherto been quite satisfactory. On the old rockwork at Kew set apart for the cultivation of Himalayan plants, experiments in different positions and soils have been made with a view to test the winter-standing capacity of this fine Primrose. Plants of it placed in high exposed situations succumbed to the cold or damp early in the spring. Those placed in damp incessantly wet places are not quite healthy, while those placed in the recesses formed by the curves of the rockery, and on a level with the walk are in excellent condition, each sending up a flower-spike of lovely, delicate, drooping sulphury-yellow blooms. The beds are raised from 3 inches to 6 inches higher at the back than in front, and although regularly at stated intervals of not more than two days well watered, there is no trouble with stagnant moisture at the roots. This Primrose is generally grown in pots, and a few plants of it staged at Burlington House last year from the gardens at Chiswick showed what may be done in that way with well established two-year or three-year-old plants. The soil used should be peaty, enriched with a good admixture of rotten manure and coarse river sand. It requires no protection whatever. It flowers in May and June. By observing the conditions just recorded a new era may be opened up as regards this charming and best of all the yellow-flowered Primulas.—D. K.

5200.—**Stocks**.—To have these fine in May seed should be obtained from a good strain of the Brompton or Queen kind, and sown under handlights soon after this on some border or ground that has been raked and prepared by making the soil fine, or that has had some fresh, light mould put on it in which to sow. If the seed is then scattered thinly and slightly covered, it will soon be up; the top of the handlights should then at once be removed to let the young plants have full light and air. After being thus exposed for a week or so they will be ready for pricking out, which ought to be done in an open position so as to keep them sturdy and strong. By the middle of September, or before, they will be ready for final transplanting, but before this is carried out the places in the borders where it is intended to grow them should be dug deeply and have some thoroughly decomposed manure worked in, when the plants may either be put in singly or in threes triangularly, about 9 inches apart, in which way, if they all turn out double, they make a grand show, and if not all doubles, the singles can be pulled up and thrown away except one or two if wanted for seed. The scarlet and white intermediate Stocks are also fine for early blooming, and should be sown towards the end of June or early in July, and treated after the manner of the Bromptons or Queens, just referred to. In cold districts it is as

well to pot these and the others, and winter them in cold frames, as outdoors they often get killed by severe frost, or so crippled as to spoil them for blooming. The intermediates form capital pot plants when managed in the way mentioned, and are very valuable for furnishing and making gay any greenhouse in spring. The thing is when kept in frames to have them with their heads up near the glass, and to give them plenty of air whenever the weather is favourable.—S. D.

Staking Calceolarias.—In most gardens Calceolarias are seldom staked after they get planted, and the consequence is the beauty of the plants is lost on account of so many of the shoots becoming broken down and the rain splashing them with mud. What I want to do is to advise those who do not stake their plants to do so. Each plant after it is planted should be supported by a neat stake of sufficient strength to uphold all the leading branches. Put the stake in the centre of the plant; then take a piece of bast, fasten it to the stake, then divide it into as many parts as there are leading shoots. Make each one of these parts fast round one or more of the shoots so as to allow the shoot room, and also be careful not to draw the shoots out of a natural position; on the contrary, let the bast hang loose, and by the time the blooms expand the string will be strained from the centre. A good many may think that this involves too much trouble, but I can assure anyone who may be desirous of trying the plan that the little trouble taken at the commencement is amply repaid in the course of the season. The stakes which we use are made out of laths, which when split make light, straight stakes of sufficient trength.—E. W. T.

Clematises for outdoor cultivation.—Those who have been in the habit of seeing the grand collections of pot-grown Clematises that are now annually shown at some of our leading exhibitions literally smothered with flowers may think it unorthodox to have a word said against them. But are not the raisers going too far in the direction of size of flower? It is necessary to bear in mind that these Clematises are essentially hardy plants, and that, taking as these unusually large-flowered sorts are when grown in pots, their legitimate place is planted out of doors, along with such sorts as C. Jackmanni and C. rubella, old favourites that still stand unequalled as outdoor climbers. Therefore, in raising new Clematises would it not be well to hark back a little, and try to get a race with something like the vigour of growth and profuse flowering disposition of C. montana, with a reasonable increase in the size of the flowers? There can be little question that where there is one individual who buys these big-flowered sorts with the view to growing them in pots, there would be a score who would purchase smaller flowered varieties that would grow away freely, so as to cover a larger space out-of-doors, and yield a dozen flowers to one in the case of these large kinds. Not the least drawback to these large-flowered varieties, too, is the limited extent of colours represented by them.—T. B.

SHORT NOTES.—FLOWER.

5201.—**Alpine Wallflowers.**—"A. G." (p. 422) will be able to procure plants of Cheiranthus alpinus from Messrs R. Smith & Co., St. John's, Worcester. I obtained some myself there a short time ago, and they are now in full flower.—R. GREENFIELD, *The Priory, Warwick.*

Yellow Asphodel.—If not striking, this plant is certainly singular in appearance. The flowers occupy about 12 inches of the highest part of the stem, and open all round it in an irregular manner, succeeding each other in such a way that individual spikes continue in bloom for several weeks. The blossoms are star-shaped and bright yellow, with a dark vein running through the centre of each petal.—J. C. C.

Anemonopsis macrophylla.—Can anyone tell me who possesses this plant? I want it much. I had it once and lost it.—H. N. ELLACOMBE, *Bristol.*

*** The last time we saw this rare plant was at Kew on the old rockery near the economic plant house. The only place we have seen it besides at Kew was in the late Mr. Jeod's garden at Wimbledon. Perhaps Mr. Lynch or some of the other curators of botanic gardens can give information respecting it.—ED.

Climbers on trees.—"G. J." (p. 425) is quite right in recommending the training of climbing plants on trees. I have tried it successfully. About twenty-two years ago I planted a climbing Rose against a Pear tree. The Rose completely covers the Pear, and in June presents a really beautiful appearance, hanging down in long ropes of flowers. I took the idea from a garden near Bath. I have also successfully copied the Italians, and married a Vine to an old Apple tree in my garden. The effect of the bright foliage and pendent growth of the Vine is very charming.—WILLIAM WICKHAM, *Binsted-Wyck, Alton.*

Mountain Tobacco (Arnica montana).—This is one of the plants that found favour in gardens of the old type in Miller's time, about 1759, owing, I think, to the showiness of its flowers, and quite apart from any medicinal qualities which it possesses. Infused in beer, and taken as a common drink, it is said to have successfully cured chronic rheumatism. The cultivation of this plant has not hitherto been attended with the success which it deserves, although in many gardens which I have visited it seems to grow and flower freely. At Kew last year it was growing in situations in each of which the soil was quite different. The leaves are large, oval, quite entire, and opposite on the stem. It grows from 6 inches to a foot in height, and is terminated by two, sometimes three, large and attractive orange-yellow flowers, often tinted with brown, and nearly 2 inches in diameter, the whole plant having a strong, but agreeable fragrance. It flowers in June and July, and is useful in borders, in which it will succeed if the soil be not too retentive.—D. K.

NOTES AND COMMENTS.

Figs and Grapes outdoors.—In Mr. Thomson's pamphlet on "Our Climate" I notice that Langley who wrote in 1729 is quoted to prove that the July Grape, as it is named, once ripened in England in July. If that be true, I should say that circumstance alone would prove that the climate was growing colder, and the question is worth probing further. It is stated in the pamphlet just referred to that "Langley had a high opinion of one Grape called the July Grape, because it ripened in that month." Now, did Langley give the variety that name for the above reason? I doubt it very much, or that the Grape ever ripened before September in England. I have Evelyn's "English Vineyard Vindicated"—printed in 1669—in which he gives the earliest varieties known then, viz., the Muscadella, Frontignac, Muscadine, "and the small black Grape, by some called the Cluster Grape," probably the same sort mentioned by Langley, and also by Loudon "as the Black July, an old variety from France." Evelyn does not, however, say it ripened in July in his time, but says the Grape "begins to turn and ripen in August." I have no doubt this is the same Grape still grown about Paris in the fields, where I have seen it just colouring about the middle of August. It is, I think, known by the name of Morillon Noir, one of the synonyms of Black July, or Morillon Hâtif. I saw several bunches of it exhibited in Paris on the 20th of August of outdoor growth. It is the earliest black Grape about Paris, and it is well known that the French have stuck to their favourite sorts for generations. I think, therefore, that Langley's reference to this Grape cannot be accepted as evidence, unless he actually states that it did ripen regularly in this country in July. A little reflection, however, will convince anyone that if our climate has changed to the extent of causing certain fruits to ripen now in September that once ripened in July, the difference to vegetation generally as well as other physical changes would by this time have been of such a marked character as to leave no doubt about a deterioration of climate having occurred. Langley's other statement that the Fig ripened two crops in the year in England also shows that he was hardly a reliable historian. I doubt if the Fig has ever been known to ripen a second crop in England. In the south of Europe the earliest Figs produced on the young wood sometimes ripen, but in England it requires from seven to eight months to ripen a second crop of Figs under the most favourable conditions under glass. The Fig begins to grow towards the end of May near London, which therefore leaves only about four months to perfect two crops—not more time than is required to ripen one crop as weather averages go. I have not read Langley's book; perhaps he spoke of heated walls, and if so, the statements he makes might have happened, but the facts would be of no use in estimating changes of climate. Neither is it to be assumed that the decadence of Grape culture outdoors in England is due to change of climate. It is rather to be attributed to changes in gardening, and notably to the cheapening of glass, the increased demand for luxuries, and the greater means of procuring them. If there has been any change, history sufficiently proves that within the last hundred years at least it has not been of a very marked kind.

Tar dressings.—It requires a powerful effort of the imagination to believe that the tar killed the bug on Mr. Groom's Vines when he admits to having first destroyed the pest in its worst haunts —"roof, rafters, and walls"—by soaking these well with pure paraffin and newly slaked lime, having previously "scrubbed the rods with hard dry brushes to remove any insects that were lurking about them"—which means he had done for the bug completely before the tar entered the house. And all this is recorded to prove the efficacy of "two quarts of tar put into a large pail of clayey loam" previously "baked over a boiler till it was as dry as dust," after which it was "sifted and mixed with the tar so as to thoroughly disintegrate it." A more effectual plan for deodorising the tar and rendering it harmless to both the Vines and the bug could not have been devised. Burned clay will take the "natur" out of most things.

Varieties of Anthurium Scherzerianum.—Size of flower is but a secondary consideration in this plant; colour and form are of more importance, and plants from seed differ in these respects in a remarkable degree. We have the large-flowered kinds with bright scarlet spathes, but the sort we think most highly of is one with comparatively small flowers, of a rich dark crimson colour, borne on slender foot-stalks, and of that peculiar and graceful "banner" shape, which is the striking feature of most forms of this plant. Those who are in search of beautiful forms of the Anthurium cannot do better than invest in seedlings or raise them themselves, as from these they are sure to have both large and small-flowered varieties and many different forms.

The best Dracænas.—For general usefulness these are D. terminalis and Cooperi. They are more sought after than all the others, new or old. Cooperi is still unrivalled for graceful habit and good colour, and terminalis is only an erect form of Cooperi with rather more colour in the leaves. To have either well up in colour they must be pot-bound, if propagated from roots—the easiest way; plants from rooted tops are always finely coloured, but they are not so vigorous. Application was made lately to three different firms for these two varieties, one of them advertising Dracænas specially, and none of them could supply the few dozens wanted offhand. Grandis is another fine kind, and amabilis is perhaps the best grower and handsomest of the cream-coloured and green sorts. For table plants at least these four are our selection from all the sorts.

Incidents in Vine culture.—Mr. Douglas says: "Vine roots in a late vinery have a greater tendency to run outside than to remain inside," and in saying so he echoes the opinion of, I should say, ninety-nine gardeners in a hundred. His own example of Vines whose roots availed themselves of the chance of running out and into "a very unsuitable gravelly walk 12 feet beyond" could be multiplied by the dozen. I once knew an exactly parallel case. The question therefore

which arises is this: If inducing the Vines to go inside or anywhere else is simply a question of treating them well, how comes it that they leave a border like the one prepared for them at Loxford to run away from it and through it "into a very unsuitable gravelly soil"? The natural conclusion on this point, on Mr. Baines' theory, would be that the "very unsuitable gravelly soil" was good material for a Vine border; otherwise we must conclude that Vine roots have no power of choosing what is good for them. The principle we have lately been told to act upon in order to keep roots inside is to give them right food and proper treatment; but here we have proof decided to the contrary, unless Mr. Douglas will acknowledge he mismanaged his inside Vine borders, and I think Mr. Baines once testified conclusively that he did not.

Narcissus recurvus.—I cannot think Mr. Barr knowingly substituted this name for N. poeticus (page 427), but our recurvus is certainly poeticus, and no other I was recommended to get it by one who knows the Daffodils better than most people as a choice sort, and did so, and have been disappointed in consequence. As to the single and double forms of poeticus, we have had them growing side by side for many years without any sign of the one becoming double or the other single. Except in fragrance and colour, the double kind is certainly not like what one would expect the single form to change to in doubling. J. S. W.

ROSE GARDEN.

TEA ROSES.

I WISH some one would publish a list of too-much-alike Tea Roses. At present cultivators are unable to distinguish the differences that exist amongst many of them. Take, for example, rose-coloured flowers belonging to this section, and we shall find that there are nearly a dozen under different names which are so nearly alike, that not more than one-third of the number would be sufficient for any collection. I may mention President Souvenir d'an Ami, and Belle Maconnaise as being too nearly alike—so much so, in fact, that none but an expert could name them apart. The same remarks apply to other colours in this class. Amongst yellows there must be nearly a score, but when seen growing together many of them differ only in the faintest of shades.

APRICOT-COLOURED ROSES, in my opinion, are the most distinct of any of the Tea section; the best I consider to be Madame Falcot, a fairly vigorous growing variety, and one which makes a nice head as a standard; it is also as hardy as any in its class. W. A. Richardson is less vigorous, but the flowers are more double; it is a delightful Rose in the bud state for button-holes; it is also an admirable variety for pot culture. Safrano, an old well-known Rose, makes an excellent standard, and a very good climber for a warm wall. In colour it differs slightly from those just named, the shade being a little lighter in the bud state. It is very pretty, but on the whole the flowers lack refinement. Shirley Hibberd is in every way equal to W. A. Richardson, with the exception of being apt to sport, producing flowers that are sometimes nearly white, a circumstance that seems to show that the variety was first obtained from a sport. However that may be, it cannot be recommended as a constant flower. There may be others having nearly the same colour as the kinds just mentioned, but I have named sufficient for even a large collection.

TEA ROSES UNDER GLASS.—After the first week in May I find that unless Tea Roses can be treated very carefully as regards giving them abundance of air and keeping the glass well shaded when the sun is out, the heated air of a glass structure is very injurious to the expanded flowers causing them to fade quickly. It does not matter what colour the Rose may be, the flowers are always several shades lighter after two or three hot sunny days than they are during dull weather. I think we have no other hardy plant that appreciates the warmth and shelter of a glass structure so much as the Rose up to a certain point. In a temperature that does not exceed 65° it is perfectly happy, but if that point is exceeded by solar heat, and the heat is allowed to strike the flowers through the glass, the colours will fade and the petals reflex. If such treatment, too, is continued for any length of time, the flowers will get considerably smaller than when produced in a lower temperature and under a more subdued light. It must be understood that I am writing now of Roses grown in houses not exclusively devoted to them. In a properly constructed house, which can be well ventilated and the glass shaded in bright weather, their condition would be very different. Tea Roses are such excitable subjects that a fluctuating temperature is very hurtful to them, and for this reason I should like to grow them in

PORTABLE HOUSES in beds of well-prepared soil. The house I would construct so that its supports and rafters might be utilised for training the Roses upon. It should have glass down to the ground line, and be so arranged that the lights could be taken down or put up in a few hours. In such a structure Tea Roses might be grown in the greatest perfection and in any quantity. During winter and the spring months they could have the protection of the glass, and about the first week in May, according to locality and circumstances, the whole or any part of the glass lights could be removed, so as to let the plants have full exposure and the benefit of the rainfall. By exercising a little judgment in the removal of the lights from the warmest and most sheltered part of the house first, the growth may be gradually exposed, and the fact that Roses thrive better during summer when fully exposed than with the most painstaking management under glass, is a sufficient argument for my advocating the use of portable houses. Those who have a large house may get

TWO CROPS OF FLOWERS in one year by growing them in pots and treating them in a special manner. I do not mean ordinary specimens in 8-inch or 9-inch pots, but lusty plants from 4 feet to 5 feet high and growing in 16-inch pots. In pots of this diameter it is not a difficult matter to secure plants from which one may cut and come again. It will of course take some three or four years to grow plants to this size, but when once obtained they may be kept in perfect health with a reasonable amount of care and attention. If the plants are taken out of the pots once in two years in November and about one-third of the old soil is shaken from their roots, repotting in some good loam and rotten manure, their vigour may be kept up for almost an unlimited period. Such plants should be kept in a light airy house until the beginning of May, by which time the bulk of their early flowers will be over, and they may be taken to a warm sheltered corner and the pots plunged to their rims in the ground, where they can remain until the beginning of September. During summer they must be well supplied with water, and if liquid manure can be substituted for clear water, they will derive considerable benefit from it. When the time has come to take them under glass they will be found to be bristling with flower buds, which will open in the most satisfactory manner in a cool airy house, and will continue to flower for several weeks if liberally fed with some stimulant. Who will be the first to treat Tea Roses in the same kindly manner as Apricot and Peach trees are treated in some gardens and plant them in a good border against warm walls, letting them have a glass coping on the top and warm curtains in front to shelter them from spring frosts and cold wind? There is a rich treat in store for some one who will adopt this suggestion, for in order to see Tea Roses in their best condition they must be for the most part grown so that they can be a good deal exposed to the influence of sun and air. What is required to bring up the exquisite tints and clearly defined colours that belong to them is a medium temperature accompanied with plenty of light and air. According to my experience, Tea Roses are never more beautiful than when grown in the open. No specimens under glass after May I can compare in any way with open-air flowers. Indoor blooms after that date are, as has been already stated, wanting both in colour and substance. I examined the other day some flowers on plants growing on open walls consisting of such varieties as Marie Van Houtte, Comte de Paris, Shirley Hibberd, and Souvenir d'un Ami, and one could hardly recognise them when placed by the side of those grown under glass. Marie Van Houtte and Comte de Paris are ten times more beautiful than when forced. The body of colour and the delicacy of shading in the outdoor flowers are much deeper, and there is a charming degree of freshness that is altogether wanting in the others.

WHAT IS A TEA ROSE?—Seeing what confusion exists amongst cultivators as to which is and which is not a Tea Rose, this question may not be ill-timed, nor do I consider it a difficult question to answer. A Tea Rose proper is, I think, about as easy a subject to assign a proper place to as any other variety of the family, but that some competent authority is much wanted whose business it should be to decide such questions is evident from the fact that there are aliens in the ranks which should be relegated to their proper place. If anyone doubts this, I should like to know why such varieties as the Duchess of Edinburgh, Cheshunt Hybrid, and Maréchal Niel are classed amongst Teas. J. C. C.

ROSES IN MAY.

NOTWITHSTANDING the cruel frosts of from 15° to 20° that hit our Roses so hard about the last week in April, and the east winds that pursued them right through the month of May, yet I never remember seeing or cutting so many Roses from the open air as in this month of May. Maréchal Niels led the way, and to such good purpose that several plants on south and east walls have yielded nearly the whole of their first harvest of bloom, which is far less injured than might have been supposed by the bitter east winds cooling into frosts before morning. Next in order of time were the two Roses, Safrano and Gloire de Dijon, abreast in fall bloom in the middle of May. Homère came next, and most of the buds came in very good form—a rather unusual circumstance. Souvenir de la Malmaison was next in order, with nearly every flower so open in heart as to somewhat resemble a star-fish—still wonderfully early, and with huge masses of petals, albeit awfully deformed. Niphetos, Céline Forestier, Cheshunt Hybrid, and Adam were among the next batches to come in, though not in such profusion as the others already named. Rubens was rather later, though most of the Teas on warm walls opened during May. The pretty white and yellow Banksians have been fully out since the middle of last month, the white as usual, however, having its blossoms severely thinned by the frost, while the hardier yellow is so full of flower that the leaves can hardly be seen for its golden wreaths of bloom, many of them a yard or more in length. As to the mass of Roses, Teas and others, in the open, a great weakness came over them after the severe frosts about April 20. The few genial days which we had in May—and they were indeed but very few in East Anglia—seemed to pull them up a little, but no sooner were they set once more between frost and fire, with the east wind as a mediator between the two, than the Roses turned up their leaves slightly in disgust and ceased growing into either length or strength. It is a long lane, however, that has no turning, and there is hope in the old saw that showers in June keep all things in tune; but if many of the more weakly, cold, starved Roses are to be tuned to any good purpose, not only a shower, but a deluge must come soon, and if not, fortunate indeed are those rosarians who can deluge their Rose roots with sewage or manure water, for few things are worse for Roses than drought at the roots. Already where this has been felt, red rust has begun its evil course over and among the Roses. Aphides are also making their appearance, but so far the east wind seems to have kept

the grubs and caterpillars in check, the only comfort I have ever known to come to us on the wings of the east wind, but genial weather and soft warm rains will doubtless speedily work wonders among the Roses, and after all the season may even yet pull up to one of average geniality. Tea and other Roses on walls, being strong as well as abnormally early, are likely to yield a fair second or even a third crop. The latter will prove most welcome, as Roses in the late autumn or early winter are even more valuable than Roses in April and May. D. T. FISH.

Miniature Roses, though not very striking or brilliant, are in their way agreeable companions in the Rose garden or grown in pots under glass. The new white variety named Paraquette is a fairly vigorous grower, and flowers freely, the blossoms being full, and remarkable for the delicate tone that pervades them. The variety named polyantha is not quite so strong a grower as that just named, but its blossoms are produced equally free. They are of a light pink colour, very full, and exceedingly pretty in the bud state. Polyantha Mignonette does not differ materially from the last named. Little Pet is very correctly named, being quite a miniature Rose bush. Add to the above the little crimson-flowered variety, and I have exhausted my list of these pigmy Roses. No collection should be without the one bearing crimson flowers, as it is as distinct as any with which I am acquainted. I should say these miniature Roses would make capital edging plants for beds in which are planted the larger-growing sorts.—J. C. C.

Briers for budding.—The season so far seems to have suited Briers. Seldom have standards looked better, and dwarf Briers on good land, despite the frost and the drought, look well. On poorer, lighter soil they want rain. The mild winter has suited Briers, and they have broken stronger and are growing more vigorously than usual. According to present symptoms, the stocks will be ready before the buds this season. However, the latter will probably plump up rapidly as soon as genial rains fall. Meantime all the earliest stocks can be used for Tea Roses, and plenty of buds fit for use may soon be found on plants on walls. It is good practice to bud Teas early. Stop the Rose shoots back almost close to the buds as soon as the latter have taken, and thus enable the Tea Roses to flower and ripen their wood before winter. This plan of forcing the buds to break at once—while mostly the worst system as regards Hybrid Perpetual Roses—answers well for Teas, Bourbons, Noisettes, and Hybrid Teas, as these are not only more excitable, but finish flowering and the ripening of their wood much sooner than the slower moving Hybrid Perpetual Roses. Meanwhile, by the removal of superfluous shoots—all are superfluous but one or, at most, two—and the grubbing out of suckers and destruction of grubs or other insects, the Briers may be kept clean and grown into the best possible form for budding when the time comes.—D. T. FISH.

Notes from Heatherbank, Weybridge.—I have got back to my garden after a short fishing run into Perthshire, where we had more unsatisfactory weather than I remember for the nearly 39 years during which I have known the district. On my way home I had the usual pleasure of looking over the Edinburgh Botanic Garden, where I found that the rockwork and hardy plants were, under Mr. Lindsay's care, flourishing more even than formerly. I paid a short visit to Hay Lodge, where the cards tied on plants showed that Mr. Anderson-Henry was continuing the good work which has produced so many valuable additions to our gardens. I then went to Wardie Lodge, where, though Miss Hope's bright kindly face was no longer there, I had the pleasure of seeing that the plants to which she had devoted so much care while living had been carefully tended, and were flourishing as in old days. Scilla campanulata, as usually grown, is not a very striking plant, but at Wardie the blending of the many colours and the fine growth of the plants made beautiful beds and borders. On again looking over the Lily beds at Oakwood it was satisfactory to see that all the mischief done by the April frosts (see page 362) had shown itself at once. In the large beds of L. auratum so many strong shoots had grown up, that without close examination the frost damage would not be observed, and in some beds of L. speciosum, which were much cut, plenty of good growths are left, and, what I hardly expected, many stems of both Lilies which had been almost flattened and had fallen to the ground have still strong green heads, which even if they do not flower have growth enough to keep the bulbs healthy. L. cordifolium has suffered most; we shall have but few flowering heads. Our plants of the most valuable variety of L. auratum, L. auratum rubro-vittatum are in perfect health.—GEORGE F. WILSON.

TREES AND SHRUBS.

RHODODENDRONS IN DIFFERENT SOILS.

A REFERENCE as to the likes and dislikes of these plants in the matter of soils appears in THE GARDEN (p. 453), wherein the writer seems to find a difficulty in arriving at a conclusion as to what kind of soil suits them best. I think, however, there is no difficulty at all in the matter if only one has had an opportunity of seeing and noting the widely varied conditions of soil in which they will not only live, but thrive with the greatest luxuriance. In common with many other evergreen shrubs, they not only cannot endure a limy or chalky soil, but they also will not thrive where the water that reaches their roots is impregnated with chalk or lime. As a proof of this, it is only necessary to mention the failures that have taken place when it was supposed everything needful had been done by forming a substantial bed of peat in which to plant them, but which nevertheless has often been found not enough to enable them to exist, no doubt through the effects of the chalk-impregnated water that reached the surface where the roots were. Rhododendrons are moisture-loving plants, and on having water present in the soil in plenty depends their well being much more than the character of the soil itself. This is fully exemplified by the way in which they succeed in places where the soil is as different in character as it well can be from peat to heavy retentive loam and clay. Moreover, in order to see them in their best form, they must have a retentive sub-soil, unless the locality happens to be subject to a heavy rainfall, so as to prevent the surface, even in dry summers, getting too dry. In no part of the kingdom is this more fully borne out than in the neighbourhood of Manchester, where the Rhododendron thrives in a way that has earned for it the name of the Manchester Laurel. There the soil varies from a thin surface of retentive loam resting on many feet of impervious clay on the east and north sides of the town to the peat on the west and lighter loam on the southern sides, but which are on a clay bottom; in this locality they may be seen growing just as well and even attaining a larger size where there is not a particle of peat within their reach as where they have all peat. The welfare of these plants depends more on the subsoil being retentive enough to prevent the upper surface being subject to drought than on the composition of the upper surface in which the roots are placed. Where the land is such as to require additional soil being provided for Rhododendrons—that is where the under surface is of so gravelly or sandy a nature as not to hold enough water in summer—I have always found that a mixture of half clay and half peat was better than peat alone, as it retains moisture better, and wherever the natural soil is light loam the use of clay is an advantage, but in all cases where employed it should not be put below the surface in a raw crude state, but after being dug should be exposed to the weather until it has got well pulverised. A bed composed of half clay so treated and half peat will not only be found to hold moisture better in a dry season, but will sustain the growth of the plants better and longer than peat alone. This I know from having tried both in localities where Rhododendrons would not succeed without some assistance in the shape of moisture-holding material other than that present in the natural soil. In preparing ground for evergreen shrubs, Rhododendrons in particular, nothing could be worse than the prevalent practice of throwing the beds up round in the middle, especially in districts where the rainfall is light, for the obvious reason that under such conditions three-fourths of the water that falls from the clouds runs off to the sides of the beds beyond the reach of the roots; the effect of this is most felt in summer weather, when necessarily the plants stand most in need of moisture to assist growth. T. B.

GARDEN FLORA.

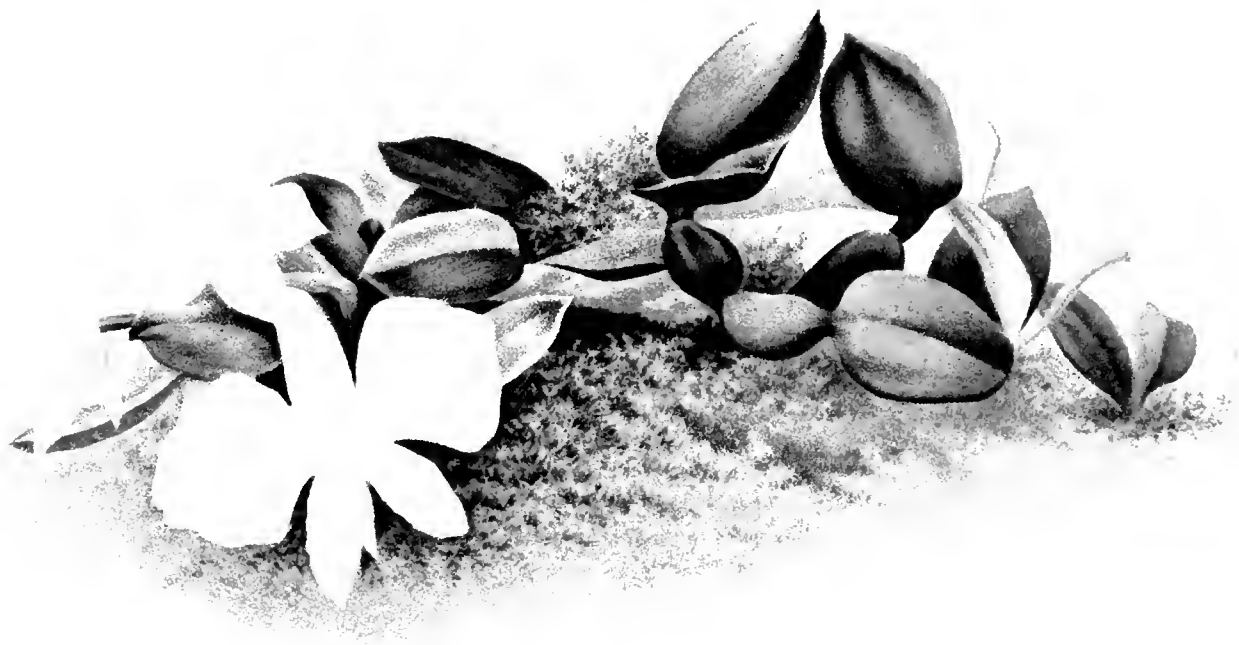
PLATE 443.

THE ROSY BUTTERFLY ORCHID.

(SOPHRONITIS GRANDIFLORA ROSEA.*)

IF you take a map of South America, even yet a home of wonders, of forests and mountains unexplored, you will have no difficulty in finding that enormous tract of country known as Brazil. In Brazil are the Organ Mountains, and on trees bare trunked and Moss-coated on these mountains the Sophronitis grandiflora is quite at home. If you visit Kew Gardens and look at Miss North's picture No. 31, you will gain a fair idea of the plant as it exists in its native habitat, and at No. 39 in the same gallery of floral portraits our fair artist has represented another plant of this genus, S. coccinea, also a Brazilian tree climber of great beauty as seen at its best. All the species are dwarf; all are beautiful; nor is their beauty quite of that modest kind which the generic name alone would perhaps lead us to think was the case, but perhaps this arose from the fact that S. cernua was the generic type and its small blossoms are not so brilliant as those of others of its congeners. S. cernua is from Rio Janeiro, and is figured in the *Botanical Magazine*, t. 3677; also in the *Botanical Register*, 1129, the blossoms being of a reddish carmine tint, borne in small clusters during November and December. S. coccinea is also Brazilian with flowers 2 inches to 3 inches in diameter, the lip being golden yellow streaked with vermilion, and the sepals and petals of a vivid scarlet colour. S. violacea is very distinct in habit, reminding one of a Barkeria rather than any other species of Sophronitis, the flowers being lilac shaded with violet-purple, borne several together on an erect terminal spike, each blossom being subtended by a dry and scaly bract. It is found at 7000 feet or 8000 feet elevation on mountains near Rio Janeiro, and grows best in a cool house. Of all the four known species, S. grandiflora is by far the most popular, the flowers being large and of a vivid scarlet colour, and that they are freely developed during the dull wintry months enhances their value. This plant is very variable in size and colour, and has consequently been figured many times. I find no less than nine references to figures in a list now before me. Thus, in the *Botanical Register*, t. 1919, it is illustrated as Cattleya grandiflora. In Jenning's "Orchids," t. 5, is a figure taken from a plant bearing thirty fully expanded blossoms in the Veitchian collection at Chelsea. In the *Floral Magazine*, t. 329, there is a good variety illustrated

* Drawn in Mr. Peacock's garden, Sudbury House, Hammersmith, February 8.



SOPHRONITIS GRANDIFLORA ROSEA

and a fair figure appears in Moore's "Orchidaceous Plants" (1st century O.T.), t. 1; in *Flore des Serres*, vol. xix., t. 1716; in "Sertum Orchidaceum," t. 5; and in the *Botanical Magazine*, t. 3709.

Our coloured illustration of the variety rosea is from a plant which flowered in Mr. J. T. Peacock's collection at Sudbury House, Hammersmith. It is a form as rare and distinct as beautiful, the flowers being of a clear rosy lake or carmine-rose colour, instead of vermilion-scarlet, as in the typical species. Variable as are the numerous forms of S. grandiflora, all are well worthy of careful culture, especially so as they best luxuriate in a genial cool Cattleya or warm Odontoglossum house, and being neat in habit, take up but little space. They succeed best grown in small suspension pans and depended from the rafters of the house; a firm, well-drained compost of peat-fibre, crocks, and charcoal suits them, and they like an abundance of water whilst making their growth. A dozen little pans of this brilliant little Orchid hung in a sunny little cool house among snow-white Odontoglossums, &c., form a pretty sight when snow is swirling among the leafless shrubs and frost is emblazening the window panes, and as good strong plants may now be obtained at a cheap rate, the culture of these little gems should become more general. F. W. B.

THE HOUSEHOLD.

COOKING VEGETABLES.*

IT is intended in what follows to present something like an elementary code of vegetable cookery that the cooks themselves may not disdain, and that many who are not cooks, but desire to learn something of the art of cookery, may give attention to as of direct practical value to them.

VEGETABLES in general require to be cooked quickly and thoroughly, and to be eaten as soon as possible when the cooking is completed. It is safer to keep a roasted joint hot for a time when there is reason for deferring a meal than to do the same with the cooked vegetables, for in the end the joint may actually be in a less degree deteriorated than the Cauliflowers and Potatoes. It follows that the cook should study not how soon to begin cooking the vegetables, but how late it may be safe to let them remain untouched, while still ensuring time enough to cook them properly. All vegetables and other items of garden produce that require to be cooked should be as fresh as possible. It is advisable, therefore, for the cook to discourage the gathering of larger quantities than are immediately required, except in some peculiar cases. It may be well sometimes to gather Peas and Cauliflowers to remove them from a burning sun is a frost, but, as a rule, all such things will keep best on the ground untouched, and should not be removed until wanted. The early morning is the best time generally to fill the basket for the supply of the house during the day. The fresh vegetables should be well washed as may be needful, but in any and every case such as can be safely used without washing will be the better for being left alone. The practice of allowing vegetables to lie soaking in water for a long time tends directly to their injury. They must be clean at any cost of trouble, but as a rule the necessary washing is a simple matter and should be got through smartly. In cold weather the kitchenmaid will perhaps find it a painful task to wash Spinach properly. But it need not be so; because Spinach and other vegetables may be washed in water a little warm, or, as we say "tepid," more quickly and completely than in cold water. The removal of dirt is not the only object of washing, for it is needful sometimes for the dislodgment of vermin, such as earwigs, caterpillars, and slugs. We will take a Cauliflower or a Cabbage in which there may be lurking some small intruder. Throw into a pail or bowl a lump of salt, fill up with cold water, and, if needful, add a little hot water "to take the chill off," and then plunge the vegetable into it. In the course of a few minutes the caterpillars and slugs will wriggle out. The cooking may then proceed to the next stage.

BETWEEN BOILING AND STEWING there is a vast difference, which the cook should thoroughly understand. To serve a dish of greens of any kind with a beautiful colour, a fresh appetising fragrance, and a flavour that shall gratify all palates, there must be a little smartness in the cooking. The pot should contain plenty of water, a reasonable quantity of salt, say two tablespoonfuls (equal to two ounces) to the gallon, and if need be a very small quantity of soda. The fire should be sufficient to cause the pot to boil up quickly from the moment the vegetables are put into it, and being already well drained to get rid of the cold water, they should not be put into the pot until the water is boiling gaily. The next business will be to keep it going and to push down the vegetables occasionally, so as to keep them covered and to cook them equally. The rest of the business is easy enough, but there must be no relaxation of the smartness of action. The moment they are fairly cooked, just at the nice point when they are quite tender *and have not begun to fall to pieces or melt away*, turn them out, drain and press as required by the particular kind of vegetable, and put them into the hot dishes for the table as quickly as possible. They will do you credit, for they will be beautiful to look at and delicious to eat. As we are now treating of generalities, it will be proper to observe that there is one very simple matter that must on no account be neglected in cooking such vegetables as French Beans, Spinach, Cauliflower, Broccoli, and all kinds of greens, and it is that the lid should be wholly or partially off the pot if these vegetables are to be served up of a creditable colour. To keep the lid down will be utter ruin to the appearance of any one of them.

RAIN WATER BEST.—And here we encounter a point of some importance that has certainly not obtained its due share of attention. Our houses are so well supplied with water by the companies, that we pay little heed to the precious gift of water from the heavens. It is a fact, however, that rain water, freed from all impurities, will cook vegetables of every kind far better than the water commonly used for the purpose. Our towns are supplied with water that may be generally described as good, but in every case there is a certain degree of hardness that renders it necessary to use soda in the cooking of vegetables. It should be borne in mind, however, that the soda is intended simply to soften the water, and a very minute quantity is sufficient. The young cook, earnest and observant, but having as yet much to learn, discovers that a nugget of soda promotes the cooking of her vegetables in respect of their colour and tenderness. But she is likely to attribute to the soda a greater virtue than it possesses, for it may be safely said that every grain used beyond what is necessary to correct the hardness of the water will have a mischievous effect. This truth she has yet to learn, but before learning it she will probably throw in soda recklessly, and the result will be a kind of melting process, so that the tender parts of the vegetables will be pretty well destroyed and there will be no flavour, although perhaps there will be a good colour. If she has intelligence enough to learn by observation, the truth will dawn upon her that there must be a limit to the use of soda, and when she has got this well into her head, she will soon become expert and happy in cooking vegetables. A friend has many times, for the sake of amusement and to teach young cooks, dressed delicate dishes of Collards and other greens, using only the company's water and a little salt, and the sample has been perfect. But between what may be called "toy cooking" and the daily business of the cook there is a difference, and we must not prohibit the use of soda, for it is a great help to one who has to look after many things at one and the same time, and cannot therefore bestow upon one vessel amongst many the artistic care that is possible in the case of the experimental cook, who is chiefly bent on scientific recreation. But the lesson must be learned that there is a limit to the use of soda, a very little of which will go a long way. *When rain water is used soda is not wanted, and in fact will do more harm than good.* There is a little Lemon juice, and let them remain until required for the pot. Then squeeze a few drops of Lemon juice into the boiling water, taking care not to use any soda, and the difficulty is conquered. Sea-kale does not turn black in cooking, and neither Lemon nor soda should be put into the water for it.

ARTICHOKES.

Artichokes are of two kinds. Globe Artichokes should be carefully washed and trimmed, the stalks cut off close under the flower. [We are very suspicious of the usual proportion of salt and soda, and in a variety of trials made with good fresh vegetables, find they are better without either.] Put them into boiling water, with the usual proportions of salt and soda, and boil quickly until tender. When cooked enough, drain them and lay them on a napkin two or three times folded, in a hot dish, and serve with a tureen of melted butter. It is a comfort for those who have to purchase Artichokes that they are somewhat improved by becoming in some degree stale; therefore, when taken from the garden, they may be kept about three days with advantage. In this respect they form an exception among vegetables similar to that of turbot among fishes, for a turbot is never so good when quite fresh as when kept for two or three days. Artichokes make a good dish fried, in which case they must first be boiled and the chokes must be removed. Then cut the bottoms into four parts, and dip in a batter made of flour and milk, and fry in hot lard or oil to a nice golden brown colour. Fry also some picked Parsley, which sprinkle over them, and serve with plain melted butter. All such dishes should be perfectly free from grease by being carefully drained and dried before being dished. Jerusalem Artichokes are sometimes cooked in the same way as Potatoes, and then it is said that Potatoes are better. It is perfectly true, but it is also true that to cook and serve them in the same way as Potatoes is to treat with indignity a truly respectable vegetable. The tubers should be peeled and thrown into water, and then boiled in the usual way until quite tender. Then drain and press, and put them in a hot dish and pour over them a good white sauce. This should be made with milk, flour, a very little sugar, and a slight flavouring of nutmeg. Served in this way the Jerusalem Artichoke is a delicious vegetable. A variation consists in mashing them and then putting them into a pan with a lump of butter and a rather liberal flavouring of salt and white pepper, with a very slight dusting of powdered white sugar. Stir them over the fire until thoroughly hot, and then serve. They may also be boiled with Silver-skin Onions and served with a good white sauce and a few freshly-cooked Brussels Sprouts dotted amongst them, after the sauce has been poured over them.

ASPARAGUS.

Asparagus requires careful cooking, as it is eaten in a critical spirit, and when well dressed the cook will be sure of praise. If it is necessary to keep Asparagus a few days before cooking it, stand the stalks upright in water in narrow vessels, such as common beer jugs. If put in open bowls the stalks will be at an angle and the tops will bend towards the light, and will not look well when cooked. *But Asparagus cannot be too fresh when cooked, and no more should be cut at one time than can be used at once.* Prepare by scraping the stems from the head downwards; shorten them to one length, and tie them in convenient bundles. Boil quickly, with the lid off the pot, until tender, which will perhaps be in about fifteen minutes. Dish on toast that has been dipped in the water, and serve with white sauce. There are

* We take this very useful original article from Messrs. Sutton's catalogue for 1884.

many variations of the process. One consists in standing the bundles upright in a somewhat narrow pot, and then putting in sufficient boiling water (with the usual allowance of salt) to about half the depth of the Asparagus. Then start the boiling with the lid on the pot. By this method the stems are softened and the tops are cooked in the steam only. Asparagus soup is a grand dish. It is made by boiling together in white stock equal quantities of green Peas and green Asparagus with a few young Onions. The vegetables must be boiled until they can be pulped through a colander. Then return them to the soup, add a moderate allowance of salt, red pepper, and white sugar, and a small allowance of flour beaten up with a little stock. Boil up and strain, and add a very little of Breton's green colouring, which is perfectly wholesome and gives a beautiful finish to this excellent soup. It should be moderately thick, and should be smooth and fully flavoured with Asparagus. It is almost impossible to make a good Asparagus soup without the aid of green Peas, which give a good body to it.

BEANS.

Broad Beans are admirably served with bacon on most tables, but it is a common fault that they are too old and require the digestion of an ostrich to do justice to them. In any case it is a great point to serve Beans with good Parsley butter, for the harmony of flavours is then complete; without good butter containing plenty of Parsley, boiled Beans are but a coarse dish. But the cookery of Broad Beans is not yet disposed of. We will begin with some nice young Beans quite fresh gathered, green, tender and pretty. It will not occur to many to cook them as they are in the pods, but it may be done with advantage, and if served with a smothering of well-made Parsley butter, the dish will be pronounced a good one. Fully grown Beans must be shelled and have about twenty minutes' hard boiling. They should never be boiled with the bacon for a good table, but there is nothing so suitable to eat with them as bacon or ham. Old Beans should be well cooked, and being strained off should be thrown on to a clean cloth and have the skins removed. They are then to be put into a stewpan with some white sauce and an abundance of Parsley chopped fine and be stirred round occasionally until they have become thoroughly hotted. Or, if time allows, mash them with a fork, dust them with flour, throw in a good allowance of minced Parsley and a lump of butter, and moisten with sufficient stock to keep them from burning, stir them about until they are well hotted, allowing time for the flour to thicken, and then serve.

Kidney Beans are generally well cooked, but the prevailing method is certainly not the best. However, we will deal with that first. Remove the stalks and strings and cut the Beans into strips and cover them over until the pot is ready for them. It is bad practice to put them into water after they are cut, for it takes away both colour and flavour. Boil quickly in water with the usual allowance of salt and a very little soda until they sink to the bottom. Then, if quite tender, drain and dish them and shake up a lump of butter with them, and they are ready for the table. *A better way is to cook them whole*, or at most only cut in halves, crosswise, so as not to cut through the seeds. When so cooked they may be served with melted butter with or without Parsley, and in our opinion Parsley is in this case an intrusion. If you have some old Beans just beginning to ripen their seeds, you may make a capital dish in the Continental fashion. Shell out about a pint of the nearly ripe Beans and throw the old pods away. Then take about a quarter of a peck of young Beans, trim, but do not cut them, and boil these and the seeds together, and they will be both done at the same time if the seeds are only about half ripe. Have ready a good white sauce made with milk, flour, butter, and a slight flavouring of nutmeg. Having drained the vegetables, put them in a hot dish and cover with the hot sauce and serve. This dish is easily prepared, and if well done will bring fame to the table. Old Kidney Beans are not worth much. To make the best of them take a thin slice off back and front instead of merely pulling off the strings, and then cut them across into three or four pieces, and boil in plenty of water with salt and soda, and when well cooked shake them up in the dish with a good lump of butter. The object of cutting them across is to keep the seeds in them, for as the green shell becomes tough with age the ripening seed acquires a fine flavour, and when cooked is as tender as the yolk of an egg.

Haricot Beans are often badly cooked, and hence they are not fully appreciated. The white Beans are usually employed, but coloured Kidney Beans answer equally well, though they are less agreeable in appearance. To serve them plain it is necessary to put them to soak in water overnight and to allow fully two and a half hours for cooking them; put them in a pot and just cover with cold water and let them boil up, then draw them aside and keep them simmering, occasionally looking to see that they do not burn, to prevent which, add a little water as may be needful, taking care not to add too much. To finish the cooking properly, the water should not be poured off, but be allowed to dry away until the Beans are found swimming in a thick sauce of their own making. Add a lump of butter and a liberal allowance of pepper and salt, boil up, stirring the while, and when quite thick dish them for the table. When managed in this way they are delicious and thoroughly digestible, but if too much water is used the sauce will be poor and thin, and the cooking, so far, a failure. To serve them dry, simmer with water and salt and a lump of butter until quite tender, then pour off the water, but do not drain them, carefully stir them round with a lump of butter, and pepper and salt, and then put them on the fire again to thicken what little liquor remains, and before they burn dish them. The mode of serving them in their own gravy may be varied by adding a little minced Parsley and the juice of a Lemon, after which boil up and serve. Another useful mode of treatment consists in soaking them as advised and stewing them in stock for about an hour and a half, then add a few small Onions, or large Onions minced, and cook again for an hour, then add butter, pepper, and salt, and serve in their own thick sauce.

BEET.

Beet-root requires to be carefully handled because, like a bottle of wine, all the goodness runs out the moment you crack it. In trimming the roots you may cut off ugly tails and forked roots without harm, but the thick part should not be in any way wounded. For this reason the crown should not be cut down very closely, or an inch or two of the best part of the root, which is the shoulder, will be rendered worthless. Beets should always be put into boiling water without salt or soda and kept fast boiling for from thirty to one hundred minutes according to size. As a rule, one hour and a half will suffice for a fair-sized Beet, but a very large one will take two hours. The cook must not only cook the Beet in the pot, but in her head, for to try it with a fork would be like cutting a hole in a net just filled with little fishes, or, in other words, cracking the bottle and letting out the wine. Beets may be baked as well as boiled, but we prefer boiling. As to serving Beets on the table, there is, as usual, a variety of ways to choose from. Beets are served hot, cut into thick slices, and accompanied with melted butter. They are also, when cold, cut into thin slices and fried in butter with minced Parsley, and served hot with pepper and cut Lemon. A very agreeable way of eating cold Beet is to cut it in thin slices, and pour over it a little strong white vinegar, and then add a dusting of common black pepper. For salads and pickles, Beets should be boiled and allowed to get cold, and then be cut in thin slices as required.

THE CABBAGE TRIBE.

BORECOLES of every kind are cooked in the same way as Collards, but each separate sort requires a little different management. Curled Kale is the most elegant of all the winter greens on the table, and quite tender and delicious. Cottager's Kale and other of the cabbaging kinds require to be cooked in plenty of water, or they may be a little rank. But these are all better after having been touched by frost.

BROCCOLI requires careful cooking, for if not well managed it is likely to be objectionable both in odour and flavour. Trim with care, so as to leave enough leaves to hold the flower together and to form a green clothing. But, having these requirements in mind, remove as much as you dare of the outside, and then put the Broccolis in water head downwards, and add a good lump of salt. In the course of half an hour or less all the vagabonds that have hidden themselves in the flower will have crept out and fallen to the bottom of the pan dead. Plunge the Broccolis into boiling water with the usual allowance of salt, but no soda, and boil fast for at least fifteen minutes, and then take off the lid of the pot and see how they are going on. Sweet little Broccolis will be quite cooked in fifteen minutes, but the larger kinds will take twenty to thirty minutes. Slow cooking means spoiling, and a small allowance of water means that the Broccolis will have a rank flavour. When they sink in the water try the stumps with a fork, and when fairly tender lift them out with a slice and drain in a colander and serve with melted butter, a little of which should be poured over them in the dish. It is of great importance to cook Broccolis well, and therefore those who have not mastered the business should give attention to minute particulars. If it is seen that portions of the flower are floating in the water, you may be quite sure they are done enough, and perhaps overdone: therefore take them out at once even if the stumps are hard. The great point always is to keep the flower complete and of a perfect colour, and quite eatable down to the stump. When the stump happens to be quite tender there will generally be found those who will eat it with gladness, but the cook must consider the flower first and make sure that it is perfect. Some cooks manage to keep Broccolis and Cauliflowers hot a long time in the water they were boiled in by drawing the pot aside and there leaving it. Others fail in this little matter, for they find the flowers fall to pieces. The safest way to keep them when they are cooked before they are wanted is to dish them and cover with a white cloth several times folded, and put them on the cool shelf in the oven or on the hot-plate rack. In this way they may be kept in pretty good condition for an hour. When wanted, remove the cloth and pour hot melted butter over them and serve at once.

CAULIFLOWER requires most careful cooking. It might suffice to refer to Broccoli, for what is there said applies to the vegetable before us. There may be some excuse for a little strong flavour in a Broccoli, because they are often exposed to unkind weather for a long time before they are cut; but there is no excuse for either a strong flavour or an unpleasant odour in the case of a Cauliflower, for it is grown in the summer and is always delicate. Plunge in salt and water for half an hour before cooking, and make sure they are quite clean. Put them in fast boiling water with salt, but no soda, and keep them boiling fast with the lid off, or if they do not boil up quickly, put the lid on until the bubbling begins, and then remove it. Be careful to cook them just enough, so that the stalk part is tender and the flower unbroken, for the stalk part is preferred by many to the flower when well cooked. Serve with plain melted butter if to be eaten with meat; but if to be eaten as a separate dish, serve with cream, to which has been added a little nutmeg. In the absence of cream, make a nice melted butter, using milk instead of water, and this with a little nutmeg will make an appropriate sauce. Cauliflower and cheese is prepared by boiling the Cauliflowers in the usual way, and they are then covered thinly with white sauce. A mixture of grated Parmesan cheese and bread-crumbs is then sprinkled over them, and a little freshly melted butter dropped over all. Put into a hot oven for a few minutes, and then brown with a salamander. If well done, the cheese and Cauliflower will be so blended as to be scarcely dis-

tinguishable, and the cheese will form strings as the dish is divided at table.

SPROUTING BROCCOLI requires to be carefully trimmed, because the stumps are like sticks, and then to be carefully cooked, or the nice little heads will be melted away. Very often sprouting Broccoli comes to table with no "Broccoli" left upon it. A little care is all that is requisite—plenty of water, fast boiling, and a little soda. When nicely done it is a fine vegetable for use in spring.

BRUSSELS SPROUTS are as easy to cook as any vegetable known. The best cook may sometimes fail with Asparagus, or Broccoli, or Cardoons, but the vegetable now before us is so good and requires so little management that it may almost be said to cook itself. To trim them is the work of a few minutes, and it is well to put them into a bowl of water with a lump of salt about half-an-hour before cooking them. Then throw them into the boiling pot, taking care to have plenty of water with a rather liberal allowance of salt and a very little soda. Boil fast, and push them down occasionally, and look for them to be cooked in about twelve minutes. It is better they should be a little underdone than a little overdone, but better still if perfectly done, tender, fragrant, full of flavour, and as green as Grass. Serve without any sauce whatever. Any gravy that is passing will suit them, but they may be served with melted butter, or with plain butter shaken amongst them and a little pepper added.

CABBAGE GREENS are as much a test dish as Potatoes, and one of the very first dishes a young cook should learn to manage. Even old shop Greens may be served up in perfect colour and flavour by an experienced cook, while the freshest and most delicate Greens ever grown will be but trash unless handled with skill. Only decision and smartness of action are required, for the actual cooking is the simplest matter in the world. But the slow stewing process will not do; given a poor fire and a careless cook, and Cabbage Greens will have no temptations. Trim the Collards so as to remove all coarse outsides, and split the stumps if they are sufficiently large to require it. Boil them quickly with salt and soda until quite tender, then drain and serve hot without any flavouring whatever. Young Greens will require only ten to twelve minutes of fast boiling to be well done, but larger specimens may require as much as twenty minutes. It is a great point not to overcook them, but there must not be the least crispness. As a rule, if the fork enters the stalks and stumps easily they are sufficiently cooked, and should be drained and dished as quickly as possible.

CABBAGES are cooked in the same way as Greens. Prepare them by trimming and splitting the stumps a little way down into the hearts, and let them lie in water with salt for a few minutes, in case of any vermin being in them. Tender summer Cabbages will require only about twenty minutes' cooking, but large Cabbages and Savoys will take from thirty to forty minutes. There are few vegetables more acceptable in autumn and winter than well-cooked Cabbage; and, on the other hand, when not well cooked, it is a most unwelcome dish.

RED CABBAGE is often stewed to be served with game or sausages, and requires careful management. A Cabbage is cut into thin slices, the coarser parts being thrown out as useless. It is then put in a stewpan with a pint of good stock, 2 ounces of lean ham cut into small dice, and, being covered close, is allowed to stew for one hour, care being taken that it does not burn, to prevent which add a little stock or water as may be needful. Now remove the cover, and let it keep stewing while you add one tablespoonful of pounded loaf sugar and the like quantity of vinegar and Worcester sauce, with pepper and salt. Stir well about, and keep it boiling for a few minutes, and then serve on a dish with a few selected pieces of pickled red Cabbage or Beet as a garnish. If properly cooked, it will be thick and glutinous, and very savoury.

COUVE TRONCHUDA supplies us with a good Cabbage and a good imitation of Asparagus or Seakale—the first in the head of the plant, the second in the midribs of the larger leaves. The cook may considerately advise the gardener to grow this excellent vegetable on his best ground, because fat stalks are wanted, and when well grown they are tender and delicately flavoured. To prepare the stalks or midribs is easy enough, but they should not be made ready until the time has nearly arrived for cooking them, for they suffer deterioration if kept for any length of time in water. Cut them in convenient lengths, tie in bundles, and boil fast, with a liberal allowance of salt and a very little soda, for about fifteen minutes. When quite tender, drain and serve with melted butter or a thick, savoury, brown gravy. The top Cabbage is loose in texture, and requires rather less boiling than a common Cabbage, but otherwise it may be dealt with in the same way.

CARROTS.

Carrots are cooked in a variety of ways. When they are to be served with any boiled joint, they may be cooked with the joint, which will improve the flavour of the liquor if it is kept for soup. Moderate-sized, handsome Carrots should be scraped carefully and cooked whole, and put into boiling water with salt if by themselves; but salt should never be put into water when such a joint as a leg of mutton is to be boiled. They will require one to two hours' boiling, according to size; and although they must be cooked until quite tender, care must be taken not to cook them too much, because they will then have no flavour. When done, take them up and carefully cut from them any black spots, and then cut them lengthwise into four parts, and so serve, looking bright and emitting an agreeable odour. Many cooks cut them before cooking, which is a most objectionable practice, for it lets out the flavour, and they never look so nice as when boiled whole and freshly cut for the table. Small young Carrots make a most delicate dish, and require but half an hour's cooking. To make a change, they may, when served, be smothered with a white sauce made with flour, butter, a very little minced Onion, a little minced Parsley, a little grated nutmeg, and salt, to which add stock enough to make a thick sauce, which should boil about five minutes to cook the flavouring herbs. Carrot pudding and Carrot jam are favourite delicacies. The first is made in the fashion of a plum pudding, a large proportion of grated Carrot being employed; the second is made by boiling grated Carrots with an equal weight of sugar until a thick confection is the result. It has often been found of great service as an anticorbutic, and was held in great esteem by Captain Cook to assist his men at times when they were threatened with scurvy. When well made it is a good imitation of Apricot jam.

CELERY.

Celery is not often cooked, but there is often a glut in the garden, and this may be made as useful on the table in autumn as Seakale is in the spring. As an accompaniment to a turkey, or to any white meat, stewed Celery is admirable. Select only the inner tender stalks that are perfectly blanched, taking care not to prepare them too soon, for it is not good to steep them in water before cooking. Having them in convenient lengths and tied in small bundles, boil them with a little salt until tender, which will be in about twenty minutes. Serve on toast with white sauce. When intended to be eaten as a separate dish, prepare a sauce of cream and pounded mace, which put over the fire until thick; or, in the absence of cream, prepare a sance as advised under Cauliflower, but flavour with mace instead of nutmeg. Celery may be stewed in stock, and when done thickened with cream and flour with a little pounded mace, and served in the gravy. In some households Celery soup is regarded as a great delicacy. To make it, shred two entire and perfectly clean plants into a saucepan, together with the remnants of a fowl, a few slices of lean ham, and one quart of stock. Simmer for three or four hours. Clarify the soup with the white of an egg, and strain it nicely; then add some small prime pieces of blanched Celery which have previously been boiled in stock until they are tender. When served as a salad, Celery must be carefully trimmed and washed, and so cut that it can be drawn out of the glass in convenient portions, for often one gets too much, and it is not an easy matter to return it when once taken. Another point of importance is not to prepare it too soon, for if kept in water any length of time the delicate flavour is very seriously diminished.

MAIZE.

Corn Cobs, or Indian Maize, is a comparatively unknown dish in this country, but is much esteemed by the few who are familiar with it. The Cobs must be taken when fully grown, but quite unripe. Remove the sheath and fibres, and plunge into boiling water with salt, and keep boiling for twenty minutes; then try them, and if not done, give them another ten minutes. When sufficiently cooked, drain and serve on toast with a tureen of melted butter. The flavour is peculiar, and by some is likened to Asparagus. [There is no reason why this excellent vegetable should not be supplied in our southern gardens.]

CRESSES.

Cresses of various kinds come into the hands of the cook for several purposes. [The foreign way of using Water Cress with a tender steak is excellent.] If they are not young and fresh they are worthless. As regards purchasing, it is good practice never to purchase any but Water Cress, for other kinds are of poor quality if they have been cut, packed, and marketed, and then retailed. But when derived from the garden all the kinds are useful, and more especially Water Cress and Australian Cress. Cresses are often thrown into water and left some time to be ready for use, but it is bad practice. They may be much better kept in loose bunches, standing in large jelly pots or common beer jugs, with the stems in water. At the last moment they may be picked and rinsed and sent to table with some of their proper crispness and flavour in them. An excellent spring salad may be made with equal parts of Corn Salad and Water Cress, taking care to throw out all stalks and stumps. A tiny touch of the flavour of Mint will improve it, but is not necessary. In the dressing there should be nearly twice as much oil as vinegar, but not a drop more of either than the vegetables will absorb. When there is any accumulation of liquor at the bottom of the salad bowl, it is a proof that the salad was not dressed with perfect skill.

CUCUMBERS.

Cucumbers require careful handling by the cook, but they are very useful, and may be used in a variety of ways. To serve as a salad, pare a sufficient portion, beginning at the flower end, for all Cucumbers are bitter near the stalk. Cut in very thin slices, and then just cover with a mixture of equal parts of salad oil and white vinegar, with a very little pepper and salt. By paring only as much as you intend to cut up, the remainder can be saved for future use, but it would soon become worthless if peeled and then put away. Cucumber may be added to any soup or stew, and is especially good in a rich Haricot. Cut in thin slices and add at the last moment; boil up for a few seconds only, and the dish may then be served. If the Cucumber is cooked for any length of time it will melt away. This may be allowed in the case of a Haricot, as the flavour will be there if the slices are no longer visible. A few thin slices boiled up in a light clear soup make an elegant variation, and will always gratify the guests as a change. A substantial dish of Cucumber and eggs may be prepared as follows: Cut a Cucumber into thick slices and slightly dust with flour on both sides; put these into a stewpan with a little good stock, minced Parsley, and a lump of sugar, and let them simmer for a quarter-of-an-hour; then add a dessertspoonful of pounded white sugar, the yolks of two eggs, a little salt and pepper, and one dessertspoonful each of vinegar and Worcester sauce; boil up and stir round, taking care that it does not burn, and that the slices of Cucumber are not broken. Cucumber may be sliced and fried in butter, as recommended

for Egg-fruits, and if a variation is needed add a little minced Onion and fry both together, and having drained away the grease, serve with a very little Worcester sauce to moisten the dish.

ENDIVE.

Endive is prized as a salad when Lettuces are scarce, and for this purpose needs but to be neatly trimmed and washed. Stewed Endive [an excellent dish—ED] is prepared as follows: Take the best parts only of the blanched vegetable and boil in water, with salt, for ten minutes, then drain and chop fine and put it into a stewpan with a little stock and flour enough to thicken it, and about a dessertspoonful of pounded sugar; let it simmer five minutes, adding a little more stock if there is danger of burning; when quite tender add the juice of a Lemon and boil up once and serve. At least six heads of Endive will be required to make a dish. A very little grated nutmeg is allowable as a final flavouring.

GARLIC.

Garlic is so little used in this country that the mention of it may appear superfluous, but as the Continental masters of cookery use it freely, we shall have to concede that it may have some virtues. As regards its uses, therefore, we will offer two remarks. Whenever and wherever Onions and Shallots are allowable, Garlic may be used legitimately, but whenever used the quantity should be small, the cloves must be finely minced, and the cooking should be the least possible. If Garlic is cooked for any length of time, it becomes rank, but when cooked for a few minutes only the flavour is delicious. When added to a ragout, it should be put in with the Parsley and have only five minutes' cooking.

LEEKS.

Leeks are cooked in a variety of ways, and perhaps the best way is to stew them in good gravy, as recommended for large Onions. Leek soup is made by boiling in weak stock half-a-dozen or so of Leeks, with all their green tops and outsides cut up rather small, and about double their bulk of green Pea shells, for about an hour. Then thicken with oatmeal, flavour with pepper and salt, and a very little sugar; boil up and strain, and it is ready for the table. For a party of tourists or yachtsmen, Leek soup makes a very good beginning to a dinner, but is too rustic and substantial for the epicure, who should be kept in perfect ignorance of its delectable qualities. [There are other and more delicate ways of making Leek soup.—ED] Leek milk is often prescribed for a cold, and no doubt is a proper medicine. Cut up the Leeks, using green tops and outsides (all perfectly clean of course), and boil in milk until it becomes quite thick. There should be no flavouring added, not even salt.

LETTUCES.

Lettuces are easily prepared as salads, but care should be taken not to steep them in water for any length of time, for this destroys all their flavour, and explains why hotel Lettuces are generally unfit to eat. When Lettuces are obtained fresh from the garden, and are quite free from vermin, they need not be washed at all. Cut through the stump and remove with it all the coarse outer leaves, and the blanched interior will be found so dry and clean and wholesome-looking that it will be sheer folly to allow water to touch it. A cook who was famous for his salads declared that he had learned many things by observation, but there was nothing he so valued of his practical wisdom as the using of all saladings without washing unless it was absolutely needful, as of course it sometimes must be. Take a Lettuce from the ground, wrench off the outer leaves, and eat the interior as it is, and you have a real delicacy. Take another, trim it, put it in water for half an hour, and then taste it and note the difference. It is customary with cooks to steep Lettuces, Celery, and other saladings for hours, and even for days, until they have no more flavour than paper shavings. For stewing, Cabbage Lettuces are preferred, as they are also for a dressed salad. Having trimmed away all the coarse parts, stew them in good brown gravy, and finish as recommended for Endive.

MUSHROOMS.

Mushrooms illustrate the true art of cookery in much the same way as Greens and Potatoes, for there can be no doubt they are at once most delicious and digestible when cooked in the plainest way and without any special flavourings. To broil Mushrooms, cut the stalks off at a little distance from the gills and peel the tops. If brought in fresh from the garden they will need no other preparation; but if gritty, they must be carefully cleansed, and it may even be needful to wash them, a proceeding always to be avoided if possible. Put them on the grill over a clear, but not fierce, fire, stalk side downwards. In the course of about three minutes turn them, and then carefully place a small lump of butter in the centre of each, so that it will run from the stalk into the gills while the top sides are cooking. Care must be taken not to cook them too much, ten minutes being quite sufficient for Mushrooms of fair average size. Put them in a hot dish, stalk side upwards, and before a bright fire, and place another small lump of butter in the centre of each, and while this is melting dust freely with pepper and salt. They are now ready for the table, and should be eaten at once. This simple mode of serving them will not suit all occasions; therefore they may be flavoured with lemon juice, or with Worcester sauce, or with Chili vinegar. For stewing, buttons are the best. Trim and peel carefully and throw them into water to which has been added a little lemon juice. When ready put them into a stewpan with a liberal lump of butter and a little rich gravy, and let them stew for ten minutes. Now beat up a little flour and a little stock or cream quite smooth, with the juice of a Lemon and a little grated nutmeg. Add this and boil up, stirring occasionally, but taking care not to break the buttons. After five minutes' further cooking try them. If quite tender, serve; if not, give them a little more cooking. We allow butter and cream in this dish as a proper complement of flavours—in other words, a proper harmony. But on the score of health we much prefer to omit them, for greasy Mushrooms are indigestible, and a very piquant dish may be made by stewing the buttons in good gravy with a little flour to thicken, a little nutmeg to flavour, and, if needful for a finish, a little Worcester sauce. Many people who have suffered through eating Mushrooms were more indebted to the grease than to the vegetables for the unpleasant consequences. Mushrooms may be baked in butter by a simple course of procedure, and the best for the purpose are the smallish lean Mushrooms that are not large enough for grilling and not fat enough for stewing. Cut off the stalks about half-way, but do not peel the tops. They must be quite clean, of course, and it will be better to rinse them round in a pan of water than to cook them with grit or vermin in them. Put them in a tin baking dish with a few good lumps of butter, and place in a hot oven for about a quarter of an hour, then sprinkle with pepper and salt, and serve in a hot dish without any other flavouring. But lemon juice or Worcester sauce may be added at discretion.

ONIONS.

Onions command esteem even from those who do not care to recognise their existence. If flesh meats bring the body into the kitchen, Onions may be said to bring in the soul, for when judiciously employed they give life to the dish that admits them. Large Onions may be melted down for a most delicate dish by simply trimming them slightly and putting them in a pot with a lump of butter and keeping on the hot plate, or half over the fire for about a couple of hours. By that time they will be melted through and ready for the table without any more cooking. A few of the outer coats being removed, the interior will be found in a state of the highest perfection, with all the proper flavour of an Onion and all its fine healthful qualities. Stewing in water or stock is a less perfect method, but will generally suit those who can condescend to eat a cooked Onion. Remove a few of the outer coats, and cook in a small quantity of water or gravy until quite tender, which may be in from one to two hours; then mix about a teaspoonful of flour with a tablespoonful of Worcester sauce, add a good lump of butter, boil up three minutes, and serve. If this is nicely managed, the Onions will be quite tender and floating in a thick and savoury gravy. If cooked in plain water, it is only necessary to drain off the water and serve. Whenever Onions are boiled to be served as a dish, only one or two of the outside coats should be removed, for if severely stripped they lose their best flavour, and with it the best of their healthful properties; but when used in stews they must be stripped freely, and the coats that are removed may be put aside for flavouring when bones are boiled down to make stock for soups. For flavouring gravies and soups the tough outsides of Onions are as good as the insides, and as they will be strained away, their toughness is of no consequence. To bake Onions remove only the outer coats, leaving the tough secondary coats to preserve the flavour; boil them in salt and water for half an hour; then drain them and wrap each in paper, which screw up tightly. Bake them thus in a brisk oven for one hour; then try them with a needle. If quite tender, serve; if not, give them another half-hour, for the time will depend upon the size of them. They may be served in their jackets with cold butter and pepper and salt, or they may be peeled and put on a hot dish and a little sauce added. This should be made with rich brown gravy, a little flavouring of Worcester sauce, and a liberal allowance of salt and pepper.

PARSNIPS.

Parsnips are often very badly cooked, so that they are, from the good housekeeping point of view, uneatable. The usual mistake of the cook is the supposition that if they are softened that is enough; but the prudent consumer of food likes a little flavour with it, for when the flavour is gone the nourishment is also gone, and it is a case of stewed sticks. It should be sufficient to say here that Parsnips should never be cut before they are cooked. They should be cooked whole in a very small quantity of water, and the cooking should result in melting, so that we have on the table a tasty heap of hot creamy pulp. Wash and scrape, but do not cut them. Put them into boiling water, just enough to cover them, and keep them boiling or simmering until perfectly tender, which will require for Parsnips of average size about one hour and a half. Manage so that in the course of cooking the water will waste away almost to nothing, so that there will really be none to pour off when the Parsnips are taken up. By thus managing the rich sugary flavour will be preserved, and the flesh will be melting, like marrow—very different indeed from the style of thing many people are accustomed to. With fish and salted meats Parsnips are appropriate, and when served as they should be, are the most wholesome food in the world.

PEAS.

Peas present a great subject, and yet there is not much to be said on the best modes of cooking them. The difference between the English and the French table is strikingly illustrated by the several systems of serving Peas. We like them in the simplest form, green, tender, and rich in their own flavour as Peas. On a French table they are preferred much flavoured with sugar or swimming in a thick gravy, or mixed in a ragout with various meats. Perhaps all the systems are good, considering the circumstances. English-grown Peas are better than any other Peas, and we can well afford to eat them in the simplest form, because there is no flavour so good as their own. It has become the practice in many households of late years to renounce the use of Mint in cooking Peas, for the simple reason that with such fine Peas as are now commonly grown in gardens Mint is an intrusion, and tends to disguise rather than enhance their proper flavour. With the first early Peas, perhaps, we must continue to employ the established adjuncts, and we will proceed to cook a dish of these. They are to be fresh gathered and not to be shelled until wanted, and when shelled they are not to be washed. We must have

a pot containing just enough boiling water to cover them, for to boil them in a large quantity of water in the way of a Cabbage or Cauliflower is a mistake. The water must be salted in the usual way, in the proportion of a dessertspoonful of salt to every quart, and there should be added the same quantity of moist sugar. There must be no soda used, for that is ruinous to young Peas. When the pot is fast boiling throw in the Peas, and keep it boiling with the lid on. You may add a few picked leaves or a bunch of Mint at discretion. If Mint is not handy you may use Savory, but on this point we give no positive directions, our business being to turn out the Peas as green as Grass and with as much of the proper flavour of Peas as possible. The use of sugar in a moderate proportion does certainly tend to maintain the true flavour of the Peas, for, like salt, it prevents the escape of their juices. But Mint is an added flavour, and it is a matter of taste whether it is used or not. For our own part we prefer to use Mint in all cases except when we have very fine late Marrow Peas, and then we think we are best off without it. By this time, perhaps, our young Peas are cooked enough, for they have been boiling fast for fully ten minutes. We take out a few and throw them on to a cold plate, and in a few seconds they are cool enough to be eaten. Yes, the Peas are done, and we pour them into a colander, and from the colander into a hot dish, and then we stir them round with a lump of butter and a slight dusting of white pepper, and send them to table instanter.

If they are not as green as Grass and rich in the flavour of Peas, we shall have to eat them, for the critics at the table will not. A poor dish of Cabbage might provoke no comments, but a poor dish of Peas must tend in the way of revolution, because everybody desires to eat them, and everybody is critical when so doing. First-class young Marrow Peas are cooked in the same way, but allowing a little longer time, and always in a smallish quantity of water, and with salt and sugar and no soda. But when the Peas are old we must alter our tactics. Then a little—very little—soda may be used, and a good sprig of Mint may be added, for we have to make the best of bad materials; it is like a case of bad wine that really needs a little bush. But the better way to use old Peas is the Continental way. Boil them carefully with salt and sugar until quite tender, then prepare a gravy with a little flour, a little good stock, a little Cock's Reading or Harvey's sauce, a little Soy, and a little patience. Boil this up, and when of a comfortable degree of thickness pour it over the Peas and serve. To vary this you may add to the gravy a little heap of young Mint chopped fine; even Parsley is allowable. Stewed Peas may be young or old, as may follow from necessity. When it is a matter of discretion, young Peas are always to be preferred. Put them into a stewpan with one or two Lettuces nicely trimmed and washed, a few young Onions, a little chopped Mint, and sufficient good stock to keep them from burning. Stew for one hour, and then add the contents of one or two eggs well beaten, a little powdered white sugar, pepper and salt, and one teaspoonful of Worcester sauce. Stir round and keep over the fire, but do not allow it to boil, and in a few minutes it will be ready.

POTATOES.

Potatoes might claim a volume to do justice to them, but we shall hope to say something that may be useful without filling a great space. Let us for a moment listen to the current complaints about Potatoes on the table. One says, "New Potatoes are pasty, and old Potatoes waxy, and Potatoes of all kinds as heavy as lead." Another says, "Hotel Potatoes are ugly, and chop-house Potatoes hideous." And yet, perhaps, if we were to sit down to dinner with the first cottager we might meet, we should find on his humble table a dish of Potatoes elegant in appearance and pleasant to eat. The cottager's wife gives her mind to the cooking, as the cottager himself gives his mind to the growing of Potatoes, and they both succeed because they are in earnest in the business. And earnestness, or call it sincerity, is all that is wanted to make almost any kind of Potato acceptable on the table. One of our leading authorities on the Potato has told how he himself cooked a few huge roots of the coarse Chardon Potato so that they were like balls of flour and delicate to eat, and only wanting in good colour, which he could not impart to them. It was sincerity that made the Chardon eatable, and a proper companion to the tender steak that was grilled while the coarse Potatoes were finishing their career in the steamer, for the steaming process is the proper final resort with any unmanageable Potato. The chops at the chop-houses are cooked as wanted, and are usually eatable; the Potatoes are cooked in large quantities, and kept hot to be served as wanted, and the world has yet to learn that Potatoes should be cooked in haste and eaten on the instant of being ready, for slow cooking and long keeping make lumps of lead of things that should be lumps of delight.

NEW POTATOES may be cooked with Mint in the same way as early Peas, and some good country cooks put new Potatoes and green Peas in the pot together and turn out a very acceptable brace of dishes like the conjuror's two sorts of wine from one bottle. But we do not advise the adoption of the duplex process. New Potatoes should be scraped or rubbed and thrown into cold water with the usual proportion of salt, and keep them boiling fast for about fifteen minutes, and then try them with a fork. When quite soft, but not overdone, pour off the water and put the pot on the hot plate or near the fire with the lid a little tilted to finish them. Or, a better way, put over them a white cloth, folded small enough to cram into the pot, put the lid on and keep them near the fire for about five minutes. Then remove the cloth, throw in a lump of butter, and sprinkle on them a very little dry salt, and shake them round two or three times, and then serve in a hot dish in which there is a hot dry white cloth in two or three thicknesses. Put on the cover and send them to table. If this procedure is fairly well carried out, the Potatoes will have a granular surface quite pleasing to the eye, and they will be delicious to eat. The slow process of cooking new Potatoes is a sure way to render them uneatable. Now we turn to the old Potatoes, which may be boiled in their jackets or peeled before boiling. The jacket system is certainly the best, but it is a great convenience to have them peeled before cooking, and it is not surprising that it has become the general custom so to treat them. They should not be got ready until quite the last moment; it is fatal to success to pare Potatoes and leave them in water for hours to soak out all the goodness; half an hour of such injurious soaking is the utmost that should be allowed. They should always be put into boiling water salted in the usual way, and should cook fast until nearly, but not quite done. This is contrary to the general practice, and it must be admitted that some Potatoes, such as Reading Hero, need rather more than the usual watchfulness when started in boiling water, but results will more than justify the increased attention. When almost cooked pour off the water and put the saucepan near the fire with the lid slightly tilted to finish them.

A careful cook will keep them standing thus for half an hour without harm, and perhaps improving all the time, so that when turned out they will be more beautiful than snowballs, cooked through without being broken, and with none of their proper flavour washed out in the cooking. They should be drained off "with the bone in," and a little judgment must be used whether to drain off the last drop or leave a little of the water to prevent burning while they stand to finish. The young cook will burn a few now and then, and she had better do that than carry the boiling to excess, so as to pour away in the form of a white soup the very best part of the Potatoes. The "melters" often give trouble, and the old Regent is perhaps the best type of the melting class. It is easy enough to cook these in the ordinary way without melting, and the main point is to pour off the water when they are about half done, leaving just a little to supply steam to finish them, keeping the lid close down until the cooking is completed, when the lid may be tilted to ensure complete drying without burning them. But melters give no trouble in the steamer, and therefore the cook who cannot make time to manage melters in one kind of pot has but to consign them to another and allow a longer time for the steaming process. There are several kinds of Potatoes that eat well, but do not look well when cooked. A little conjuring trick will help them very much to present a respectable appearance. Boil them in water with very little salt, or none at all. Pour off before they are quite done, and finish with the lid close down. When quite done, thoroughly dry, but not broken, sprinkle over them fine dry salt, and then shake them. This will cause a slight breaking of the outside, which will give them a granular appearance and make them appear whiter than they really are. Care must be taken not to load on the salt too heavily, but they will take a rather liberal allowance advantageously. It may be proper to say a word to those who have to provide Potatoes in large quantities and cannot afford the time that the cottager's wife can bestow upon her daily half-dozen. In the first place, then, secure a melter, such as the Regent, if it is convenient to steam them in their jackets; or a firm, but floury Potato, like Sutton's Magnum Bonum, if they must be sent to table out of their jackets and by the boiling process. Having cooked a certain number, your business is to keep them hot as long as possible without spoiling. They should not touch porcelain until they are put upon the table. They may remain in hot iron pots a long time with a thick white cloth over them and the lid put down without any serious deterioration, but from the moment Potatoes are put into porcelain dishes they begin to deteriorate because the steam that they give out cannot escape, and is of course again absorbed. The use of a white cloth three or four times thick is of great value, for it absorbs the moisture and so promotes the mealiness of the Potatoes. The shortest and simplest of all ways of cooking Potatoes so that they may be fit to eat consists in steaming them in their jackets.

BAKED POTATOES, always acceptable with chops and steaks, may be considered the best as regards elegance and flavour. Large Potatoes of the melting class should be selected, as these will turn out beautifully granular and with fine flavour in perfection. Wash them and put them in a moderate oven for an hour and a half, turning them occasionally. They may take two hours to cook them thoroughly, but at an hour and a half it is time to consider how they are getting on. They should be served as soon as possible after they are sufficiently cooked, each in its jacket just opening to show the snowy contents. At the dining-rooms, where baked Potatoes are served in first-rate style, the serving-man takes the Potato in his napkin and by one dexterous squeeze turns out the whole of the snowy contents into the hot plate, and there leaves the happy diner to dress it with butter, pepper, &c., at discretion. When time is an object, the Potatoes may be boiled for some time in their jackets, and when nearly done be put in a hot oven to finish. But they are better if baked from first to last.

THE ELEGANT POTATO CHIPS and fingers that are in favour on the Continent require careful preparation. One reason for their popularity with our neighbours is, that in France and Belgium the plain boiled "floury" Potato is almost unknown, for they grow bad sorts, and have not learned our simple way of cooking them. In Holland a hot mealy Potato of the English pattern may often be obtainted, and the small Potatoes grown on the sandhills are delicious. But fingers and chips favour the consumption of inferior Potatoes, just as the ragout and the *pot-au-feu* favour the consumption of poor meats. Having cut the Potatoes to the requisite size, they are slightly fried in boiling fat or butter, of which there must be plenty in the pan. They are then drained off and fried again, until they acquire a nice golden brown colour. It is the twice cooking in plenty of boiling fat that causes them to swell up like puffs, and at the same time renders them mealy and sweet within. The process favours the successive expansion and contraction of the air and moisture within the

little pieces, very little of which can escape, because the first cooking seals the outsides. In the second cooking there is a second generation of gas and vapour within each little piece, and this breaks up the cells and makes the flesh grandular, while it causes the outside to puff slightly like a delicate paste.

Cold Potatoes are generally pasty and heavy through being closely covered up in porcelain after being taken from the table. But if the cook would allow them to get cold without the cover they would retain their nice granular character, and be capable of many uses, not the least important being the preparation of a Potato salad. Slice up the Potatoes rather small, add a small proportion of minced Onion, a little shredded Lettuce or Endive, and any other saladings that may be available, with one or two hard-boiled eggs. Season with equal quantities of oil and vinegar, with very little salt and pepper, and a mere shadow of Worcester sauce. Where there are many mouths a few cold Potatoes come in usefully this way to make a wholesome and nonrishing dish that admits of almost endless variation, as materials may offer.

Mashed Potatoes are best prepared from steamed Potatoes. When quite dry and perfectly cooked, put them into a pot and beat them with a fork, adding butter, milk, and salt at discretion; stir well over, make thoroughly hot, and heap up in a hot dish, and mark them across with a fork to give an artistic finish. It is not wise to mould them or to brown them, for appearances are in this way gained at the expense of the digestion. Potatoes freshly mashed are delicate and wholesome; Potatoes moulded and browned lose their flavour, and in some degree their wholesomeness. Too much cooking is as great an evil as too many cooks.

Salsafy and Scorzonera.

Salsafy is a little troublesome, because of the tendency of the roots to become black in the course of cooking. Scrape the roots and throw them into water in which there is a little lemon juice. Do not divide the roots, but cook them whole in water containing salt, a little lemon juice, and a good lump of butter. After boiling half an hour, try them with a wooden skewer or a silver fork, but not with a steel fork. If done, drain and serve on toast with a good cream sauce. We have used with good effect the liquor from tinned oysters to prepare a sauce for Salsafy, with butter, flour, and a shadow of mace. It is no injury to the tinned oysters to take the liquor from them, because that is the only part that is of the slightest use, tinned oysters being like scraps of leather, but the liquor has a fine oyster flavour, and makes a proper harmony with Salsafy. To make imitation oyster of Salsafy, boil in the usual way and put the dish aside uncovered. When cold cut in thin slices and fry in butter to a nice golden brown colour. Serve with crisped Parsley and sauce made with butter, flour, and the liquor from tinned or fresh oysters. Scorzonera contains a certain amount of bitterness, and therefore, before cooking, it is usually scraped and steeped in water for an hour or two. It is sufficient to boil and serve them in the same way as Salsafy.

Sea Kale.

Sea Kale is easily cooked, and may be trusted to a beginner where there is some promise of unfolding talent. At the same time it is possible to spoil even Sea Kale, and it is better to eat when well cooked than when ill cooked Trim it up nicely, leaving just enough stump to each piece to hold the parts together in pretty lots, and having fairly washed them tie them in small bundles. Boil in water with salt only, no soda and no lemon juice. In about twenty minutes the cooking will be completed, but crisp Kale is not to be allowed; therefore be sure that it is cooked enough. It is not necessary to put Sea Kale on toast, although it is often served in that way. But a tureen of good white sauce is necessary, and a little of it should be poured over the Kale. This delicious vegetable makes a nice accompaniment to a stewed chop or any ragout if cut to half lengths and put in about half an hour before the cooking of the dish is completed.

Spinach.

Spinach may be said to divide the world into two factions, comprising those who love it and those who hate it. Perhaps many who hate it would come over to the other happier faction if the cooks would do their duty. It is really ludicrous to bear a happy diner say, "The Spinach was delicious, not at all gritty." As if a cook above the status of a sloven could ever send to table gritty Spinach. But this brings us to the first stage of the cooking, and that is the washing. Nice young Spinach fresh from the garden may really be cooked without washing, but the word gritty having been uttered, washing follows as a matter of form. The proper way to wash Spinach is to swing it round in two or three waters, and these should not be drained off the Spinach, but the floating Spinach should be taken out by hand and put into another clean bowl or pan, and fresh water should be poured upon it, and the swinging should be repeated. If the water is cruelly cold, add a little warm to it; this will not hurt the Spinach, and it will save the kitchenmaid the agonies that probably might explain why very often the Spinach is gritty. Pity the poor kitchenmaid, and let her have a little kind help when washing Spinach in cold weather. Being washed, the next stage is to cram it into a pot containing a small quantity of boiling water, a liberal allowance of salt and no soda. Keep it on a strong fire and frequently push it down with a wooden spoon, until after the lapse of about ten minutes you may take out a little to see if it is done.

The experienced cook knows in a moment without tasting it, but the young cook may be allowed to eat the sample and form an opinion. Perhaps another bubble may be good for it, and then it must be turned out into the colander and left for some minutes to drain. Now begins the finishing process, simple enough, but not to be trifled with. The draining must be followed by pressing, and when pressed fairly well it may be put in a hot dish and be chopped over with a liberal allowance of butter and pepper, and finally cut across into smallish portions, and so sent to table green and fragrant and as hot as fire. But there is another method, which consists in putting the chopped and pressed Spinach into a stewpan with butter and pepper and putting this over the fire and stirring it until quite hot and comparatively dry, and then serving in a hot dish with delicate sippets of hot buttered toast for garnishing. Spinach is usually flavoured with nutmeg on the Continent, and it is sometimes served with cream. This is a simple business. It is boiled and chopped in the usual way, and is then put in a stewpan with butter and cream and a little nutmeg and powdered sugar. It is prudent to boil the cream first, but it is not always necessary. Stir well about, and serve on a hot dish with sippets of buttered toast.

Perpetual Spinach is cooked in the same way as common Spinach, but requires more water and a few minutes' more boiling. It should always be buttered and chopped over when dished, as it is not so delightfully sooty in flavour as the common Spinach. It is, however, an excellent vegetable and comes in at times when proper Spinach cannot be had.

Tomatoes.

Tomatoes are as yet in the infancy of their fame, but they are fast advancing, and the time is near when they will be universally grown and appreciated. Of their wholesomeness and refreshing flavour we will say nothing, but proceed at once to the cooking. The simplest way of cooking, and one fast coming into favour, is to put them on a grill, where, over a clear fire, they are perfectly cooked in ten minutes. Served with a chop, or steak, or sweetbread, they supersede all sauces and flavourings, and make a perfect harmony with any kind of meat. Another simple mode of cooking them is to put a few in a small iron pot with a lump of butter, and keep this on the hot plate or near the fire for about half-an-hour. They are then served just as they are taken out of the pot, in their own gravy, and are a proper accompaniment to any roasted joint or to poultry. Another process consists in opening the fruit and removing the seeds, and filling the interior with bread-crumbs and minced Onions, with a very little red pepper. Lay them in a dish with a little butter, and bake in a brisk oven for ten minutes, and then serve.

Tomato sauce is prepared by boiling Tomatoes with about a twentieth part of their weight of Shallots, half that proportion of Garlic, a good lump of sugar, a little vinegar, and one or two Capsicums, or, in the absence of them, a small quantity of red pepper; a very little sauce may then be added, but this condiment is not really wanted. Boil down, strain through a tammy, and bottle when cold. Small bottles should always be used, because when one is open the contents should be used quickly, or it will become mouldy and have to be wasted. Tomato soup is a fine delicacy, and requires careful preparation. Have a good stock to begin with. In this boil the Tomatoes with a smallish allowance of minced Onion, scraped Carrot, and sliced Turnip, taking care the Tomatoes largely predominate. While the boiling proceeds, mix with a little flour a small allowance of vinegar, Worcester sauce, sugar, and red pepper; beat smooth, and add to the soup. Stir to prevent burning; about twenty minutes' cooking is enough. Strain off the soup, which should be rich with the colour and flavour of Tomatoes, and thick enough to be pleasantly smooth. If the vegetables are somewhat pulpy when the soup is strained from them, put them on again with a little more stock and boil them for five minutes, and then strain and add to the soup. The vegetables will now be worthless, and may be thrown away. Stock made from veal, beef, or mutton will answer well for this soup, but a good beef stock of a golden brown colour is to be preferred. Stock made from remains of game or poultry is unsuitable, for the flavour will be perceptible in the soup. Tomato soup is thought much of by epicures, and the cook who takes a real pride in cooking will spare no pains to prepare it in a creditable manner. Tomatoes harmonise so well with Onions, that those who have a taste for the combination will be certain to think highly of the following preparation as a salad. Cut a Spanish or Tripoli Onion into thin slices and place a layer at the bottom of a bowl or dish; cover with slices of Tomato, and repeat the process in alternate layers until a sufficient quantity is prepared. Add two dessertspoonfuls of oil to one of vinegar, with pepper and a liberal allowance of salt. The salad should be ready an hour before it is required on the table.

Turnips.

Turnips may be cooked without first being pared, and Kohl Rabi may be cooked in the same way; but before going to table the outsides must be taken off carefully; then they should be moderately—and only moderately—pressed, and either rubbed over with butter or covered with white sauce. By this mode of procedure elegant young Turnips or Kohl Rabi make a delicious dish, as they have much more flavour than when pared before cooking. The usual way is to pare them and then divide them into four parts, but we protest against it as part of the washing-out system that so prevails in English cookery. If you pare them according to custom, do not follow the custom of dividing them, but cook them whole, and if they are smallish and pretty it will be well to serve them whole, taking care to press them very little, or you will destroy the flavour. Young Turnips require only about twenty minutes' fast boiling in water containing the usual proportion of salt, but old Turnips will take from half an hour to an hour and more. It is easy to know when they are done by simply trying them with a fork. Mashed Turnips are much in request, and form an elegant accompaniment to mutton or pork. Boil in the usual way, then, having drained them, press them with a wooden presser or the back of a plate, but with care, so as not to press them very dry. Beat them with a wooden spoon through a colander, and put them into a pot with butter, white pepper, and a little salt. If cream is at hand use a little. Make them very hot, and serve nicely heaped up on a dish. Young Turnips

may be beaten up with a fork in a hot vegetable dish and a little butter beaten up with them, and if done quickly, they will still be hot enough to send to table, and the trouble is much less.

VEGETABLE MARROWS.

Vegetable Marrows are often cooked too much and pressed too dry, and the consequence is that much of their rich, but delicate flavour is lost. Another weak point is using them too old, for they can hardly be too young if fairly well grown. When quite young, cook them whole with the rind on, and you may reckon a quarter of an hour of fast boiling sufficient. Then take them out and let them drain, and press them slightly. Cut them open and take out the seeds, and, if needful, remove the rind also, but this is really not needful with very young Marrows. It is of great importance not to cook them too much; in fact, they may be a little underdone to the advantage of flavour and no disadvantage to the digestion. Large Marrows must be pared and cut through, and the seeds removed before cooking, but they should be cooked in as large pieces as convenient, for the smaller they are cut the smaller will be their flavour. In all cases they should be put in boiling water with the usual allowance of salt, and should be kept cooking until tender. When taken up they should be allowed some time to drain, and then be carefully, but not severely, pressed. Cut them smaller, if needful, for the table, and send up with raw butter or a tureen of good melted butter. If to be mashed, proceed as advised for Turnips, but they need not be beaten through a colander, for they are never fibrous as old Turnips are. Very small delicate Marrows should be served on toast, but this is not advisable with large ones. Marrows make a good dish if boiled until about half done, then drained and cut into smallish pieces. Dip these in egg and bread crumbs and fry in hot fat or butter to a nice golden brown colour. Very young Marrows may be sliced raw, the seeds need not be removed, and if brushed with egg and dusted with crumbs, and fried, will be found delicious, and quite sufficiently cooked. Ripe Marrows may be cut for soups as required, in which case the rind and the seeds must be removed, and the slices put in the soup about half an hour before the dish is to be served. When once a Marrow is cut, the whole of it should be eaten as soon as possible, or mildew will make a quick end of it.

ORCHIDS.

ORCHID HOUSE TEMPERATURES.

INFORMATION has been asked for in reference to this subject. During the whole of my experience as a head gardener I may, however, say that I have never laid down a hard and fast line, as regards temperatures, to the young men under me, and the reason of this may be made apparent in the following remarks:—

The East Indian Orchid house is the first on the list. For our purpose it will be best to begin with January. Early in that month the occupants of the house are at rest, or comparatively so. Some of them, such as the Angræcums, are in flower, and they will be starting to make roots. If the weather is mild, the temperature should be about 65° at night; but in cold, frosty weather, rather than overheat the pipes, it would be better to let it fall to 60°, or even a degree or two below that. Our best Orchid growers, too, keep the atmosphere considerably drier during winter than at any other time. With a dry atmosphere the chances of injury to the plants from a comparatively low temperature are greatly reduced. It is the different atmospheric conditions maintained by different cultivators that make it so difficult to advise in the matter of temperatures. February may be much the same as January as regards temperature and atmospheric conditions. As the day lengthens the old saying frequently comes true that the cold strengthens. Towards the end of the month more water may be sprinkled about whenever there is a chance to raise the temperature by sun-heat. In March the conditions alter considerably. The sun has a powerful effect on the glass, and the temperature in the afternoon may rise to 80° or more by sun-heat, and most of the plants will wake up into active life. This is indicated more by root growth than by any alteration in the appearance of the plants. The evaporating troughs, which ought to have been empty up to the end of February, should now be filled; the stages and paths should be damped in the morning, and also in the afternoon, and the temperature should be kept at 65°. In April let the house be damped three times a day in dry, sunshiny weather, and the temperature should not be less than 65°. In May the plants will be in full growth, and the point to observe is to see that they receive no check. The atmosphere should be continuously moist, and the temperature, which might fall to 65° before morning, would probably range as high as 70° at ten p.m. In June and July maintain the same conditions as in May and the same temperatures. The plants will still be growing freely. The temperature may frequently be 90° when the house is shut up, and the hot-water pipes will seldom need to be more than just feel warm to the hand during June and July and the following month of August. A traveller, on entering our warmest house when it was shut up in the afternoon of a fine summer day, exclaimed, "This is exactly Bengal during the rains." The atmosphere was laden with moisture, and the temperature 90°, owing to the sun shining on the glass. In September the plants will have made their season's growth, and towards the end of the month less moisture will be required; it is best not to shade the plants more than may be absolutely necessary in order to prevent injury from the sun. Orchids have suffered from over-shading, and some cultivators aware of this rush to the opposite extreme. There is, however, a middle course, which is better, especially in the case of the warmest house, and that is to shade whenever the plants are exposed to the direct rays of the sun, between eight in the morning and four and five in the afternoon. October is frequently a cold month, and to keep up the temperature to 65° at night requires the hot-water pipes to be kept pretty warm; the atmosphere of the house should also be kept rather drier than hitherto. November and December will be quite a season of rest, and 60° will be better than 65°. We have had the temperature occasionally down to 55°, but this ought to be quite the lowest point to which it ought to fall.

A house set apart for Dendrobiums should be treated much in the same way as that for Cattleyas from January until the largest proportion of them have passed out of flower in June. They like an East India house temperature while making their growth. Some Dendrobiums, such as D. infundibulum of the nigro-hirsute section, do well under cool house temperature, while others, such as D. formosum belonging to the same group, do best in the warmest house. Again, we have the Indian Orchids, D. Wardianum, D. crassinode, D. Falconeri, &c., which grow best in the warmest house, and rest in a greenhouse temperature in winter. The good old D. nobile does best with the same treatment.

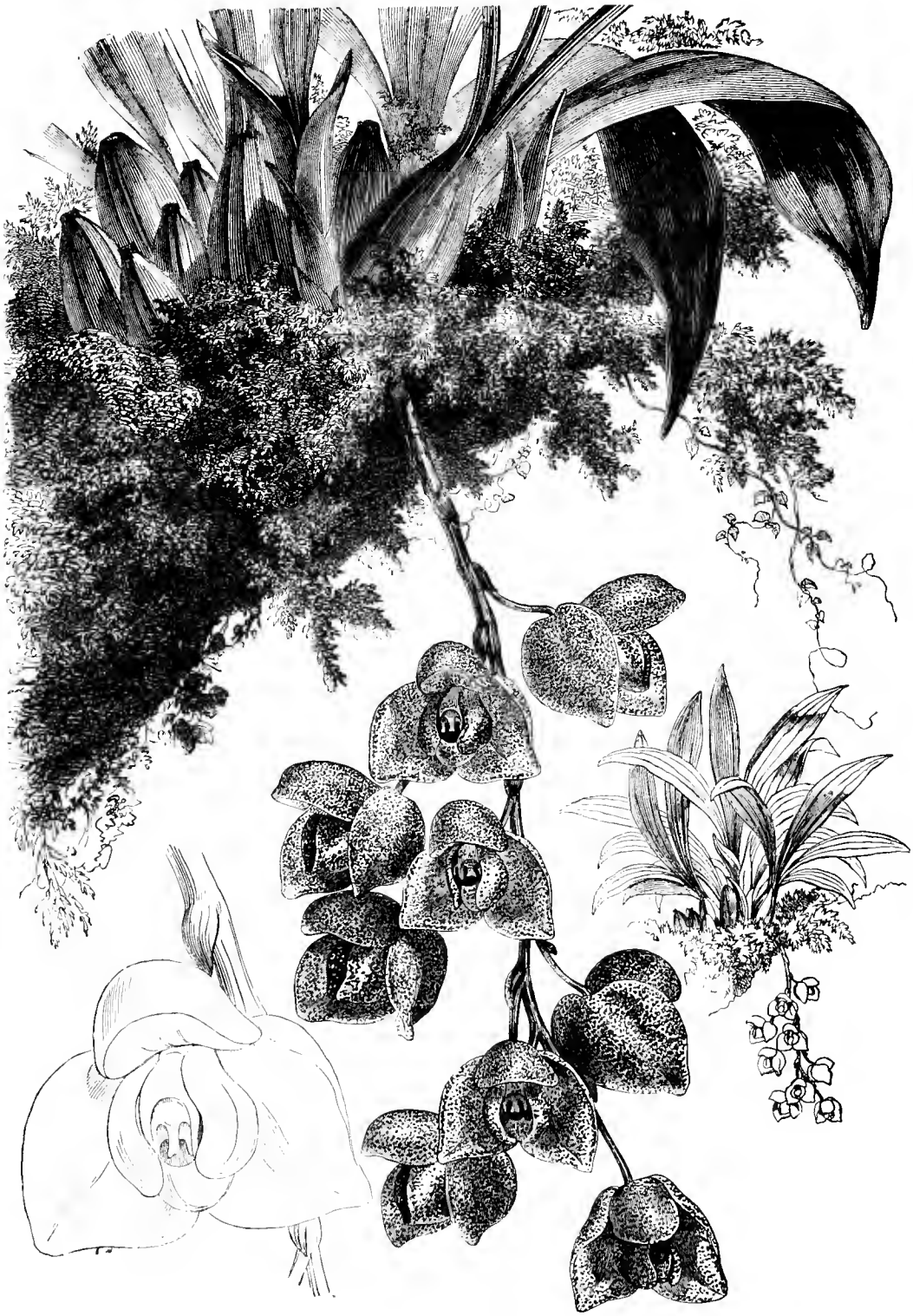
CATTLEYA HOUSE.—In this house the temperatures should range about 10° lower than that of the warmest house all through the year. In winter the atmosphere of this house may be drier in proportion than that of either of the two others. It is well known that all Cattleyas will not succeed in the lowest temperature; therefore one intermediate between the two is better for most of the Brazilian species, such as Lælia purpurata, L. elegans, and some others, while C. Schilleriana and C. superba do best suspended near the roof at the cool end of the warmest house. C. Dowiana and C. gigas may also be treated to the warmest temperature while growing, though they may be allowed to rest in the company of C. Mossiæ in the cool Cattleya house. The temperature of the cool house we generally keep 10° below that of the Cattleyas, which brings the minimum down to 45°; below this it is not safe to let it drop. It does not seem good management to let the temperature of a house fall as low as possible, or in other words down to a point beyond which injury would be the result. As we increase the number of species and varieties in our houses, it becomes more difficult to get a temperature to suit them all. The pretty and sweetly-perfumed Odontoglossum cirrhosum ought to have at least 5° more heat than O. Alexandræ, O. Pescatorei, and others. Most of the Masdevallias like 5° higher temperature, and I find it the same all through our Orchid management. We require a temperature between 55° and 65° for the warmer Cattleyas, and one between 45° and 55° for the Masdevallias and the Odontoglossums, that like the warmer temperature. Very few persons can have so many houses or even divisions, but much may be done by keeping the house a little warmer atone end than the other.

The stove for specimen plants, of which Ixoras are the most familiar examples, requires the same temperature as for the East Indian Orchids. It is useless trying to grow Ixoras in a lower temperature. Many of the most showy foliage plants and Palms adapted for exhibition require the same treatment. There are some which would do as well or perhaps better in a temperature 10° lower, but there is this to be said in favour of the highest temperature for stove plants—that plants which succeed in a minimum temperature of 55° will do equally well in one 10° higher; while those that prefer the higher figure will not do any good in the lower temperature. J. DOUGLAS.

ORCHIDS AT SUDBURY HOUSE.

IT would be a difficult matter for anyone to attempt to describe the present appearance of the Orchid houses in Mr. Peacock's garden at Sudbury House, Hammersmith, so as to convey an adequate impression of the wealth of flower beauty which they contain. We have never before seen such an array of Orchid bloom in a private garden as there is here. In each of the houses, which number over thirty, there are blossoms in abundance, all more or less interesting and showy, but in the Odontoglossum houses there is a concentration of bloom, which renders them strikingly gay in appearance. Some half-dozen capacious houses are wholly devoted to Odontoglossums, which when seen *en masse* are the admiration of everybody.

ODONTOGLOSSUM VEXILLARIUM is at present the glory of the collection, inasmuch as the hundreds of specimens which represent it are in the height of perfection. We have seen this Orchid grown under diverse conditions and in many places both in town and country, but never so luxuriant and vigorous or bearing such a profuse crop of bloom as the plants now under notice. There are several recipes for cultivating this Orchid, but we should choose that adopted by Mr. Vicary, viz., growing it moderately cool and moist, and not too much exposed. Some, through giving it too much heat, are troubled with insect pests; others adopt an opposite course, and grow it along with the rest of the genus in a cool temperature, the result being an unmatured, sappy growth, as a rule too weak to develop a good crop of bloom, although at the same time the foliage may have the appearance of luxuriant health. The O. vexillarium house here is a long narrow structure facing almost due east; consequently it does not get a maximum amount of sunlight. These primary conditions conduce to a successful result, though it must be admitted that little details are equally important, and none so much so as watering judiciously and maintaining the plants in a perfectly clean state, for of all Orchids this Odontoglossum is one of the most liable to insect attacks, particularly of that pest of the Orchid house—thrips. We believe that the plan which Mr. Vicary adopts in order to maintain his vexillariums free from this pest is dipping the plants bodily in a solution of tobacco juice—a much better way than fumigating. Of course this cannot be practised when the plants are in bloom, but then they are so entirely free from insects in all shapes and forms before flowering, that there is little need of having recourse to antidotes during the month or so when their bloom is at its height. The appearance of this houseful of Odontoglossum



ACINETA HUMBOLDTI NOW IN FLOWER AT SUDBURY HOUSE, HAMMERSMITH.

vexillarium is captivating in the extreme, elegance of habit being combined with splendour and delicacy of colouring in an unusually well marked degree. There must be hundreds of spikes fully expanded and a number of buds remain yet to unfold. Some of the specimens measure fully 2 feet through and are carrying from a dozen to a score of spikes, some with as many as a dozen flowers on each spike. In such a gathering as this there are of course a great diversity of tints represented even in a species not apt to sport much. Here one may pick out some almost pure white and every intermediate shade between that and glowing purple-rose, the colour of the autumn-flowering variety Lehmanni, but of course with flowers twice or thrice the size. One of the deepest forms here, a lovely variety, is named sudburyensis, being supposed to have first flowered in this garden. There is another which appears to be identical with that which was sold for a high figure at Stevens' some time ago, and which is well worth a distinctive name. Yet another we singled out as very remarkable, a gem amongst gems. It is in the way of bicolor, the lip being very light and the sepals deep rose, but the centre is intense rose-purple, almost a magenta in fact. There is also a variation as regards size, but we are inclined to regard this as the result of the individual strength of the plants rather than characteristic of a permanent variety. A flower of it which we measured was 4½ inches across and of good substance, though the colour was not remarkable. It is to be regretted that such a grand display as these O. vexillariums make could not be seen at our flower shows. Mr. Peacock has come to the determination not to exhibit any more while the present malpractice of bedding out Orchids and palming them off as specimen plants exists — a practice as reprehensible as it is common.

ODONTOGLOSSUM ALEXANDRÆ.—Leaving the Odontoglossum vexillarium house, we come upon another equally interesting, viz., that devoted chiefly to O. Alexandræ, a species grown here very largely. Taking the whole of the houses containing this species, there must be thousands of spikes, and although they do not appear in such a dense thicket-like mass as the vexillariums, they nevertheless make a charming display. Mr. Peacock specially prides himself in his grand varieties of O. Alexandræ, and well he may, for some now in bloom are among the finest that have yet been flowered in this country. It is useless attempting to describe them, being very diverse both in form and marking, but there are one or two that we specially noted; one had flowers about 4 inches across, with broad and overlapping sepals, similar to those of a Pansy. The outer three were heavily spotted with chestnut-brown on a white ground, while the lateral sepals were spotless and flushed with rose. We should class it as one of the guttatum set of varieties. There are numbers of the rosy purple varieties in flower, and these, interspersed with the white ones, produce a grand effect. Besides these rosy-tinted forms there are some quite spotless, which form a group of themselves, and which may be termed the virginale group. These are very rare, as they so seldom crop up, even in collections containing thousands of imported plants. Intermingled with the Alexandræs are the Pescatorei varieties and innumerable hybrids, the inevitable accompaniment of large gatherings of O. Alexandræ. We have seen the Sudbury House collection more richly represented by flowering specimens of these than it is at present, though even now may be found some admirable forms of O. Andersonianum, Ruckerianum, Coradinei, and others. Besides these allies of O. Alexandræ, other species of Odontoglossum contribute to the display, and among these none are lovelier than O. citrosmum. A group of these occupies one of the houses in which a warmer temperature is maintained than that of the Alexandræ houses. All the forms of this lovely species, we imagine, is represented from the pure white to the deep rose-purple kind, which is regarded as the true rosenm, while some have two-coloured flowers in which the sepals are of ivory whiteness and the lips rose-pink. The delicious perfume emitted from the citrosmums pervades the whole house. What charming plants these are to have in a room while in flower, and, what is more, they do not suffer in the least from being a week or so in a drawing-room at this time of the year, provided there is no fire or gas!

ANOTHER ODONTOGLOSSUM of which there is a remarkable display is O. cordatum, which is generally considered to be not a very attractive Orchid, though when seen in various forms it is really so. Besides the usual form, there is the extremely rare variety aureum in flower; this has flowers of citron-yellow variegated with white, while, in direct contrast to it, is the superbum variety, which is the deepest coloured of all the flowers, being of a dark chestnut-brown mottled with white. This dark variety is the same as that possessed by Dr. Paterson and Baron Schroeder, and it is doubtful if any other plants of it exist in gardens besides these. O. Uro-Skinneri is still in full bloom, having been flowering for the past two months. When represented by a large and highly-coloured variety, like that existing here, it is really a superb Orchid. O. maculatum Donnianum, of which flowers were sent to us a few weeks ago from this collection, is a remarkable variety, with larger and much more richly coloured flowers than ordinary. Of the rare O. polyxanthum there is a plant with a spike carrying eleven flowers. Before leaving the Odontoglossum houses we should mention that flat rafts for growing such as O. Rossi majus and similar species upon are entirely done away with, and boat-shaped baskets, made of strips of Teak, substituted. This change has been effected after repeated experiments, the result of which was that the plants were found to succeed much better on the baskets, probably because more compost could be placed round the plants, thereby maintaining them in a more uniform state of moisture. This change must have been a considerable expense, seeing that there were between one and two thousand rafts in the various houses. Mr. Peacock is sanguine that this substitution of baskets for blocks and rafts will conduce to the health and vigour of the plants, and promote their productiveness of bloom. One of the chief Orchids grown in these boat-shaped baskets is Odontoglossum Rossi majus, of which there are huge masses suspended against a moist wall of one of the Alexandræ houses facing east.

THE MEXICAN MAYFLOWER (Lælia majalis).—Of this lovely Orchid there are no fewer than between two and three dozen flowers and buds upon the plants in this collection, which are alone worth a long journey to see, especially having regard to the fact that this Lælia is so seldom seen in flower. Here Mr. Vicary is particularly successful with it, and has without doubt found out its requirements. The plants, about 200 in all, are for the most part grown on suspended blocks of wood close beneath the roof of a Camellia house, and fully exposed throughout the year, not a particle of shading being given. This no doubt is the secret of success, for it is generally considered that too much shade is given as a rule to Mexican Orchids, which for the most part require all the light that we can give them. Plenty of water is given to the plants by syringing in summer and while the plants are in active growth, but in winter they are kept quite dry, and this no doubt tends to thoroughly ripen the growths. Abundance of ventilation is given to the house at this season both from above and below. Much the same treatment is given to Lælia autumnalis, except that all the plants are grown in pots, and similar treatment would no doubt apply to L. furfuracea and other Læliss of a like character. Other Lælias and Cattleyas in flower include the usual kinds that bloom at this season, such as L. purpurata and its white variety, C. Mossiæ, and C. Mendeli (which, however, are on the wane). The little C. Aclandiæ, not common in flower, is grown successfully on flat horizontally hung rafts in the same house as the new C. nobilior, of which Mr. Peacock holds, we imagine, the largest stock in this country. In the same house, too, were some flowering specimens of

ACINETA HUMBOLDTI, a noble Orchid, not often seen in flower and of which the accompanying engraving is a good representation. It is without doubt the finest of the genus, and no good collection of Orchids can be complete without it. When large and well-grown its pendulous racemes are often as much as 2 feet in length, and the large red-spotted flowers strongly remind one of those of a Stanhopea, which it also resembles in growth. Mr. Peacock has two plants in flower. They are growing in suspended baskets, and the drooping flower-spikes are produced from the bases of the plants. Altogether, the plants have a singular appearance, and the aromatic fragrance of the flowers quite scents the house. It is grown in an intermediate house with other Orchids from Tropical South America, but to grow it successfully it requires more heat than such as the Angnloas, also denizens of the Colombian forests The bold-looking Anguloa Clowesi, with flowers like huge yellow Tulips, is flowering profusely in an intermediate house, and still more noteworthy is A. Ruckeri, with its large Tulip-like flowers, interiorly coloured with deep crimson. Other flowering Orchids that would interest the visitor here would be Nanodes Medusæ, with its singularly fringed flowers of a vinous purple; Dendrobium cariniferum, D. Dearei, Cypripedium Stonei, Oncidium phymatochilum, O. cucullatum of various forms. Brassia verrucosa, a grand specimen over a yard through and carrying a score of spikes with as many as a dozen flowers on a spike; Cypripedium caudatum roseum, and others. Then there are a host of tiny Masdevallias in bloom besides the more showy kinds, some of which are represented by specimens bearing sheaves of blossoms, and in the Phalænopsis house there is upwards of a hundred spikes of P. grandiflora, including the now extremely rare and beautiful aurea variety, which has nearly the whole of the lip coloured with golden yellow.

Pruned Orchids at Manchester.—Two specimens of Dendrobiums in the prize collections at the late Manchester Show were pruned plants, and it may interest those who have been asking for examples of this kind to hear of the fact. One plant was a Dendrobium Freemani—the finest in the show—with about a dozen bulbs beautifully flowered. There were no old bulbs upon it, but only those in flower and a few of last year's, but not many and of less size. I counted fourteen or fifteen stumps of old bulbs that had been pruned away last year and previous years. The plant was shown by Mr. Jos. Broome. In the collection next to it was a magnificent specimen of Dendrobium nobile intermedium, about 2½ feet in diameter, the most floriferous example of any Dendrobium in the show, and the oldest bulbs upon it were those in flower. I drew the attention to it of one of the nurserymen who were exhibiting Orchids in the same tent, also the reporter to one of your contemporaries, and we all examined the two plants critically, and agreed as to their fine condition and appearance.—J. S. W.

Masdevallia racemosa Crossi.—The flowering of this new and extraordinary Masdevallia undoubtedly marks a red-letter day in the orchidist's annual, inasmuch as the beauty of dried specimens induced growers to look forward to the sight of fresh flowers with unusual interest. The credit of first flowering this plant is due to Mr. Fellowes, Churchfield, West Bromwich, who exhibited it last week before the Royal Horticultural Society, through Messrs. Shuttleworth & Carder—the fortunate importers of it. True, the plant that Mr. Fellowes showed was a small one, carrying but one expanded flower and a bud, but these amply sufficed to show that the glowing descriptions which the introducers had given of it were not exaggerated. The colour of the flowers indeed, glowing orange-scarlet, was brighter in the plant exhibited than many anticipated it would be. The remarkably floriferous character of this species, too, was indicated, as there were two flowers and the rudiments of others on the spike. This specimen was of course but an imperfect

example of what this Masdevallia may be expected to be in course of time, and we have no hesitation in predicting that it will become more sought after than any other, particularly as it is probable that it will never be imported in quantity. The number of living plants of it in Europe at the present time is but limited, although several attempts have been made to import it in bulk. Side by side with Mr. Fellowes' plant at South Kensington were some dried specimens of it exhibited by Messrs. Shuttleworth & Carder in order to show how freely it flowers. On some of the spikes there were no fewer than twenty-two blossoms, each about the size of an ordinary flower of M. ignea. These dried specimens speak for themselves, and no doubt in a few years we shall see plants exhibited with as many, or perhaps more, flowers on a spike than these dried specimens showed. In habit, the plant seems to be more stoloniferous than most of the cultivated species, and though slender in growth it does not appear by any means to possess a weakly constitution. Now that one plant has flowered we shall probably soon hear of others, for there are some in the country twice or thrice the size of Mr. Fellowes' plant.

Masdevallias.—I send you a few Masdevallia flowers; those of M. Harryana are all from plants imported in 1880, and I consider them very good for the second time of flowering. The varieties sent are of various shades of purple and red. We have at the present time over 1200 Masdevallia flowers open, which, together with some 200 spikes of Odontoglossum vexillarium, make a fine display. I also send flowers of M. ignea gigantea and M. militaris, and I should like to know the difference between them.—A. MACGREGOR, *Brittargh Holt.*

*** Very fine blooms indeed, as large as we have ever seen of M. Harryana, and extremely rich and brilliant in colour. M. ignea gigantea and M. militaris are both attractive kinds, but they are so nearly alike that, for practical purposes, they may be considered identical. The only difference we could detect in the flowers sent was that of the linear markings on the sepals, which, in the flower labelled M. militaris, were somewhat more purple than those of M. ignea gigantea. M Chelsoni, the hybrid between M. amabilis and Veitchi, was also a fine flower, large and highly coloured.— ED.

Dendrobium Parishi.—Those who wish to cultivate only a choice selection of Orchids should always include this Dendrobe, which is the loveliest of its race. The colour of its flowers and their delicious fragrance render it admired by everyone. It is not a large-flowered species, the blossoms being only 1½ inches across. They are, however, delicately transparent, and of a rosy purple of various shades. We have never admired this little Dendrobe so much as in the case of a well-grown plant of it which we saw the other day in Mr. Soper's garden in the Clapham Road. It consisted of about a score of bulbs, was in a suspended basket, and as half the number of stems were furnished with flowers, it formed quite a little picture, the pleasing colour of the flowers being intensified by that tender green of the young growths, which mingled with the flowering stems in a charming way. Mr. Soper grows this Dendrobe very successfully in a rather hot and moist stove along with numerous other East Indian Orchids and Cattleyas, some of which, notably C. Mossiæ, made a grand display.

Judging Calceolarias at the Crystal Palace Show.—The awards for Calceolarias made at this show astonished everybody, and it would be interesting if the judges would vouchsafe some information regarding them. The first prize was awarded to some huge plants, possessing, in the opinion of competent judges, none of those points that characterise a perfect flower, and it was generally assumed that the judges had been misled by the size of the plants. If, however, this was the case, the award of the third prize to the smallest plants in the competition was an anomaly. I heard it stated that one of the judges assisted in staging the first prize plants. I do not, however, for one moment insinuate that anything unfair arose out of that fact, but at the same time I cannot help thinking that some error of judgment must have been made in the selection of adjudicators if such was the case, and I am rather surprised that a judge should have officiated in such a matter.—TRUTH.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

Scientific committee.—The following were the chief matters of interest discussed at the meeting of this committee last week:—

Aucubas "ringed."—Dr. Masters also exhibited specimens of Aucuba branches: (1) Wholly deprived of bark for about 1½ inch. In this a considerable callus had formed on the upper edge. (2) Bark removed in two strips with a ligature across it. In this case the wound gradually healed, enclosing the cord, but produced no thickening above it. (3) Bark just scraped, with ligature as before. The bark on one side died down to the wood, and produced a callus above the string, but not on the other. (4) Bark entirely removed and bound with wet Moss. Roots were produced from the upper edge, but being neglected and allowed to dry, the whole branch died both above and below the wound.

Lepidium seedlings attacked by Pythium De Barryi.—Mr. Smith described some experiments in which he planted some seeds in ordinary soil and others in boiled soils under a bell-glass. Both came up badly attacked. Seeds steeped in solution of 1 per cent. carbolic acid were shown; some died, and but very few were attacked by the disease. This was thought to show that the spores were adherent to the testa, and not in the environing media; but as they were watered with ordinary and not boiled or distilled water, it was suggested that the watering might have brought the spores. It was further suggested that the experiment should be repeated with that precaution.

Double Daffodils.—Professor M. Foster moved that a sub-committee should be formed, consisting of Dr. Masters, Mr. Baker, the Hon. and Rev. Boscawen, Mr. W. Dod, Mr. P. Barr, and Professor Foster, with power to add to their number, to report on the influences of soil and situation and other conditions causing changes from single to double Daffodils, and *vice versâ*, and that the council be requested to give such facilities in the Chiswick Gardens as may be desirable to enable the sub-committee to carry out the necessary investigations.

MANCHESTER WHITSUNTIDE SHOW.

MAY 30 TO JUNE 6.

THE great annual flower festival, now become an institution at Manchester during Whitsun week, has again been amply successful. Those who have visited these shows for the past seventeen years in this great northern centre of horticulture agree that this exhibition was more extensive and finer in every respect than its predecessors; indeed, one of the judges went so far as to say that a finer exhibition has not been held in Great Britain. It took place, as usual, in the botanical gardens at Old Trafford, under the superintendence of Mr. Bruce Findlay. Besides the capacious new exhibition hall, there were huge marquees all filled to overflowing with exhibits. In the main exhibition hall were the *élite* of the exhibits—the Orchids, fine foliage plants, Ferns, and the like—all arranged with admirable taste by Mr. Findlay. Then a spacious tent was occupied by pot Roses from Slough and Cheshunt, magnificent specimens of Clematises from Worcester, Rhododendrons from Bagshot, Pelargoniums from Slough, and other groups of brilliant plants. Other tents were set apart for the display of smaller plants, fruit, vegetables, and similar produce. The Orchids are always a great feature at this Whit show, and upwards of £100 were offered in prizes for them. In each of the classes Mr. Percival, of Birkdale, Southport, was unapproachable, all his specimens being grand examples not only of skilful culture, but of uncommonly fine varieties; Mr. Percival's Cattleya Mendeli and Lælia purpurata were the admiration of everyone. Some other superb Orchids were shown, but none was so remarkable as a specimen of Vanda teres. This was some 5 feet in height, and carried no fewer than sixty flowers—a very unusual number on one plant. The huge specimen stove and greenhouse plants and the fine-foliaged plants always exhibited so finely here were again one of the principal features of the show, and no less remarkable were the groups of miscellaneous plants, which we thought were finer than we have seen them here for some years past. There was, however, a falling off as regards new plants, there being but three collections, and these contained nothing but what had been seen at London exhibitions. Hardy plants are invariably shown better here than they are at London shows, and there was no deterioration in the exhibits here this year, both in the amateurs' and nurserymen's classes. This being the best time of the year to show hardy plants, the exhibitors were able to make quite an attractive display among themselves, and great interest was taken in it by the visitors. There was a fair show of fruit, the chief exhibitors being Lord Carington's and Sir Joseph Pease's gardeners.

The annual prizes offered by Mr. Robinson for English-grown Asparagus were also competed for on this occasion. There was a good competition and a marked advance as regards the quality of the produce. The best bunches of eighty and fifty heads came from Lord Carington's gardener, Mr. Miles, who showed such excellent Asparagus at the last South Kensington exhibition. The heads were as fine as could be wished, long, stout, and well blanched. A full list of the prize-takers at this show is given in our advertising columns.

Seedling Pansies (*W. E. Hartland*).—A very fine selection; blooms large and colours rich and varied.

The collection of alpine plants belonging to the late Mr Atkins, of Painswick, has, we hear, been bought by Mr. Geo Paul, of Cheshunt.

Monstrous Cowslip (*G. L. Drummond*).—A remarkable instance of fasciation of the stem of a Cowslip, but it is doubtful if the enlarged stems will become fixed or permanent in the case of your seedling.

Pyrethrums and Pæonies.—Messrs. Kelway, of Langport, propose making a large display of double and single Pyrethrums and Pæonies at the meeting at South Kensington on June 10, and they will remain on view for a fortnight.

The Inner Temple Gardens were opened to the public on Monday last, and will continue open during June, July, and August, from six till nine o'clock every evening. Thousands of children take advantage of this opportunity, kindly granted by the Benchers, to gambol healthfully on the open lawn. What a boon it would be were the gardens in Lincoln's Inn Fields also open under similar conditions to the children in their neighbourhood!

Diseased leaves (*Subscriber*).—The leaves of your Tabernæmontana are covered with the little sticky sporangia or spore cases of the fungus named Filobolus crystallinus. The small fungus often grows in great profusion on the surface of earth, manure, sawdust, &c., and when mature it elastically projects its glutinous little spore cases into the air. The Apocynaceæ are unusually free from the attacks of fungi. Your plants are probably suffering from some defect in culture.—W. G. S.

Names of plants.—*Subscriber (Cork).*—1, Cheiranthus alpinus; 2, Veronica Teucrium.——*Anon.*—1, Linaria Cymbalaria; 2, Saxifraga rotundifolia; 3, Pyrus vestita; 4, Mespilus germanica.——*Sigma.*—Appears to be Planera Richardi, but should like to see flowers or fruits before definitely naming the tree.——*K. A. S.*—1, Iris virginica; 2, Muscari comosum. We cannot name the varieties of Lilac.——*S. A.*—Next week.——*A. R. Hunt.*—1, Gongora bufonia var.; 2, Brassiaur anigera.——*A. P. H.*—Lonicera Ledebouri.——*W. B.*—Lycaste gigantea; Stanhopea tigrina or sulcata, but too much damaged to name definitely. The Epidendrum was also bruised and discoloured. The box was not half large enough.——*Mrs. B. G.*—The Centaurea you describe is probably C. macrocephala. If you will send us a flower and leaf we will name it correctly for you.——*Tahiti* and *T. W. O.*—Next week.——*W. A. Tillett.*—Iris florentina is the white flower you send. The large mauve-coloured one is I. pallida. The names of the others next week.

No. 656. SATURDAY, June 14, 1884. Vol XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

EARTHENWARE RINGS FOR BULBS.

LIKE many other amateurs, I am fond of growing bulbous plants, but, owing to the fact that I have limited space, and must needs grow them in mixed borders, and that when grown there their exact whereabouts often gets forgotten, and in the moving of other plants and the necessary work of the border the clumps get "dug" in half and the bulbs scattered over the border, producing a most untidy effect, and that some bulbs like the Tritonias have a disposition to wander and come up in the heart of another plant, I gave up bulb growing in despair till I thought if I got something that would be strong enough to resist the blow of a spade, and at the same time confine the bulbs to the space allotted to them, I might perhaps be able again to see my favourites in their old quarters. I went to our brickyard and asked the foreman when he was making 9-inch drain tiles to cut me off as the clay form issued from the machine 6-inch lengths of tile, and to burn them specially. On receiving them I at once planted my Tulips, Lilies, &c., in clumps in these rings; the result has been most satisfactory. The rings are plunged into the border 2 inches underground, and the bulbs planted in them and filled up, and they are safe. Their locality does not need marking, for when the spade is at work the ring proclaims its existence, and so is easily avoided; at the same time being an inch thick, and supported on all sides by the soil, it cannot be broken easily. The advantages are that bulbs needing peat can be grown in a mixed border by merely filling up the ring with the necessary soil; the sides of the pot or ring prevent wandering roots from eating up the food intended for the bulbs.

Let us suppose that five Tulips are put in the first instance into a 9-inch ring; they can be left with advantage two years at least, by which time the size of the clump will proclaim, by the space it occupies, that the ring is pretty full of bulbs, and in the autumn when the borders are gone over the ring is just turned out with a clod of earth, filling up its calibre and full of bulbs which are shaken out, the largest returned, and the rest are stock in hand for the nursery or for giving away. As the rings are straight-sided and have no bottoms, the bulbs stand crowding well, as they can root downward without interruption into the border, and the usual autumn mulch feeds them as well, and the work of planting must not be done more than once in two or three years. I have now had others made of 6 inches and 4 inches in diameter for smaller clumps and smaller bulbs. The smallest size is used for edgings of small bulbs, such as Crocuses, Snowdrops, and Squills, &c.; the larger ones do well for Lilies, Tulips, Hyacinths, Gladioli, &c. The 9-inch rings cost me 4d. each, and with ordinary care will last a lifetime; the 6-inch cost 13s. a hundred, and the 4-inch 6s. 6d. a hundred. They can be made at any brickyard, and if a greater demand was had for them, they might be made much cheaper, as they take up little room, and the three sizes can be nested together and take up only the room of the 9-inch ring, an advantage where they have to be sent a distance. They economise bulbs, as each little corm or bulb is easily found and preserved, and as the whole clump comes up with the ring, no stray bulblets get into the border to disfigure its neatness next season.

Nayland, Colchester. H. D. PALMER.

HORTICULTURAL SHOW AT MAIDSTONE.

ON paying a visit the other day to the Bath and West of England Agricultural Show at Maidstone, I naturally went into the flower tent, and, though perhaps one can hardly expect an agricultural society to do much towards encouraging horticulture, I was much disappointed at the meagreness of the display of flowers. There was only one exhibit of cut Roses, one vase of Rhododendron blooms, a few well-flowered Orchids, from two or three exhibitors, some good tuberous Begonias from Mr. Laing's nursery at Forest Hill, six very fine plants of Paris Daisies, exhibited by Mr. H. A. Brassey, M.P., which were in full flower and at least 4 feet in diameter. Besides what I have already mentioned, there were likewise some Palms, Ferns, and other plants grown for the beauty of their foliage, and a few other plants. One would have thought that at these shows the horticultural tent (if it is to exist at all) might and should be made a very attractive feature, and it is to be regretted that more attention is not given to this department. Agricultural shows are always held near some large centre of population, and though I had never been in Maidstone before, I feel certain a much finer display might have been obtained from the town and neighbourhood had due encouragement been given.

Among Laing's beautiful Begonias were some double ones, and in another part of the tent was a well-flowered double Clematis. I have a great dislike to double flowers (Roses, Chrysanthemums, and a few others always excepted), and much lament the misguided ingenuity of those who induce such plants as Begonias, Clematises, and Geraniums, which have such charmingly shaped flowers when single, to produce double flowers; they then lose their individuality altogether. What beauty can anyone find in the form of a double Begonia, Geranium, Nasturtium, Violet, Convolvulus, and many others? The flowers are merely shapeless masses of crumpled-up petals, and but for their size and colouring it would be difficult to tell one from the other. I am afraid it is only too true that very many genuine lovers of flowers have no eye whatever for beauty of form. This may very frequently be seen by the way in which flowers are so often crammed together in vases and bouquets. Someone stated the other day that Rhododendrons had hitherto resisted with almost entire success all attempts to make them bear double blossoms. May their resistance be long and effectual. Fancy some of the beautiful Himalayan species doubled!

G. S. S.

A GARDENERS' MEETING AT MUNSTEAD.

THE gardeners of West Surrey, to the number of upwards of fifty, met at Munstead last Saturday afternoon, June 7, in response to the kind invitation of Miss Jekyll, to see the beautiful gardens and grounds there. Fortunately, the afternoon cleared up beautifully after much rain in the early part of the day, so that the place looked really charming. In the gardens about two hours were spent with great pleasure and instruction to many of us. Miss Jekyll, under whose hand this wonderful wealth of beauty has sprung into existence in a very short space of time, the place being comparatively new, was unremitting in her attentions. It would be difficult to say which were admired most, the health and luxuriance of individual subjects, or the fine grouping and exquisite blending and contrasting of colours so conspicuous through out the whole grounds, all of which were much discussed. The special garden for the culture of plants in quantity was as instructive to many as the rock, wall, and alpine gardens, and the fine mixed border, the whole showing well how much beauty may be realised from our open-air garden flora, wholly apart from the materials used for bedding out.

The visitors after seeing the garden were entertained in the house, Miss Jekyll herself presiding. On the table were some lovely Pansies, which for elegance of arrangement and for size and beauty of individual flowers left nothing to be desired. In contradistinction to these was shown a fine bloom stuck on paper, as usually seen at flower shows, a style of showing these flowers deprecated by all present.

Mr. Kaile, nurseryman, Godalming, thanked Miss Jekyll on behalf of himself and all present for the treat she had afforded them. Miss Jekyll, in reply, said that she hoped the present visit would not by any means be the last of its kind, as she was in hopes of seeing them all on some future occasion. After that the company dispersed, seemingly much pleased with their day's outing. H. H.

COLUMBINES.

IT seems to me that these are a difficult class of plants to understand; at least, I find them to be so, and I must admit that I have met with more than the usual amount of disappointment regarding them. In the first place, I was disappointed in not being able to secure Aquilegia cœrulea true to name. I had plants from three different sources, and in neither case did I receive the right kind; the flowers of all these plants are creamy white, with the slightest tinge of blue on the tips of the petals. At length I, however, received the true variety from a lady correspondent of THE GARDEN, and from the seed of this plant I have raised a stock of plants that produce the blue and white petals for which this Rocky Mountain kind is so remarkable. No one can look upon this variety when in bloom without being struck with its exquisite colouring. From the same plant I have also raised others that produce flowers equally large, of a soft yellow colour, and with the luxuriance and habit of the parent plant. I see no reason why there should not be still a wider departure from the type, and therefore I mean to go on and see if something more cannot be accomplished. In my case I see no disposition in the oldest plants, which are three years old, to die away, as some say they do, but soil and situation may have something to do with that matter. My stock is standing in a border in the kitchen garden where the soil is rich and deep and well drained. So far I have failed to flower A. glandulosa; in fact, I can hardly keep the plants alive. A small white insect so infested the crowns of the plants at the end of last summer, that they have never recovered from its attacks. Several other varieties which I purchased two years ago I have lost altogether Neither A. canadensis nor A. Skinneri are worthy of cultivation, seeing that there are already brighter and more distinct varieties to be had—at least, such is my opinion. I have seedlings in the same line of colour that surpass them. A. aurea, with bright, lemon-coloured flowers, may, I think, be kept for any number of years by carefully dividing the roots. It is a free growing variety, and very little inferior to A. chrysantha.

J. C. C.

EXHIBITION IN ST. JAMES'S HALL, MANCHESTER.

HITHERTO flower shows have been promoted, ostensibly at least, with the object of encouraging horticulture, but the financial success which has attended some of the provincial exhibitions seems to have prompted a new departure, of which the exhibition of hardy plants at the St. James's Hall, Manchester, during the past week, was the first example. There was a good deal of speculation among horticulturists as to what this show meant, but it was neither more nor less than a public exhibition of flowers got up by the lessee of the hall—one of the most spacious in Manchester, lofty and wide, and one of the best places for a flower show that could be found, as far as light and room and general effect are concerned, entirely eclipsing both the conservatory and large tent at the Botanical Gardens. No prizes were offered, and all the plants were

bought, we understood, for the purpose, and came, as the cards intimated, from many of the best known nurserymen. The display consisted mainly of Rhododendrons, Azaleas, Roses, and other hardy shrubs and plants, but there was a lack of herbaceous subjects. The quantity of plants exhibited was enormous, nearly all from the open ground with balls, and grouped in large artistic masses, many of the Rhododendrons and Azaleas being about 10 feet or 12 feet high and as much through. The arrangements were excellent, and the general effect imposing. The groups or rather masses of plants, for they looked like shrubberies, were few, but arranged to fill the vast hall, leaving a spacious promenade – a good feature, because one was able to survey the show to much better advantage from every point than could otherwise have been done. As a rule our flower shows are cramped for want of space. Of course the floor of the hall was level, but by means of raised and sloping wooden stages, completely concealed by the plants and margins of Grass cut from the fields, and the great variety in the sizes of the plants, that was no disadvantage, but rather the other way, I thought. I am not so sure that a hollow in the ground is the best preparation for flower shows, and that the St. James's Hall Exhibition was a proof of this, those who saw it would, I think, admit. J. S. W.

PLANTS IN FLOWER.

Erigeron aurantiacus.—Nearly the same sized flower and habit of plant as Aster alpinus, but the flowers are of a deep reddish orange – G. J.

Azalea indica out-of-doors.—Thinking it might interest some of your readers, I send you a few blooms of Azalea indica from plants that have been out-of doors since last November.—A. M.

*** Very good blooms of various sorts of A. indica, but from what part of the country they come our correspondent does not say.—ED.

Large Stephanotis.—Mr Bennett, Besborough, near Cork, informs us that a Stephanotis planted out at the back of a fine stove there covers 42½ square yards, and is producing about 86 trusses to the yard—a grand specimen which has been greatly admired.

Raphiolepis ovata.—Flowering twigs of this shrub have been sent to us by Messrs Veitch, in whose nursery at Coombe Wood it is perfectly hardy. The handsome leathery evergreen foliage and clusters of white flowers render it an interesting and attractive shrub.

Orobus canescens.—A neat plant about a foot high, with handsome flowers of two shades of lilac, in colour reminding one of Wistaria, but of a warmer tone. The glaucous foliage is striking from its sharply defined outlines, and the whole plant has a remarkably smooth and clean look.—G. J.

Seedling Rhododendron.—Mr. Isaac Davies has sent us a truss of a seedling hardy Rhododendron named Mrs. Isaac Davies, which promises to be a favourite. Its flowers are white, spotted and blotched in the upper petals with deep chocolate. It was exhibited at Manchester, where it was much admired.

Senecio abrotanifolius.—This excellent alpine, whose foliage clothes the ground with a close carpet of finely cut leaves of a deep healthy green, has stems about 8 inches high, bearing groups of flowers of a rare colour—a deep reddish orange. The colour of the disk is deeper than that of the ray, and gives the flower a rich effect.—G. J.

Two handsome Pavias.—From Messrs. Veitch's Coombe Wood Nursery come flowering branches of two kinds of Pavia or Æsculus, as they are now called. These are Æ. discolor, a kind with short racemes of brownish red flowers, and Æ. rubra, the flowers of which are of a very deep crimson-red. Both have handsome foliage much like that of the Horse Chestnut.

Kalmia latifolia major splendens.—A long and cumbrous name for a very lovely variety of the broad-leaved Kalmia, of which Messrs Veitch send us some beautiful sprays from their Coombe Wood Nursery. The variety differs from the type chiefly in colour, which is many shades deeper than that of the ordinary form. The unopened buds are bright cherry-red in colour.

Varieties of Valerian.—Mr. Stevens brings us from his garden at Gra mere, Byfleet, three quite distinct forms of Centranthus ruber; one has flowers of a deep crimson—deeper than those of the type; another is pure white; while the third is a pretty rose-pink. The Valerian is such a pretty border plant, that a little variety of colour in it is desirable. It is also quite at home on old walls, and has a pretty appearance on rough rockwork. Mr. Stevens likewise brings specimens of the spicy-scented double Rocket, the Virginian Cowslip (Mertensia virginica), and Amsonia latifolia, the latter an interesting North American plant not often seen, except in botanic gardens. Flowers of the largest form of the Oriental Poppy also come from Grasmere. The flowers in this instance are a third larger than usnal, and exceedingly brilliant in colour.

Brompton Stocks.—The finest Brompton Stocks that we have ever seen have been sent to us by Mr. Burn, Cromer Hall, Cromer. The flower-spikes are 16 inches in height, and thickly furnished with large rosetted flowers 2½ inches across. The spikes form dense pyramids of bright magenta-crimson blooms. When Stocks are so finely grown as these are they are more effective than any other flowers which our gardens contain at this season of the year.

White Ranunculus.—Flowers of an exceedingly fine double white Ranunculus have been sent to us by Mr. Baylor Hartland, of Cork. The secret of such fine blooms, Mr. Hartland says, lies in the use of Clay's Fertiliser, which is evidently suitable for the fine development of double Ranunculuses. This particular variety is so beautiful as to be worth growing in quantities for cut flowers alone. Another white flower sent is the popular Mrs. Sinkins Pink, unquestionably the finest of the white sorts, and extremely valuable for cutting.

The Pyrenean Lychnis (L. pyrenaica).—A profusely flowered specimen of this rare alpine plant has been sent to us from the York Nurseries by Messrs. Backhouse, who have imported it in quantity. It is a sweetly pretty plant, best described as having the growth and habit of L. Lagascæ, but the blossoms are snow-white, and as it flowers very freely, a good sized plant of it is, when in bloom, quite a mass of white. The foliage is small and glaucous, and the slender wiry stems grow about 4 inches in height.

Sollya linearis.—As a small growing greenhouse climber that can be readily kept within the bounds allotted to it, this old-fashioned greenhouse plant stands in the front rank, and with a little support it may be grown equally well as a bush. Its growth is thin and wiry, its leaves narrow and small, and its flowers, which are of a beautiful clear blue, droop gracefully beyond the foliage. That it flowers freely even in a small state is clearly shown in the temperate house at Kew, where it is grown under the name of S. parviflora.

Ixia crateroidea.—A capital free, dwarf kind, with short broad leaves and flowers that may be described as vermilion-rose indoors, and rosy vermilion in sunlight, when the colour is intensely brilliant. It is a kind well suited for outdoor culture. By the advice of Messrs. Smith, of Guernsey, by whom it was supplied, it has been grown near a wall with a western rather than a southern aspect, and is all that can be desired. It was planted in November, and protected till the end of March with a little dry Fern loosely littered over it.—G. J., *West Surrey*.

Seedling Pansies.—Herewith I send some flowers of Pansies, chiefly fancies, which class, I think, for general decorative purposes, are much more useful and showy than the show Pansies. The unnamed sorts are selected from a batch of last year's seedlings, and though somewhat rough, are nevertheless well worth growing, as they are so attractive. Seedlings planted out and in their second year's growth far surpass the others in freedom of bloom. I save my own seeds, and it is astonishing the diversity of colours which can be had from a few pods.—R. STEVENS, *Paston*.

*** Very fine in every respect: large in flower, and rich and diverse in colour.—ED.

Rhododendrons at Kew.—There are several kinds of Sikkim Rhododendrons now in flower in the winter garden at Kew, and notably R. Nuttalli, a species with very large white flowers. The large plant of this at Kew produces its flowers in a singular one-sided manner. Last year flower buds were produced on—we will say—the left side of the plant, the branches of the right side producing growths only. This year the order is reversed—the right side is blooming, and the left developing new growth without any flowers. Seven large trusses were borne by this plant this year. R. Maddeni, R. calophyllum, and R. Jenkinsi are also in bloom, and so far as we can see there is no perceptible difference between these three so-called species either in flowers, foliage, or habit. R. Edgeworthi and R. Veitchi are represented by plants bearing good bunches of large white sweet-scented blossoms.

Seedling Columbines.—A series of most beautiful seedling Aquilegias come from Mr. Rawson, of Windermere, who has turned his attention to the improvement of these charming hardy flowers. Excepting those shown by Messrs. Veitch this week at South Kensington, we have not seen such beautiful varieties as those under notice. Among them there is great diversity of colour, and strange combinations are exhibited in the same flower. For example, one has purple sepals and yellow petals, others are red and yellow, purple and white, blue and white, while some are perfectly double, having dense rosette-like clusters of spurred petals. These doubles, however, are not nearly so elegant as the singles.

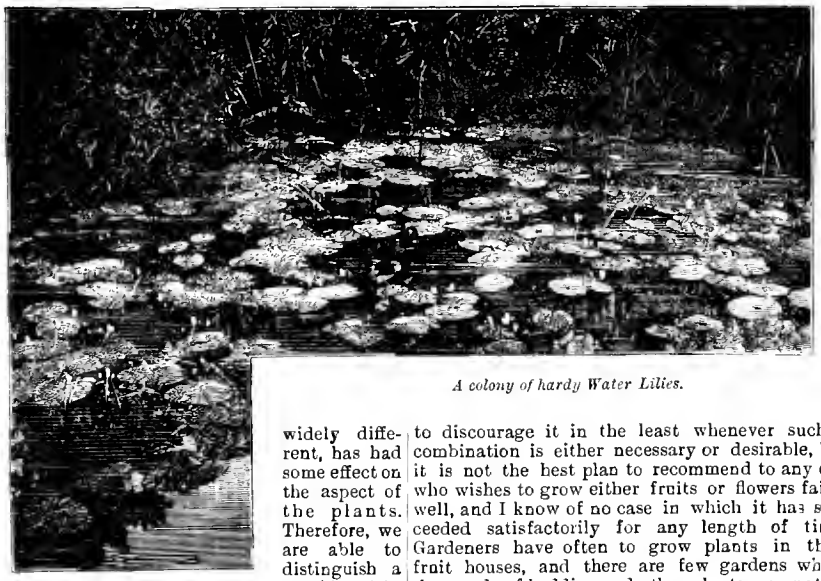
Rubus nutkanus.—This shrubby Bramble is in great beauty at Mr. Barnard Hankey's, Cranleigh, Surrey, where it forms handsome bushes about 4 feet high, well clothed to the ground with fresh green foliage, and fully furnished with its neat buds and delicate milk-white flowers. The anthers of the newly-opened blossoms are of a pale yellow colour, turning brown after a few hours' exposure to the light, thus giving the flowers a varied interest. This species has none of the coarseness of R. odoratus, though the two have a strong general likeness. It groups well with the larger herbaceous plants. In Mr. Hankey's garden it is seen to great advantage in a group by itself on Grass, backed by shrubs and fine masses of Heracleum giganteum.

Bottle-brush plants.—Under this head are included several different genera of Australian shrubs, which derive their popular name from their inflorescence being arranged around the shoots in the form of a bottle brush. When seen in bloom some of them are so handsome that one almost wishes for a return of the so-called good old times when such plants were to be found in almost every garden. A large bush of Callistemon rigidum (one of these Bottle-brush plants) has been for some time and still is in flower in the temperate house at Kew, where also the smaller growing Melaleuca Wilsoni, another of them, with deep pink flowers, is in bloom. On a wall in the herbaceous ground we also noticed the crimson-flowered Metrosideros floribunda, a third plant of this class, just commencing to unfold its blossoms.—H.

Watsonia aletroides.—We have received a spike of bloom of this fine Cape bulb from Guernsey, where the majority of the plants from the cooler parts of South Africa appear to luxuriate out of doors. The Watsonias are very similar both in habit and flower characters to our garden Gladioli, W. Mariana and its varieties, W. rosea, W. densiflora, and others being especially ornamental. W. aletroides bears a tall spike of distichously-arranged tube-shaped flowers, bright rose in colour and very elegant. Unlike the species above mentioned, the lobes or limb of the flowers in this kind are very short and hardly recurved, a circumstance which gives them the appearance of Aloe flowers. It blossoms during the summer months, and is well adapted for pot cultivation in English gardens. Although a new plant to most cultivators of the present time, this Watsonia was cultivated in this country more than a century ago, when Cape bulbs were largely represented in most gardens, their introduction being largely due to Masson, Thunberg, and other collectors of that period. That these plants were popular in those days may be seen by a reference to some old gardening and botanical works, in which they are so commonly described and figured.

WATER LILIES.

THE queen of hardy water plants and by far the largest and loveliest amongst our indigenous flowering plants is the white Water Lily (Nymphæa alba), whose fragrant blossoms and large flat succulent leaves are not unfrequent ornaments of the quiet, clear ponds and rivers of this country. In the neighbourhood of London, the Thames beyond Teddington and its numerous tributary streams are decked in summer with the beautiful leaves and flowers of this Water Lily, as are also portions of the Lea, the Brent, and other suburban rivers and streams, as well as numerous ponds where the water is sweet enough to please this plant and sufficiently secluded to escape the exterminating clutches of the cockney flower-gatherer. In the British Islands this water nymph, along with its golden-blossomed relative, the Nuphar, is found almost everywhere where the conditions essential to their welfare are present. All over Europe, in the most temperate regions of Asia, and, it is said, in a certain spot in North America, our white Water Lily appears to find a suitable home. As might be expected, this extensive distribution, which has placed this plant under conditions widely different, has had some effect on the aspect of the plants. Therefore, we are able to distinguish a considerable number of varieties more or less permanent in character, either as regards size of plant or form or colours of the flowers. Our gardens now boast of some of the most distinct of these varieties, all of which are perfectly hardy in this country, and will, we hope, shortly become as plentiful in our lakes and streams as the form which is here indigenous. It will be interesting to watch whether the change of conditions will have any effect on the characters of these exotic forms, for reasoning on the lines laid down by naturalists it should come to pass that these varieties, whose differences from each other are supposed to be the result of a long existence under diverse conditions, shall, when brought together and allowed to grow under the same conditions and become naturalised, assume the characters of our native Water Lily. We should like to see attempts made to establish some of the coloured flowered species in the warmer streams of this country. The beautiful yellow Nymphæa from North America ought to prove hardy with us; so, too, ought the Cape variety of N. stellata, the flowers of which are blue. Should the species themselves prove too tender for our climate, it still remains possible for us to procure red and blue Water Lilies which shall be hardy by means of hybridisation. We believe that at Kew something in this direction has already been done, and we await with interest the result of the cross-fertilisation which was practised on the different species and varieties of Water Lily that flowered at Kew last year. To establish Water Lilies in streams or ponds, all that is necessary is water that is not stagnant and a depth of from 2 feet to 6 feet, with soil at the bottom. If tubers or rhizomes are to be planted, it will be found a good plan to fill with strong loamy soil old willow baskets holding a bushel or so; in these the roots should be planted, and over the top of the basket a few sticks should be tied; these baskets may then be thrown into the water in which the Nymphæas are intended to grow. Seeds may be sown by enveloping them in balls of clay or stiff loam, and dropping them in the shallows of the stream, as if thrown into deep water they often fail to germinate.



A colony of hardy Water Lilies.

FRUITS AND FLOWERS TOGETHER.

THIS, the combination system, consists in growing fruits and plants together—Peaches and Grapes, Grapes and Figs, and so on—a plan to which some prominence has been given of late. The idea of combining fruits with flowers is no doubt a very taking one, and I would say nothing to discourage it in the least whenever such a combination is either necessary or desirable, but it is not the best plan to recommend to any one who wishes to grow either fruits or flowers fairly well, and I know of no case in which it has succeeded satisfactorily for any length of time Gardeners have often to grow plants in their fruit houses, and there are few gardens where thousands of bedding and other plants may not be seen annually under Vines and Peaches, &c., but this is not what is meant, I apprehend, because gardeners do not make any compromise between Grapes or Peaches and their bedding material, but simply let the latter take its chance, as it were, in the fruit houses, which are not at the time incommoded by its presence, and just go on as if it was not there. Grapes and Peaches, however, ill assort with plants and flowers permanently, and neither do Peaches and Grapes succeed well together. Besides, there is seldom any reason for their being both in the same house. Here is a good example. A week or two ago I had a lot of Peach shoots and young fruit sent me with inquiries as to what was the matter with them and what the remedy. It was explained that the owner had only one house of good size, and he grew Peaches on the back wall and Vines up the roof, but the Vines were planted far enough apart to let a considerable amount of light through to the Peaches. It was mildew that affected the Peaches, both leaves and fruit, and to such an extent as I never saw before; gumming was also present. The owner said "the crop of Peaches was a very heavy one, and he had expected to make a good bit of money out of it, but all the fruit was affected like the samples sent," and these were quite covered with mildew. A good many other such examples I have seen, and one of the worst was in the "show house" of a West-end nursery, where even the requisite skill had failed to prevent an equally bad attack of mildew and other evils, and the wonder to me is that amateurs, let alone gardeners, should attempt such a mode of culture when they have made up their minds to have both fruits and flowers, or say Grapes and Peaches. It is just as broad as it is long, and if, knowing what I do, I had a house 20 feet long only, I should divide it into two halves and grow each subject by itself and treat it as it required. But I have seen long ranges of lean-to houses in a ducal establishment in which the walls were devoted to one sort of fruit and the roof to another, and poorer crops of both had in consequence, when it would have been better every way to have divided the ranges into divisions for the several fruits. I do not mind utilising every inch of space in a vinery or a Peach house with Tomatoes, French Beans, Strawberries, or flowering plants, provided they are clean, but in all cases these would have to accommodate themselves to the fruit trees—the proper inmates—and would only be there temporarily. I had at my first start such a lesson on the consequences of stove plants being grown in Pine stoves and vineries, that I have never forgotten it, and I know many who have had similar experiences. The sacrifices and losses one must submit to who once gets mealy bug on a good house of Grapes are out of all proportion to the good one derives from growing plants which encourage such pests in such places. In all industries the departmental division of labour is found to be the best in every way, and gardening is no exception to the rule.

GRAPES AND FLOWERS.—One has nothing but admiration for the exertions and success of "Subscriber" who wrote on "Grapes and flowers together" a few weeks back, but it may suggest something even to him, and show where his error is, to inquire what possible reason he could have for mixing Grapes and flowers together in the whole of his "three greenhouses," necessitating three 'prepared' Vine borders in place of one, and having no more Grapes (if as many or as good) than he would have had had he devoted one house to the Vines alone. I apprehend "Subscriber's" object was to encourage others to follow his example, but to any one having three greenhouses, "with no means of obtaining more than greenhouse heat," I should certainly say devote one portion of them to Vines alone and the other to flowers, and you will succeed very much better. Had "Subscriber" had only one greenhouse, some compromise might have been excusable, but one cannot commend the judgment that mixed the contents of all the three in the way described, because—I will undertake to say—he must have lost by the system any way one chooses to put it. He does not say what the lengths of his greenhouses are, but from the dimensions of his garden and walls they cannot be large; and as he has 15 Vines, "most of them having two fruiting rods and one growing rod," anyone may guess the amount of justice the plants under the Vines received, for the spread of the branches would be at least from 60 feet to 80 feet, not allowing much more even than 2 feet for each rod. I happen to have seen a good many examples of this kind of gardening, but I never knew any that was very successful or satisfactory to the gardener or his employer either, but many who read "Subscriber's" article will no doubt think they may do likewise, and if they fail, the blame, with all its consequences, will be put on the gardener. This growing of plants and flowers in the same house usually begins with the erection of one house—perhaps a greenhouse or a vinery alone, but the owner's ambition usually exceeding his means, he, in the end, turns his house into a vinery or greenhouse also, and then his troubles begin. Some years ago my employer presented some sound old vinery lights to a horticulturally inclined tenant farmer, who made a nice little vinery of them, and grew good Grapes for several years, but after a while he came to my house one day with a basket of Grapes and Vine leaves that were unique examples of bad quality and disease. I called at his place soon after to see for myself, and found his vinery crammed with a medley of

plants under the Vines. "You see," said the owner, "my wife wants flowers and I want Grapes, and that is just how it is." The reply to this was that when he had settled the matter with his wife it would be time enough to send for me, and I have not been there since. The only house in which one would feel disposed to tolerate a mixture of fruits and flowers would be the orchard house. Such a structure has frequently to do duty both as a conservatory and fruit house, for there are often orchard houses in gardens where there are no other glass erections, and by judicious arrangement they may be rendered a very agreeable promenade at times.

IN ORCHARD HOUSES it is possible to grow Apples, Pears, Plums, Peaches, Oranges, Figs, Strawberries, Roses, Geraniums, and some greenhouse plants. To succeed with all these moderately well, however, the arrangements must be suitable. In the first place the house should be span-roofed with perpendicular side sashes about 7 feet high, so as to admit of one walking round the sides without stooping. This is a good plan with an orchard house, because it gives top-room to the trees, and the sides admit plenty of light also, and enable many things to be grown round the sides close to the glass either on shelves placed one above another or on the floor. All the fruit trees should consist of bushes and standards, and none whatever should be grown overhead. It matters little how the trees are disposed, or whether they are in pots or planted out, provided they are set so as not to incommode, or shade, or crowd one another, and this means placing the tallest in the centre and the dwarfest at the sides of the different groups. Strawberries, Roses, and plants could be grown round the sides, and if Roses or any other climbers are desired they should be confined to the gables, and not be led over the other trees to exclude the light and spread green fly and other insects all over the house. Oranges may not succeed well in an orchard house if the temperature is made to suit the hardier Apples and Pears, &c., but they will at least flower, and it would be easy to put a pretty selection of greenhouse plants together that would succeed under treatment that would suit the trees. Grapes might be introduced, but only the hardiest and earliest sorts, and places would be found for them at intervals up the sides to the height of the eaves, where they should be stopped. Some things would of course have to take their chance, and these would be the interlopers—the greenhouse subjects—because the fruit crops would demand first attention, for if they failed they had better never have been put there. Too much must not be expected from a house of this kind, and both the temperature and ventilation should be conducted on a methodical principle, and no attempt should be made to keep the house cool—first for one thing, for a week or so perhaps, and then warm for another thing, and moist for a third, as gardeners are often tempted to do when so many species have to be grown in one house. Let the house be an orchard house first and a conservatory afterwards, and with care in other ways the other subjects will yield a fair amount of interest and satisfaction. S. W.

POTS, OR NO POTS.

IT may be useful to consider how far in certain branches of gardening pots may be dispensed with, or how best employed. We remember the time when all bedding plants of whatever description used to be potted off annually, and a long time it took in large establishments, and the barrow work necessitated by the use of pots for so many plants was very great. Things are now altered, however, a good deal, although I see pots are still used more extensively in some places than they need be, even Stocks and Asters and the like being potted. We raise many thousands of Lobelias, Calceolarias, Dianthus, and tender annuals every year, but except for Pelargoniums and a few succulents we do not use a pot for one of them, and even with these we should not be fast for want of pots. I have long been convinced that mostly all plants which have to be transferred to beds in May and June transplant more successfully from beds than from pots. Take Lobelias, for example. From the cutting pans or boxes, after being hardened off a little, the plants are with us transferred temporarily to a thin bed of fine soil in cold frames. These frames are easily made A good store of bricks is drawn upon for the time and laid down two or three deep in parallel rows as wide apart as the lights are long, the operator adding bricks and lights and making his frame as he goes on and according to his requirements. From here the plants are moved to the beds and the bricks and lights are stored away for another year. Plants thus treated lift with a mass of free and not pot-bound, but loose, roots ready to run at once, and the plants never even flag. Of course, boxes will do as well, but frames are better. Sometimes the protection is only a frigi domo sheet instead of lights. We have a long length of these what we call expansionable frames just now, all made to fit the old lights thrown idle in past years in taking down old vineries and greenhouses to be replaced by new structures. While things are being altered so much in regard to the supply of certain early fruits like Grapes and Pines, &c., through the importation of these from abroad, I have no doubt that the

FORCING OF THE STRAWBERRY at home will expand in both private and market gardens, and in all probability Strawberries will cease to be forced in pots to the extent they are now, and be grown in beds in frames instead. If I had all to do over again I am sure I would plant our runners for forcing out in beds so arranged that the plants could be covered in and forced where they were grown; and I have as little doubt that the quantity of fruit grown could be at least doubled in that way. Pot Strawberry plants bear well, but they would do much better if grown in a bed of soil in frames, as we have seen crops in pots so grown before this time. When this practice comes to be more generally adopted a crop of Strawberries in spring and early summer, and another in October or November from the same plants will not be regarded as anything remarkable. At present pot culture, with all its necessary drawbacks and inconveniences, is a hindrance to the more extended culture of forced crops. I look forward to the time when long lengths of Strawberry frames, in which the plants are all planted out in economical order, will replace Pine pits and the like, and produce crops of fruit almost as abundant and good in April and May as we now have them outdoors, pot culture being put aside.

THE USE OF THE FLOWER POT, in short, may be said to be confined mostly to the culture of greenhouse and stove plants, principally one branch of horticulture only, and even there its use might be often dispensed with. There are many things which are more successfully grown out of pots than in them at certain stages—for example, Bouvardias, Azaleas, and the like, even when they are intended necessarily for pots in the end. They make a better growth when planted out, and will endure lifting and potting at the end of the season without showing any signs of injury. It may be asserted also that the less pots are used for any subjects that have to be planted in beds or borders the better, and hence the objection to the use of pots for raising Vines that have afterwards to be planted out permanently.

SHAPES OF FLOWER-POTS.—With regard to flower-pots themselves, it has long been the conviction of many gardeners that their present shape is exactly the reverse of what it ought to be. The ordinary flower-pot is wide at the top and disproportionately narrow at the bottom, and the consequence is that the roots of the plant always congregate in the greatest number where there is least room as well as least food for them, resulting in that pot-bound condition which none of us like to see. It would be much better for the plant if the bottom was where the top is now. This would be inconvenient in potting and shifting, but there is no objection that one can see to having all pots at least as wide at the bottom as at the top. A pot could easily be devised of this shape that would have the same capacity as the common pot, and yet allow much more of the compost to be put where the roots would find it. I have been consulting our pottery man about this, and he says he can make them any shape we wish them—it is all the same to him. Pelargoniums, Fuchsias, Caladiums, Dracænas, and stove and greenhouse plants would thrive better in such pots, which would also obviate the need of shifting the plants so often. Growers of prize Hyacinths used to grow their plants in pots of this shape, and I have often wondered why they have not been extended to other subjects. The best flower-pots made are the Glasgow pots both in quality and shape, being strong, nicely finished, and some of the sizes, at least, nearly straight-sided. They are dearer than others a little, but are worth all the difference, because they are not so soon broken. J. S.

PACKING FLOWERS AND FRUIT.

NEVER, perhaps, were so many cut flowers and plants distributed daily by means of post and rail as at the present time. Much of this is owing to the comparatively new postal arrangements, but prior to the granting of the universally appreciated boon in the shape of the parcels post, a considerable number of cut flowers and plants were sent by ordinary letter post and by rail, and I have no doubt the quantity would have continued to rapidly increase Judging from what I have seen, and also from what I have been credibly informed, advice is much needed as to the best manner of packing both flowers and fruit for post and rail, and it is my intention to offer a few hints on the subject. It is surprising what a number of people persist, and that, too, in spite of published condemnatory notices, in sending flowers and other perishable moist subjects in thin cardboard boxes. These, besides being liable to be crushed, are quickly saturated by the moist contents, and in this state are no better than brown paper. That the local post office employés take all reasonable care of the packages consigned to their care I have almost daily proof, but they must not be expected to unduly favour delicate parcels, or to re-pack any that are broken up. That they do frequently tie up any requiring it many well know, and I have known cases in which the contents of two or three crushed boxes of flowers, after having become inextricably mixed, were equally divided among the consignees, some thus getting choicer flowers than were really sent to them. We use both tin and

WOODEN BOXES, and find the latter to be much the best. These we make ourselves, as the local carpenters are apt to make them too heavy. Those in which we dispatch button-hole bouquets and small wreaths are of a size to admit of their being when filled just a trifle under a pound in weight, and thus they go any distance for 3d. For this purpose we buy a quantity of light, yet strong, boxes from the confectioners at a cheap rate. These we cut down to a depth of 2½ inches, and the bottoms have a few fresh fine wire nails driven into them. Most of ours are about 9 inches long and 5 inches wide, and weigh rather less than half a pound. If made lighter than this they are liable to be damaged, whereas, ours have made several journeys and are yet uninjured. For a few or many loose flowers to go under 3 lbs. for 6d., or not exceeding 5 lbs. for 9d., and not exceeding 7 lbs. for 1s., we find boxes obtained from the grocers the most serviceable, such as black lead, cocoa, and fancy soap boxes, the former being the lightest and the latter of an intermediate size. These, and also still larger boxes which the grocers likewise have at their disposal, are also available for sending by rail. All paper advertisements or otherwise pasted inside or outside of these boxes can usually be easily removed if moistened with a sponge and hot water. The boxes can thus be cleaned, if necessary, without much wetting. It is a great mistake to nail down the lids of these light boxes, as this splits them and soon renders them useless. One or two very small nails or tin tacks may be safely driven into the ends, but more dependance should be placed upon strong string; this both secures the lids, strengthening the boxes,

and perhaps prevents their bursting should a great weight of boxes or packages be placed on them. The parcels post deliveries are much earlier—in towns especially—than they used to be, but if we have any doubts about a small quantity of choice flowers reaching their destination quickly, we pack them in light tin boxes about 6 inches long, 3 inches wide, and nearly 2 inches deep. These when filled vary in weight, but never exceed 12 ounces, and can thus be sent for 4d. or less by the ordinary letter post. They are tied up strongly, and have a loose parchment label attached for address and stamp. This receives the punching or stamping by the officials instead of the box. This precaution is especially necessary in the case of more fragile boxes. All the boxes sent to town are returned regularly in large vegetable and fruit hampers, but where this is not possible let me advise those who return empties by rail to make them into bundles, as several, if labelled "returned empties," will be delivered for the same money oftentimes charged for a single empty. Those living near large towns, where there are agencies, can also send parcels cheaply, quickly, and safely by Sutton's and other parcels delivery companies. By these agencies I find heavy packages can be sent cheaply.

METHODS OF PACKING.—In every case it is of primary importance that the box or basket be well filled; otherwise the flowers are certain to damage each other. If there are insufficient flowers to fill the box, then use some kind of packing material, nothing being better, perhaps, than clean fresh Moss, and nothing worse than cotton wool. The latter, if employed, must not come into contact with the flowers, as being absorbent it robs them of much of their moisture. If damped it discolours white flowers, and does not improve the others. Our small boxes are lined with clean green and nearly dry Moss; on this are disposed a few fronds of Maiden-hair Fern, and on these the flowers are laid as flatly as possible, and close together. A piece of tissue paper is placed on the top, then a strip of cotton wool, and on this the lid closes tightly, so tight, in fact, that the box may be shaken violently without displacing or injuring its contents. We sometimes line the boxes with Spinach or Lettuce leaves, and flowers laid on these are preserved surprisingly fresh and well, but they are rather heavy, and for that reason they are not always used. The larger boxes are packed in much the same way, the Fern fronds resting on Moss or leaves lining the boxes, and the flowers laid in as flatly and closely as possible. If the box will hold more than one layer, the heaviest and best travelling flowers, such as Roses, Rhododendrons, Carnations, Pinks, Delphiniums, Stocks, Wallflowers, Spiræas, and double Primulas, are packed in the bottom; over these are placed either more Fern fronds, leaves, or paper, and then another layer of flowers. Too deep boxes should never be used, especially in hot weather, as the contents are apt to ferment and be quickly spoilt. A bulk of moist Moss will do the same thing. I have seen a quantity of Rose-buds—packed uprightly in it by a professional grower, too—completely spoilt in one night. Boxes or baskets, which we send in larger hampers with fruit and choice vegetables, are usually made to fit in tightly; otherwise there is danger of their getting loose and the contents shaken to pieces.

WHEN TO CUT THE FLOWERS.—To cut and pack flowers at once is a mistake, especially during hot days, when much of their moisture will have been evaporated, and they are liable to lose the rest by bleeding or absorption. If the flowers are to be sent early in the morning, they are best cut overnight and placed in pans or jars of water, and they should be cut in the morning and similarly treated if they are to be despatched in the evening. They will thus be perfectly fresh, and their stems well charged with moisture. Roses especially should not be packed in a fully blown state, as to be really serviceable when they reach their destination they ought not be more than half blown. Most other flowers should be fully expanded and should be cut directly that stage is reached. It is only a disappointment to send anyone a quantity of single Pelargoniums, as unless these are gummed, they are certain to shatter, and there are a few other single flowers that are not much better in that respect. Water Lilies, which are so much prized, should be cut and packed when the buds are just bursting, and those receiving them must open the petals with the hand. The Iris family should also be packed in a bud state; Primroses, Snowdrops, Pansies, and other small flowers are best bunched, and these will thus be found to preserve one another. Many err in being too cautious; do not, in fact, pack the flowers close enough. The lid ought always to fit down tightly, as the flowers are certain to shrink somewhat, and, being laid flatly and closely, are not so easily crushed as some may imagine. Remarks on packing plants and fruit must be deferred. W. I. M.

RECENT PLANT PORTRAITS.

SCHISMATOGLOTTIS PULCHRA (*Illustration Horticole*, plate 520).—A pretty and ornamental stove foliage plant from Borneo, of compact habit of growth and pale green leaves, distinctly marbled with white.

PANAX VICTORIÆ (*Illustration Horticole*, plate 521).—An ornamental, variegated-leaved Araliaceous stove shrub, with deeply-toothed leaves of irregular formation, and all of them clearly and distinctly margined with a pure white band. This plant was sent from Calcutta by M. Thatterzee, and has been dedicated to and named after Queen Victoria.

GYMNOGRAMMA SCHIZOPHYLLA VAR. GLORIOSA (*Illustration Horticole*, plate 522).—A fine double plate, pourtraying an extremely handsome and well-grown specimen of this magnificent and most beautifully graceful Fern. This seems to be an enlarged and much more vigorous growing form of the comparatively well-known stove Fern (G. schizophylla), which has been raised by M. Maron, of Château d'Herhault (Loire-et-Cher), and will be sent out by the Compagnie Continentale of Ghent, who have acquired the entire stock.

BEGONIA LYNCHIANA (*Botanical Magazine*, plate 6758).—This handsome species (to the portrait of which a double plate is here allotted) was distributed in 1879 by Messrs. Benary, of Erfurt, who raised it from seed sent to them from Mexico by their collector, Herr Roezl, under the name of B. Roezli, in ignorance of the fact that another member of the same family, with small white flowers (figured by Dr. Regel in his volume of the "Gartenflora" for 1876, plate 871), already bore that name. The plant now under notice has hence been re-named as above by Sir Joseph Hooker in compliment to Mr. R. I. Lynch, curator of the Cambridge University Botanic Gardens, who grew and furnished the fine specimen here figured.

TRICHOCAULON PILIFERUM (*Botanical Magazine*, plate 6759).—This is a singular plant, a native of South Africa, much resembling one of the Cactus family, being covered with sharp spines, and bearing all over it small reddish brown flowers in form like those of a Stapelia. It has also been described by Linnæus under the name of Stapelia pilifera, and by Sweet under the name of Piaranthus piliferus.

MECONOPSIS WALLICHI VAR. FUSCO PURPUREA (*Botanical Magazine*, plate 6760).—A rather dull reddish form of the comparatively well-known and much more beautiful M. Wallichi, raised by Mr. George F. Wilson, F.R.S., from seed received from Sikkim, and flowered in his wild garden at Wisley Wood in July of last year.

TULIPA ALBERTI (*Botanical Magazine*, plate 6761).—This is a bright and handsome Tulip with conspicuous flowers of a deep orange reddish hue, with a golden centre bordered with purple. It is a native of Turkestan, whence it was introduced by Dr. Regel, who sent it to Mr. Elwes, in whose garden at Cirencester it flowered in April, 1883.

STEUDNERA COLOCASIÆFOLIA (*Botanical Magazine*, plate 6762).—A handsome Aroid, believed to be a native of Burmah, with large deep green pointed leaves and a handsome flower-spathe, which is of a deep ruby-red colour on the upper surface and bright gold colour underneath. W. E. G.

FLOWER GARDEN.

CHOICE HARDY PLANTS.

RAMONDIA PYRENAICA.—Opinions may differ as to which is the most beautiful amongst alpine plants, but this Ramondia, as seen growing in cool shady situations, notwithstanding the extremely trying spring which we have had, has quite raised itself to the foremost rank. When once established in the crevices of perpendicular rocks or boulders in moist shady situations, it gives little or no trouble, unless it be that of keeping it free from Marchantiæ, which are numerous in such places, and as it increases rapidly it may be propagated by offsets, or, better, by seeds which ripen freely, and which should be sown in pots as soon as they are ripe and placed in a cool frame or pit. It only grows a few inches high, and the leaves, which are roundish, much wrinkled, and densly covered with light brown hairs, have really a distant resemblance to a bear's ear, a name now and then given to the Ramondia. It comes into flower about the latter end of May, and continues in good condition well into June. The flowers, which are borne on short stalks, are about the size of a shilling: they have lively purplish coloured petals, and a bright and attractive yellow eye. It is a native of the Pyrenees.

OURISIA COCCINEA.—One of the most attractive and beautiful bog plants in flower just now is the rare scarlet-flowered Ourisia. When kept moist at the root it grows and flourishes abundantly in almost any position, however exposed. It forms tufts of shining dark green leaves, oval shaped and deeply serrated or toothed round the edges. The stalks on which the bright and handsome Pentstemon-like flowers are produced rise well above the foliage, with which the blossoms make a charming contrast. Where a bog is not available it may be cultivated with a fair amount of success in a shady position on the rockery, although in extremely dry seasons it may be rather shy as regards flowering. It is a native of Chili, and is perfectly hardy in the neighbourhood of London.

PENTSTEMON OVATUS.—The earliest of the tall-growing Pentstemons, and one which adds much to the beauty of rockeries and flower borders at this season is the pretty cærulean P. ovatus; although introduced to this country as far back as 1826 by Douglas, it has not, along with many more things, been appreciated as it deserves to be. It grows from 2 feet to 3 feet in height, and is well clothed with dark finely-shaped oval leaves. Its flower-heads, which terminate the stalks, and which are from 6 inches to a foot in height, are of a charming cærulean blue and very attractive. The soil used for it should be light, rich, and well drained, the latter particularly, as the chief difficulty experienced in its cultivation is warding off damp in winter. It is easily propagated by division of the roots, but as this plan necessitates disturbing the plant, and as the young suckers strike freely, the latter method should be resorted to. It may also be readily raised from seeds, which it ripens freely. It flowers in June and July, and is a native of North America. D. K.

Fertility of Narcissus incomparabilis.—A doubt has been repeatedly expressed in THE GARDEN as to the fertility of Narcissus incomparabilis. It may be generally barren in England, but I can bear testimony that under the climate of Paris several of its varieties seed, and even seed freely. Last year I gathered a certain amount of seed on plants received in 1881 from Mr. P. Barr, and obtained seedlings from it, which are growing vigorously. Last spring my attention being called more especially to the seed-bearing properties of N. incomparabilis by the communications above alluded to, I observed the plants more closely, and found that no fewer than eleven

varieties or forms of the N. incomparabilis out of forty or so had borne perfect seed; indeed, some of them, and especially N. incomparabilis minor, N. incomparabilis albidus expansus, and N. incomparabilis expansus, gave almost as many well-filled seed capsules as they had borne flowers.—HENRY VILMORIN, *Verrières, Seine-et-Oise.*

VIOLAS AND PANSIES.

"WHAT is the difference between a Viola and a Pansy" is a question often asked, but not so easily answered. Many of the Violas recently introduced are so like show Pansies in form, that the difference between them is very slight indeed. They have evidently become crossed with the Pansy, which has given form to the flowers. The Pansy, indeed, is a Viola. Its reputed parent is the wild Viola tricolor of the fields, but by years of patient culture it has been converted into the finely formed Pansies of our gardens. The Pansy, or, to use its old name, the Heartsease, is now divided into show and fancy varieties. The show section is sub-divided into selfs, white grounds, and yellow grounds. The fancy or Belgian group is easily distinguished by those who were well acquainted with the show varieties before the Belgians were introduced. Those who do not possess this knowledge do not readily distinguish them. Violas became popular rather more than twenty years ago, when the horned Viola (Viola cornuta) was introduced. It was grown by Mr. John Wills and Mr. Bennett at the same time as a bedding plant. They spoke well of it in the columns of the horticultural press, and in a year or two lines and beds of it were found to be in nearly every garden. We have now a clump of Mr. Wills' plant in flower on our rockwork; it makes a pretty rock garden plant. In a few years seedlings of improved form were introduced—Viola Perfection, sent out by Mr. B. S. Williams, of Holloway, being what might be termed a great stride in advance, and florists soon got hold of it. Their aim was to get a more wiry hardy plant than the common Pansy, with flowers as round as a shilling, and they have succeeded. The best Viola I have yet seen is Hooper's Mrs. Laing, a very pretty white variety. Violas are of all colours now; but blues, purples, or whites are the best to plant in masses, and these can be kept true by growing them from slips. The Viola or Pansy does not sport except from seeds. The original species will not vary much from seeds, but the hybridised forms cannot be kept true raised in that way. Having two or more coloured Violas in one bed does not matter; they will not run into each other; on the contrary, each seperate plant, however close they may grow to each other, will always retain its individuality. J. DOUGLAS.

Seedling Pelargoniums.—I find no difficulty in saving seed of most of the varieties I have of show and fancy Pelargoniums, zonals, and of the Ivy-leaved section, but I do find great difficulty in inducing them to flower the first year—that is, I sow seed, say, in January or February. They are up in ten days or a fortnight, although, as a rule, I never maintain a temperature much over 50°. Where this temperature out-of-doors cannot be had at that time of the year, all that is necessary is a well-drained suitable soil, sufficient moisture, and a sheet of glass over the whole. Place this in your sitting-room or kitchen, and I should like to know a more interesting pastime for invalids than to watch the young plants come forth. Pelargoniums bear this kind of treatment, if I may so put it, "from their cradle to their grave," better than any other plants, except, perhaps, the Ficuses, that I am acquainted with, for this reason, that the dry atmosphere indoors, if judgment and care are bestowed on them otherwise, is not injurious. In winter it is rather the reverse. This is one of the reasons why Pelargoniums are everyone's plants, and why the gardening journals never publish anything in reference to them that has not an interest for innumerable readers. Perhaps some of your readers would tell us how best to solve the difficulty above referred to, viz, how best to induce seedlings to flower the first year. Last year I highly manured a bed and planted out zonals in June. They grew, as seedlings always do, most vigorously, and some of them had leaves as large as ordinary Cabbage leaves, but I had wistfully to look in vain for flowers. None came, and I have come to the conclusion that my "highly-manured bed" was a mistake if I wanted flowers. I have just planted two beds of zonals raised from seed in January, principally the oculated section, and in rather poor sandy soil. Another bed will have the pots sunk therein with the view of confining the roots and having the same object in view. Those who have solved this problem may consider these observations the soul of simplicity, but, as Mr. Muir remarks (p. 449), THE GARDEN is open to statements of honest failures as well as of success. The show varieties, or rather seedlings therefrom, which I failed to flower the first year were from white varieties, Clarihel, The Bride, and Virgin Queen. These are very beautiful in their way, but I should like something hardier and more floriferous. Most people cannot have a special Pelargonium house, and though Mr. Cannell's Belle de Jour meets the latter quality of floriferousness, I and many others find it generally lost at the end of winter. In any case, even had I no special object in view, there is a charm and zest in looking forward to something new or peculiar in your seedlings that mere mechanical growing of cuttings can never pretend to.—W. J. MURPHY, *Clonmel.*

OLD-FASHIONED FLOWERS.

THE flowers of our great-grandmothers' gardens, such as the Peonies, Poppies, Hollyhocks, Sweet Williams, Clove Pinks, Lilies, Columbines, Bluebells, Fleur-de-lis, Monks-hood, Phloxes, Lychnis, Sweet Sultan, &c., are, says "Daisy Eyebright" in the *Country Gentleman*, again coming into fashion. The beautiful herbaceous perennials when once planted delight one for years if a little attention is only given them in spring, and their roots are divided in autumn if too crowded. A little mulching affords them a nice bed for their winter's rest. Very little trouble is required to raise these flowers, for they can be propagated from seeds, which should be sown early in the season. In summer they can be thinned out, and by next spring they will yield a beautiful show of flowers. Peonies and Lilies, however, are increased by tubers or bulbs. To make an old-fashioned garden, there should be beds of Easter Lilies mingled with clumps of other Lilies and borders of Sweet Williams and Columbines of every hue, intermixed with circles of such annuals as Mignonette and Sweet Alyssum, edged with Bluebells. Long beds are made of Tulips of all colours, single and double, and clumps of Peonies, Phloxes, Clove Pinks, Poppies, and garden Pinks, with a background of Hollyhocks and Monks-hood. I can recall such a garden at my grandmother's, the beauty and fragrance of which not even half a century can blot out. All the flowers were grown on beds or mounds raised a foot or more above the walks, because the spring rains deluged the garden, which was low-lying. On these grew many kinds of flowers, and there were hedges of Damask, Cabbage, York and Lancaster, and other Roses sweet and perfect. Late in the spring the beds of Tulips were a flower show for the neighbourhood. The Martagon Lily and the Iris succeeded the Tulips, and then came the show of June Roses, which in these days of Rose gardens would not be thought very beautiful, but at that time were greatly appreciated. Fifty kinds of Roses were planted there, besides wall Roses, such as the Banksian, whose clusters of buff flowers were exquisitely beautiful. Campanulas, Foxgloves, and Larkspurs also grew in abundance, and cut flowers always filled vases and dishes in the sitting-room and parlour. In planting an old-fashioned garden, the tallest growing plants should be placed in the background, and the dwarfer kinds at the front. By leaving quite a space between the perennials, and planting Asters, Balsams, Candytufts, Calendulas, Zinnias, Phloxes, Stocks, Petunias, Pansies, and other summer-flowering plants, a beautiful display can be had from early spring until frost sets in. Wallflowers are also deliciously sweet, which should be sown early in May for next year's flowering. To make them grow bushy, the stalks should be pinched back once or twice during summer. The blood-red, dark crimson, and dwarf golden yellow sorts are very effective in mixed borders. Sweet Williams have been greatly improved, and produce flowers of large size and great richness of colouring, with clearly defined eyes in the single varieties, while the double varieties are remarkably handsome. These old flowers were brought from England to America by our ancestors, and our love for them can never be wholly destroyed.

White Pyrenean Ramondia.—I herewith send a photograph of Ramondia pyrenaica alba, one of the most beautiful and rarest of alpines, together with a small, but newly-opened flower of it. The photograph is not quite life-size, the largest flower measuring 1½ inches. The flowers are nearly white when opening, but get a feeble tint of rose later on; this, with the bluish reflections in the shade, produces an exceedingly pleasing effect. It is altogether one of the most charming of alpine plants.—O. FORSTER, *Lehenhof, near Schrebbs, Austria.*

Lavatera arborea variegata.—I am surprised that Mr. Muir is disappointed with this new and beautiful Mallow-wort, which with us is quite what it is represented to be. We have about two dozen plants of it dotted amongst our sub-tropical plants; they have stood out all the winter, and are now the admiration of all who see them. We also use this Mallow-wort in the conservatory with good effect. It keeps its colour well, although shaded. The seed, which is sown in February, germinates well, and we grow the plants when they come up in pits with bottom-heat till they are ready to harden off for planting out-of-doors.—J. TULLETT, *Raby Castle, Darlington.*

Mesembryanthemums.—Having seen in "The English Flower Garden" that these have been very little grown in the open, I have taken the liberty of sending you a specimen in bloom from one of the public gardens in Torquay. It was first put out about three years ago, and now we have yards of it hanging over the rockwork to the public road. The first flower opened on May 25. The blooms appear to be peculiarly sensitive to the sun, a cloudy afternoon causing them to close as they do at night. It may interest some to know that in the same garden about the end of February last we had a Kniphofia Uvaria in flower, and several Camellias have bloomed and are growing out-of-doors without any protection.—JOSEPH HALL, *Torquay.*

Anemones from seed.—Mr. Dean does well (p. 427) to reiterate what you have so often published in commendation of raising Anemones from seed. For cutting and continuous blooming, though the number of species is numerous, none can come near the varieties of the Crown Anemone (A. coronaria). I give the preference, however, to crimson and its various shades; after that deep blue. There is one point omitted by "R. D." that I have found to be of primary importance, and that is the advisability of sowing the seed where it is to bloom. I am taking it for granted selected seed alone is used—that is, seed from large, strong plants. As the Anemone is a gross feeder, the same soil will not do the second year, except top-dressing or liquid manure is added.—W. J. MURPHY, *Clonmel.*

Trientalis europæa.—We had some difficulty in establishing this, the pretty little white Star Flower of the moors. Its slender growth was apt to be smothered by Grass or weeds, but we now find that in a bed of poor top thin peat with a very small quantity of loam added it flowers freely, increases fast, and requires no looking after. The bed is not far from a pond at Oakwood and is rather moist; lower down in sandy loam several species of Pinguicula flower and seed freely. If P. grandiflora requires animal food to strengthen it, it certainly gets it with us, as its leaves have

many flies fixed to them. Not far from this bed is one of about fifty plants in flower of our native Primrose (P. farinosa). These I owe to the kindness of my friend, Mr. Wolley Dod, who gave them to me a year or two ago.—G. F. WILSON, *Heatherbank, Weybridge.*

EUCHARIDIUM BREWERI.

NOW, when the embellishment of mixed borders, either with annuals or perennials, is occupying attention, Clarkias and Eucharidinms, the latter especially, should not be overlooked where room can be found for them. There are only two species belonging to the genus Eucharidium, and although one of these—E. Breweri—is but of very recent introduction, it has already gained a popularity second to none among hardy annuals. The accompanying is a faithful illustration of it. It is one of the many free-flowering annuals, for which we are indebted to California. It has a bushy habit, grows about a foot in height, and has narrow lance-shaped leaves, about an inch or

Eucharidium Breweri (detached flowers half natural size).

so long, gradually tapering to a very short petiole, and often of a bright or reddish green tint. The flowers, which are large, are of a lovely purple colour, and the petals, which are broad, have a narrow subulate lobe set in deeply cut recesses, an arrangement which gives them quite a unique appearance. Its cultivation is much the same as that of other hardy annuals; the seeds should simply be sown where the plants are intended to grow; they will not, however, grow well in shade, and therefore they should be isolated as much as possible, for if drawn up weakly staking will be needed, and that is a practice to be avoided as much as possible in the case of showy sparse-leaved annuals. July and August are the months in which its flowers are seen to the best advantage. E. concinnum, an old garden favourite, may be mentioned in conjunction with the above, for although not such a showy plant, having smaller and less brightly coloured flowers, it deserves a place in every garden. The variety album is also very pretty, and extremely useful in a cut state, as it keeps tolerably well in water in a cool room. Grandiflorum, also a variety of the above, has large rosy purple flowers and a very neat habit.

D. K.

The Japan Primrose.—Now that the May sunshine has nearly made an end of the common varieties of Primrose and Polyanthus in exposed and warm situations, Primula japonica comes in "on the gap" as an old and trusty friend. The late showers have made its foliage as green and as tender as Lettuce leaves, and its sturdy spikes bear up bravely their three or four whorls of bright rosy crimson flowers. A little colony of it under a shady hedge gives the most delicious glints of colour (intensified by a golden-leaved Oak (Quercus concordia) being near to them), but everywhere in sun and shade they are now quite happy. It is so easily raised from seeds by the thousand, that the wonder is it is not more often seen in quantity. Planted by pond margins or near brook sides, it is quite at home, and a cut spike or two arranged with bronzy Heuchera leaves is a satisfactory indoor arrangement.—B.

Home flowers worth improvement.—One thing has always impressed itself upon my mind after thinking of Chinese gardening, and that is, that our own wild flowers are in reality those best suited in many ways for cultural development for our own garden uses. As an instance of this, we have the Chinese and Japanese gardeners taking in hand a plant essentially weedy in its primitive state, and from that starting-point developing the Chrysanthemum. We, on our part, seem ever to have preferred foreign or exotic flowers to our own—lavishing far more cultural care on the Auricula of the Alps than we ever gave to our own sweet Primrose. Who shall say what the Ox-eyed Daisy of our meadows would produce in even a few years if cultivated by us with a little of that faith and persistence which is singularly characteristic of the Chinese. The Water Lily of our ponds and streams, the Golden Iris which fringes our river banks, the Ox-eye Daisy and its golden relative, the Corn Marigold, still await improvement at our hands. Even in their wild state their beauty is great; but developed by culture, selection, and hybridisation, they have a future before them of which we may not dream in vain. The love of novelty has misled us from our native flowers; we have been led to prize many plants, as green Peas were prized in the days of Tusser, who, in his "Five Hundred Points of Good Husbandry," tells us that Peas were brought out of Flanders, and were dainties for ladies, seeing that they came so far and cost so dear." At any rate we might do worse than imitate John Chinaman so far as improving our native flowers goes.—F. W. B.

FRUIT GARDEN.

FRUIT CULTURE IN POTS.

FOR nearly a quarter of a century I have paid considerable attention to the culture of fruit trees in pots, especially what are termed orchard house trees. The first orchard house was one put up by the late Mr. Thomas Rivers in his nurseries at Sawbridgeworth. It consisted of a double row of posts driven into the ground, to which some rough boards were nailed, and a row of wooden shutters for ventilation. The roof was composed of light rafters placed 20 inches apart into which the glass was fixed. Mr. Rivers stated that he built a serviceable span-roofed glass house of this kind 100 feet long and 14 feet wide for £50. It was found that Peach, Nectarine, Plum, and the finer kind of Pear trees succeeded better in a house of this kind than they did in one built more substantially. I have always, however, had to do with well-built houses, and have had no difficulty in getting the fruit to set well, and to finish off and ripen as well as could be desired. A substantial well-built glasshouse will always afford more satisfaction than a roughly put together affair, and it will cost less for repairs. Much may be said in favour of the culture of fruit trees in pots. Under good management fruit can be had from them quite as cheaply as it can be obtained from wall trees, and the crops are more easily protected from frosts, and therefore more certain. Heated walls are out of date now, and no one would think of building such walls. Protecting the blossoms from frost such as we had in April this year by means of netting, canvas, &c, is but a poor makeshift compared with having the trees under glass. Fruit, too, can be grown on trees in pots of as large size and as good quality as it can be had in any other way. Moreover, the owner of an orchard house may obtain a good crop the second season after the house is built at a very small expenditure for trees. I like to begin with what are called in the trade maidens, *i.e.*, trees one year from the bud. They have one stout central stem, with many lateral branches, the longer ones nearest the base. They can be bought very cheaply, and when brought home in November or December they should be at once potted in 9-inch and 10-inch pots. The season following they cannot be expected to produce any fruit, but the trees can be well prepared to produce fruit the year after that. By that time they will be three years old, and strong enough to produce from one to two dozen fine fruit.

AS TO PRUNING, there are two methods which I adopt, viz., the bush and pyramid forms, and the latter is preferable to the former for this reason, that by it the fruit is more exposed to the sun, although a few bush-trained trees may be placed in positions where pyramids could not be accommodated. The yearling stem of a pyramid tree should be cut back to rather more than two-thirds of its length, *i.e.*, two-thirds should be left. For the bush form one-third of its length should remain, and the side growths should be cut back considerably. The training of pot trees while making their growth is a pleasant occupation—much more pleasant than attending to wall trees, and it can be done without exposing the operator to the biting east winds of our uncertain climate. Nailing trees to walls or tying them to wires in the open air in winter or early in spring has too often impaired the health of many young gardeners. To maintain a wall of Peach and Nectarine trees in good condition and to keep it well furnished with bearing wood requires much anxious care and skill on the part of the cultivator. An orchard house may be heated or unheated, but I prefer a heated structure. In a house say 60 feet or 70 feet long, 20 feet wide, and span-roofed, it is astonishing how large a quantity of good fruit can be obtained, and of so many kinds. We grew in a house not quite so large as that just named Peaches, Nectarines, Pears, Plums, Apricots, Grapes, Apples, Cherries, and Strawberries, and to these might be added Figs, although we discontinued growing Figs and Vines after they could be obtained in other houses. Cherries and Apricots do best in a house or compartment by themselves, as they like a rather drier atmosphere, with more air through the whole season of their growth than the other fruits just named.

AN ORCHARD HOUSE may, and it should, be interesting during the whole year. In January the trees should be brought in from out of doors, and they may be placed on the borders rather closer than they will be allowed to remain through the season. There ought also to be a shelf all round the house on which to place Strawberry plants in pots. These of course must be prepared the previous season. The trees and Strawberry plants will require but little attention until they are in flower, when some little care is necessary as regards watering and ventilating. When the fruit is set a few of the trees may be placed out-of-doors, but this must not be done too early. I remember placing some trees out-of-doors in May, in 1870, I think; the fruit was then of considerable size. On the 9th of that month the thermometer fell to 26°, and the whole crop was lost. During a good many seasons a crop of fruit may be obtained without any aid from hot-water pipes, but sometimes continued dull, cold, frosty weather, when the trees are in blossom, prevents any of it from setting. During such weather it is desirable that the trees should be aided by artificial heat night and day. The secret of growing good fruit on pot trees lies in giving judicious surface-dressings. A handful or two of rich compost laid on the surface of soil in the pots at intervals of a fortnight yields amazing results. This should be continued until the fruit has gone nearly through its second swelling stage. I have heaped it up until the dressing was an inch or more above the rim of the pots, and this has soon become firmly compacted with stout vigorous roots. At this time they require very abundant supplies of water.

THE STRAWBERRY PLANTS on the shelves by the middle of April will also be in flower and require constant supplies of water, and up to the time the flowers open they should be well washed

with the syringe daily. We do not syringe them when the fruit is setting, but as soon as it is set, water is applied as freely as before. A good supply of Strawberries can be kept up by placing some pots of Black Prince on a shelf in the warmest part of the house. These are succeeded by Keen's Seedling, President, British Queen, Frogmore Late Pine, and last Loxford Hall Seedling The Strawberry plants need not remain in the house after the fruit is gathered; by that time it will be surprising if they are not well infested with red spider, which, if care be not taken, may get upon the Peach trees. As soon as the Strawberry pots are removed

THE FRUIT TREES may be more freely syringed, and this must be continued twice a-day until the first fruits show signs of ripening. Here again the value of pot trees is exemplified in the rich variety that may be obtained. The early American kinds, Amsden June, Alexander, and Hale's Early, are very valuable, succeeded by Early York and our own mid-season varieties, of which Royal George, Grosse Mignonne, Bellegarde, and, later, Barrington are the most prominent examples. It is well to grow a tree or two of the Salway Peach, a yellow-fleshed sort that is sometimes very good. Amongst Nectarines Lord Napier is a splendid early kind; Stanwick Elruge is also a fine highly coloured variety. Humboldt is a very fine yellow-fleshed sort, and Pineapple is also a very fine yellow-fleshed variety. Violette Hâtive we cannot yet do without, and Victoria is a fine late Nectarine. The best of the newer Peaches are Alexandra Noblesse, Goshawk, Princess of Wales, and Sea Eagle—that is, so far as my knowledge of them goes. When the fruit has all been gathered and the wood well ripened the trees should be moved out-of-doors and the pots plunged over the rim in Cocoa-nut fibre refuse. The house may then be filled with Chrysanthemums and other choice winter plants. J. DOUGLAS.

PROTECTION, OR NO PROTECTION.

WHENEVER this subject is started there are always a certain number of practitioners ready to carry on the discussion, opinions upon the matter being apparently pretty evenly divided. Whether the experience of either party materially affects the decisions of others, I am unable to say, but I believe by far the greater number of gardeners would prefer having copings and blinds, if it were in their power to erect them, to no protection. What Mr. Baines (p. 469) has to say on this or any other subject must always be regarded as worthy of careful perusal, but it does not follow that he is correct in all his premises. Because a few growers have fortunately secured good crops of fruit without protection, he has arrived at the conclusion that those who have failed have themselves to thank, or, in other words, their failure arises from the summer treatment of their trees being faulty. All I can say is that I wish that he and others who hold similar opinions had to manage a garden such as ours, or others still worse, which I could name, these being low-lying with a clay subsoil. That much depends on summer management, more especially with regard to the quality and quantity of the bloom, I readily admit, and also that in some few favoured districts or gardens where the trees are properly treated a total failure may never occur. But does Mr. Baines or anyone else assert that the blossoms of Peaches, Nectarines, Apricots, and, in fact, any other kind of cultivated fruit trees or bushes will not be greatly injured by 13° or 14° of frost? If they can prove this, there must be something very wrong here either with the thermometers or my summer treatment of all our wall trees, as all those unprotected had nearly the whole of the bloom spoilt by 10° of frost. I never saw stronger or more abundant blossom on the Pears and Plums. Cherries, Apricots, and Peaches also flowered most satisfactorily, yet of Pears especially we have about as many fruit as there are trees. It appears to me that Mr. Baines has confounded his experience this season with that obtained when perhaps he may have been in actual practice. Having seen these heavy crops of Peaches and Nectarines at Manresa House, and also taken note of the well-set Apricot branch sent by Mr. Wilkinson to the office of THE GARDEN, he at once concluded that the blossoms escaped injury; whereas the trees had set their crops, and it was the embryo fruit partially protected by foliage that escaped. Very different this from unprotected flowers. What about the Pears at Manresa House? and did Messrs. Davis and Wilkinson secure such abundance of Apricots and Peaches last season? If not, why not? I hold that

COPINGS FOR APRICOT TREES are absolutely necessary in the majority of gardens not only to preserve the crops, but also the life of the tree. Not merely do the trees require protection from frost when in bloom, but they also need to be sheltered from heavy rains during the late autumn, winter, and spring months. By way of proving this assertion I may mention that at Wilton House, near Salisbury, Mr. Challis not only fixes a glass coping over the Apricot trees, but also further wards off heavy rains by means of large shutters placed over the border, his motive for doing so being to keep the trees alive and in full bearing as long as possible, and by no other means has he succeeded in so doing. The garden is very flat and low-lying, a stream of water passing through it, and here are to be seen some of the finest pyramids and other forms of Pear trees with which I have yet met, but there are no fruit on them owing to the severe frosts. On a long south wall a number of excellent trees of Peaches and Nectarines are crowded with fruit throughout, but it was not summer treatment alone that Mr. Challis has to thank for his success, but the judicious employment of a wooden wall coping and heavy canvas blinds on rollers. In the gardens under my charge we grow a considerable number of Apricot trees, and as the fruits of these are much prized, it was decided about six years ago to cover several with a glass coping and blinds, and such good service have they done that I consider the outlay was recovered the second season after erection. Every season we have fresh proof of the value of the coping, and this year it is especially marked, as on one protected tree we have more fruit than on the whole of those unprotected.

THE PROTECTED WALL is 12 feet in height and 40 yards long, the aspect being south-east. Another without any coping is about the same length with a south-west aspect, and both walls are fairly well furnished. A bend in the protected wall prevented a continuance of the coping, and here there is one of the largest trees, some of the limbs being trained under the coping, and these never fail to fruit. This tree was protected with coping boards and blinds and set a heavy crop, but, unfortunately, fully one-third of the spurs have gummed badly and are now dead. But little of this gumming took place on those trees under the glass, and which I may state is never removed. Then, again, the trees under the coping never fail to bloom well, especially where the wood is benefited by the ripening influence of the glass. The upper portions of the trees, say down to about 4 feet from the coping, are also considerably earlier than the lower parts, thus affording a good succession of fruit. This alone ought to be sufficient inducement to others to give the glass copings a trial, and if in addition it was generally known that plenty of bloom could always be secured with their aid, I should say many more would be erected. It must be admitted that during a hot summer the upper portions of the trees are liable to be infested with red spider, and the borders near the walls become very dry, but the engine checks the former and the watering-can prevents excessive dryness: or if preferred, revolving copings can be had, or the glass, as in our case, can easily be taken out and stored away.—W. J. M.

—— I notice that Mr. Wilkinson makes a statement (p. 461) to the effect that protection for Apricots whilst in blossom is quite unnecessary. So far as a single trial in one season is concerned, he may be right; I have known many such cases, but they must not be accepted as trustworthy guides. Mr. Wilkinson considers that if the trees are well managed during the growing season, that is all the care they require in order to ensure a crop, but I am not of that opinion. I was looking round a garden about a fortnight ago where the trees had had every possible care, and looked as trim and neat as the most fastidious could desire. They had not been protected, and the number of fruit upon a large tree did not amount to a score; the situation, too, was not more exposed than that to which Mr. Wilkinson refers. My experience of the value of shelter for Apricots is just the opposite of that of Mr. Wilkinson. During the first ten or eleven years of my term here some of our trees had only the protection of netting while in bloom. The result was that we got a fair crop of fruit about once in four years, while others unprotected were nearly or quite failures. Since then we have started on a different tack, and have fitted up a glass coping 3 feet wide. The best trees, too, had frigi domo in front of them in the form of curtains, which are drawn over them at night and withdrawn in the morning as long as there is danger from frost. Other trees are protected with netting in front and also with a glass coping.

The result of this treatment is that we have not had less than a third of a crop in the worst seasons for these last seven years, and we have had several full crops. I feel persuaded that our trees have paid twice over all that was expended upon providing shelter for them. Mr. Wilkinson appears to pin his faith upon pruning and nailing; on these points I also differ from him, although I admit for years I held the same opinion and nailed and pruned our trees with every possible care, laying in, as Mr. Wilkinson advises, plenty of young wood. This treatment I followed up until I found, after a good number of years, that I got but a poor return for my labour. I then gave up all thoughts of having well-trained trees and took almost an opposite course. I now treat our trees on a sort of free-and-easy system, that is to say, I almost ignore the use of the knife, and instead of having them trim by laying in every branch for which there is room, I allow the young shoots to grow pretty much as they like, just tying in the longest of them once a year; our trees, therefore, present anything but a neat appearance. They make plenty of breastwood—in some places three or four branches thick, while the smallest shoots are left standing out from the wall, and I feel satisfied that this rough-and-ready way enables the branches to shelter each other. This may have something to do with the increase in the crop, but I am inclined to attribute much of our success to efficient protection.—J. C. C.

—— Mr. Baines (p. 469) would almost lead one to believe that protection was of little if any use provided the trees were properly treated with regard to water at the roots and the growths kept thin and clean. That accords with my own experience during these last ten years with regard to Apricots, but not with Peaches out of doors. Even here in the south of England we cannot get Peaches without spring protection of some kind. When I took charge of the gardens here about ten years ago there was a wall 200 feet long and 10 feet high, partially covered with Peach trees in a very decrepid state, through cold and insects crippling the young growths. No protection was allowed, and do what I would in the way of syringing and watering, I could not induce them to make satisfactory growth. After three unsuccessful seasons I got permission to have them removed and young ones planted in their stead. These I protected with tiffany from the time growth commenced till the middle of May, the tiffany being attached to the wall in such a way that it was rolled up and tied above the trees every day and let down at night. Under this treatment they made very satisfactory growth, and began bearing the following season, and they have continued to do so ever since. While we were able to protect them in spring with tiffany we had no difficulty in keeping the trees clean and healthy, but since they reached the top of the wall, tanned netting had to be substituted

for the tiffany on account of its width. Being without supports, it got so blown about and torn by the wind, that we were obliged to give it up, and since then, although we syringe with tepid water twice and sometimes three times a week and use the powder-puff, we experience the greatest difficulty in keeping them clean and healthy. Such well-known hardy sorts as Royal George, Barrington, Admirable and Bellegarde Peaches, and Elruge, Violette Hâtive, and Balgowan Nectarines will not even here make growth sufficiently healthy to bear fruit without protection during March and April. Protection is needed, indeed, quite as much to save the young growth as the fruit. A tree that has made healthy growth the previous season will set a good crop of fruit the following spring without any protection whatever, but should the spring prove to be a cold one (and most springs of late years have been so), curl and blister are certain to set in, and when that happens one may bid good-bye to the next season's crop.—W. WATSON, *Eaglehurst*.

GAS TAR DRESSINGS.

MR. GROOM'S clearly written account (p. 422) of the course which he took in regard to dressing his Vines affected with mealy bug will do something to remove the doubts of those who may be undecided as to using tar for the destruction of this troublesome pest. Where once this insect gets established in either vineries or plant houses, in order to have the Grapes at all usable or the plants in a fairly presentable condition, the labour becomes a drag such as few gardeners can afford, causing other things to be neglected. To get thoroughly rid of the pest involves much the least labour in the long run, but nothing less than steady determination and persistent application until the last of the living insects as well as their eggs are destroyed will effect this. Not long after I began exhibiting I got bug on a few plants I had in exchange, and it soon spread over most of the plant houses, and also made its appearance on the Vines. I was not long in finding out that resting content with keeping it under was simply engaging in an endless struggle from one end of the year to the other, in addition to which neither plants nor fruit could be had up to the mark. I therefore set to work with a determination to get rid of it, or kill every living thing affected with it. The tar mixture was not then known to be a means of ridding Vines of it, or diluted paraffin, which is equally destructive to it on plants, and paintings of clear paraffin for the iron and woodwork in houses; consequently I used such insecticides as were then mostly employed, viz., Gishurst and Abyssinian mixture, by the persistent use of which for a whole autumn and winter, going over the entire affected stock from end to end, dipping and syringing, repeating the application a number of times, with painting, pointing, and lime-washing the houses so as to reach every crevice where the bugs were concealed, or to smother them in their retreats, I managed to get rid of them, but I have no hesitation in saying that it took quite four times the amount of labour, and ten times the cost in material, to effect the object in view compared with paraffin for the plants and tar for the Vines. When I first wrote about Mr. Hunter's use of the tar mixture, after seeing and carefully noting the results of his practice, there was a good deal said about giving reckless advice in recommending the use of so dangerous a material as gas tar, just as there has been, and still is, with some regarding the use of paraffin, which is more deadly to plant life if not applied with caution, because infinitely more searching and penetrating than gas tar. As needful when the use of a powerful agent is recommended, I was careful to state well within the strength of the mixture used by Mr. Hunter, and of the many whom I know who have adopted the remedy I have not heard of a single instance where any injury has been done to the Vines, or where it has failed to destroy the insects. Another thing which Mr. Groom does well to mention is the necessity for pruning the Vines as soon as can be, and applying the dressing at once, whilst they are quite dormant; the need for this is obvious, but cannot be too often impressed, as if the buds are moving injury would be likely to occur with a milder application than the one in question. I hear of the mixture being used with the best results on Peaches, but as scarcely necessary to say, it is even more needful in their case to be prompt in doing the work as soon as the leaves are off, as their buds soon begin to move, and are more impatient of anything they do not like being applied to them after they have begun to stir than are Vines. As evidence of this it is only necessary to point to the numbers of instances in which the crops have been lost by the buds falling after a dressing with Gishurst where used too strong, or after the buds were moving.—T. EAINES.

—— One has not so much difficulty in believing that the tar killed the bug on Mr. Groom's Vines as "J. S. W." (p. 472) tries to make out. Until two years ago we were very much troubled with bug on our Vines for several seasons, although we washed the roof, rafters, &c., every winter, and dressed the Vines with one or other of the remedies usually recommended; still the bugs would appear, and at times render many of the bunches unfit for table. In January, 1883, after the Vines were pruned, the roof, &c., was washed down as usual and the Vines were dressed with the tar mixture in the same proportion as that used by Mr. Groom, with the exception of the clayey loam, ours being garden earth and not baked, and the result has been that all through last season not a bug was seen. The rods this year were only dressed with the ordinary clay mixture, more as a preventive than anything else, but not a bug has been noticed on the Vines since the day the tar was used.—W. WATSON, *Eaglehurst*.

—— Allow me to inform "J. S. W." that I have on many occasions followed exactly the same course of cleaning as that described in THE GARDEN (p. 422), but until I used the tar mixture the bug always put in an appearance as soon as the young leaves began to unfold. I have, indeed, not the slightest doubt that all our labour would have been in vain had we not used the tar dressing, for the Vine rods had been spur-pruned for over twenty years, and the old knots and crevices offered secure retreats for both bug and other insects. Up to the present time, however, when the Grapes are nearly fit to cut, I have not seen a single trace of bug, which previously was so bad that I had resolved to either kill or cure the Vines. I am ready to substantiate what I have stated, and anyone at all interested in the matter may see the Vines in question.—JAMES GROOM, *Gosport*.

Large Vines.—Captain Phelps has a Grape Vine which, according to the *Pacific Rural Press*, is the largest in the United States In 1867 the large Vine that was famous in Southern California was cut down and exhibited at the Centennial Exhibition. It measured 14 inches in diameter. Captain Phelps' Vine is 25 years old, and is 13 inches in diameter. It is of the Mission variety, and it has never received the benefits of irrigation. It stands near the house, south of Stockton about two miles, and covers about 4000 square feet of ground. If it had been permitted to run where it wished it would have covered a much larger area, but it was found necessary to cut it back in order to save the roof of the house. The largest crop produced by it was two or three years ago, when after selling a ton and a half by actual weight, the remainder was estimated at two tons and a half. In the "Bulletin of the Torrey Club" for January, 1882, Professor Bessey reports finding in Wayne County, Ohio, a colony of Vines, supposed to be Vitis Labrusca, the trunks of which were, some of them, over a foot in diameter. In a subsequent number of the same journal Mr. Ravenel states that in March, 1881, while in Darien, Georgia, he rode out to Baisden's Bluff, on the coast, some twelve miles north-east of Darien, to see a celebrated Grape Vine. It was just in leaf, and, judging from the wood and bark, appeared to be Vitis æstivalis. On measuring the trunk at 8 feet from the ground, it was found to have a circumference of 44 inches. This rather beats the Grape Vine of the land of the "big trees." Another large Vine, although of smaller dimensions than those noted above, is reported by Mr. Britton as growing near Egbertville, on Staten Island. This Vine (Vitis cordifolia) has a circumference of 25½ inches at a point 3 feet above its base; it completely covers three Cedar trees, each at least 30 feet high, and is a very beautiful plant.

INDOOR GARDEN.

DOUBLE CINERARIAS.

IN THE GARDEN (p. 451) "J. C. C." says that double-flowered Cinerarias may be readily raised from collections of single-flowered varieties. Should any of your readers attempt to do this, I am afraid that they will find it a somewhat disappointing pursuit, as thousands of seedlings may and indeed have been raised from single-flowered varieties without the production of a single double-flowered plant. Double-flowered varieties of the Cineraria, the Petunia, the Pelargonium, &c., as a rule do not produce seed, although their flowers generally furnish pollen, more or less, and in the case alluded to by "J. C. C." double-flowered sorts may have existed among the single-flowered varieties from which the seed was saved, or at all events near them, and pollen from these may have been conveyed in some way to the single flowers, possibly by insect agency, or even by wind, and hence a percentage of double-flowered plants. In nearly all families of plants "sports," or deviations from the normal type, occasionally occur, and when these take the form of double or semi-double flowers, variegation, or other peculiarity, advantage may and has frequently been taken of the circumstance, and the peculiarity has been perpetuated and not infrequently intensified, as wherever a tendency towards any peculiarity is shown to exist in any two plants of the same species, if a union can be effected between such, a portion of the progeny is very likely to present that peculiarity in an intensified or increased degree. Therefore, those desirous of raising double-flowering varieties of the Cineraria, or of other plants, should look carefully among the petals of double-flowered sorts for pollen, and this among the best or the most double sorts is only produced sparingly, if at all. If found it should be applied to the stigmas of single flowers, or, what is better, to blooms which have a slight tendency to duplicity, irregularity of form, or increased number of petals, when the desired object will most likely be obtained. P. GRIEVE.

A CLIMBING SUNDEW.

(DROSERA AURICULATA.)

ALMOST everybody is familiar with our native little Sundews, whose compact rosettes of tiny battledore-like leaves, thickly studded with sparkling gland-tipped hairs and erect spikes of little star-like flowers, peep up from amongst the moisture-loving Mosses which clothe bogs and wet heathy ground. The reputed carnivorous tastes of these singular little plants have won for them a wide notoriety, and one of the houses most frequently enquired for at Kew is that which contains the collection of these and similar plants. Once upon a time before science had taught our farmers better, the supposed deleterious character of various plants was often pointed to as the cause of many evils, and to our little Sundews was attributed the much dreaded sheep-rot, which led to their being vulgarly known as the "red-rot." Apart from the interest which attaches to Sundews, owing to their peculiar tastes, a large number of them are deserving of cultivation on account of the ornamental nature of their leaves and flowers. At present we possess about half-a-dozen exotic species, and in D. auriculata, which has recently been added to the Kew collection, we have a species of great interest, owing to its climbing habit. It

is a native of New Zealand, where it grows amongst tall Grass, upon the stems of which it climbs by means of its twining leaf-stalks. In shape the leaves resemble those of D. rotundifolia, but the hairs are much longer. The flowers are white and about one-third of an inch in diameter. Whilst writing of Sundews, I may note the addition to the "North" gallery at Kew of a picture of the beautiful Poppy-flowered species which is found wild at the Cape. Imagine a plant of D. capensis bearing a scape of flowers as large and bright-coloured as those of our small field Poppy (Papaver Rhœas), that is, having a diameter of 2 inches across the cup, and a brilliant scarlet colour. These characters in a small Drosera are of such a startling nature, that unless I had seen dried specimens of the plant, I should have doubted the accuracy of Miss North's picture. It is to be hoped that our gardens may soon become possessed of this magnificent Sundew.

Begonia insects *(J. S. Heward).*—Your Begonias are attacked by a small mite or Acarus' probably a Rhizoglyphus. These mites sometimes increase very rapidly, and an attack by them should always be met at once. Treat the plants as you would for red spider. Begonias, having very hairy leaves, are difficult to wash with an insecticide. Painting the hot-water pipes with a mixture of sulphur, lime, and clay is a very good remedy, and so is placing the plants in a cooler temperature.—G. S. S.

Leschenaultia biloba major.—The following is the way in which I cultivate this plant, the handsome blue flowers of which are admired by all who see them: In April the young growths are taken off about 2 inches in length and made into cuttings with a sharp knife, care being taken not to bruise the young wood. They are then inserted in 5-inch pots half filled with broken potsherds; the pot is then filled with good fibrous peat and sharp silver sand; about twenty cuttings are put in each pot; they are then placed in a warm propagating pit, where they strike root in about a month. Care must be taken to keep them well shaded from the sun, and as soon as rooted they should be potted off singly into 2½-inch pots and kept in some warm house for a time; they should then be removed to a cooler house, as, for instance, a Heath house, and gradually exposed to full sunshine and given plenty of air. They should be kept well pinched back to make them bushy, or they will grow very tall and thin. Great care must be taken not to overpot them, and in this operation the same compost should be used as that recommended for the cuttings.—W. BALCHIN, *Hassocks Nurseries, Brighton.*

The Banyan tree—Respecting this tree, of which an illustration was given in THE GARDEN the other day, Forbes, in his "Oriental Memoirs," says that a Banyan tree, named Cubbeer Burr, was nearly 2000 feet in circumference, measured round its principal stems, but that the ground covered by its overhanging branches was considerably more extensive. The large trunks numbered 350, and the smaller ones exceeded 3000. This tree at one time was considerably larger, a fearful storm, accompanied by a flood on the Nerbudda, having carried away a greater part of it, reducing the number of the larger trunks from 1350 to the 350 now remaining. The original size of this colossal tree may be better conceived by remembering that 2000 feet, its circumference when Forbes saw it, is more than one-third of a mile. It is truly one of the wonders of Nature. The careful provision by which everything is made to adapt itself to the circumstances in which it is placed is strongly exemplified in the growth of this tree; for if these branches did not throw out roots, and so form a trunk with which to support their own weight, they would tear themselves off from the parent stem.—*Traveller.*

The white Tobacco plant (Nicotiana affinis) forces very well in a cool greenhouse, and is a much purer white forced than otherwise. It lasts a long time when brought into the house and scents a room deliciously every evening. —M. T.

Pelargonium grandiflorum.—Amongst all the plants that are grown in pots in greenhouses Pelargoniums certainly occupy the first place on account of their handsome flowers and varied colours. But they only bloom for a very limited time, and therefore are useless for several months. This imperfection has been overcome by M. Vanden Heede, of Lille, who has obtained, by crossing Pelargonium Gloire de Paris and Gloire de Crimée, P. grandiflorum, a variety constantly in bloom—in fact, a perpetual Pelargonium. He sent me a plant of it, which is now in full bloom. The flowers are large, of very fine form, the lower petals light vivid pink, the upper ones darker and spotted with dark purple, centre white. The leaves are light green. It is decidedly an acquisition, and one which will compete with the zonal, with which it is desirable it should be crossed. The field is open, and Nature will assist intelligent endeavours, as it did in days gone by Mr. Wills and Mr. Peter Grieve.—JEAN SISLEY, *Monplaisir, Lyons.*

Kalosanthes coccinea.—This rather old-fashioned greenhouse plant when well grown forms one of the most useful decorative plants imaginable. From cuttings rooted in September I have a charming lot of plants just coming into flower. The Kalosanthes is propagated by means of cuttings, which root freely at any time of the year. I make it a rule to propagate them in autumn, taking the cuttings from plants that have had their growths well ripened by being exposed to the weather. I use 6-inch pots and put as many as seven and eight cuttings in a pot, using soil composed of loam and rotten manure, with a good dash of sand to keep it porous. After being inserted they should be placed in a warm house till rooted, when they should be gradually hardened off, and finally placed on a shelf in the greenhouse, there to remain until they show signs of flowering. Water should be given very sparingly up to this stage, but after they show their flower-heads a more liberal supply may be given them and an occasional dose of liquid manure. When done flowering place them in a close pit, there to make growth for cuttings for the coming autumn. It will be found that a young shoot will be produced from the base of nearly every leaf; therefore a little disbudding will be necessary, but two of the strongest growths should be left to each plant. Give abundance of air while growth is going on, and when the shoots have attained a length of 4 inches turn the plants out on a bed of ashes where they will be fully exposed to the sun. I make it a rule never to give them more water after they have made their growth than is sufficient to keep the foliage healthy.—J. HINTON.

Impatiens flaccida albiflora.—The Balsam figured in *Illustration Horticole* and noted in THE GARDEN (p. 451) under the above name has been in cultivation in this country for some years—half-a-dozen at least—under the name of I. platypetala alba. A reference to the *Botanical Magazine* figure of typical I. platypetala will show that this white-flowered Balsam could not be a variety of that species, the leaves of which are in whorls and large, whilst the stem is erect and stout. In the same work (t. 5276) a figure of I. flaccida will be found, and on a comparison of the two the close resemblance of the plant under discussion to the figure will be apparent enough, the only difference being in the colour of the flowers, which in the type are rose-purple. In form the flowers of the white variety are very similar to those of the Zanzibar Balsam (I. Sultani), and to this resemblance is due the name I. Sultani alba, by which the white variety of I. flaccida has been distributed by several Continental nurserymen. In habit, however, the last mentioned plant is quite distinct from both I. platypetala and I. Sultani, both of which grow into good-sized shrub-like specimens, whereas I. flaccida albiflora is a low growing, free-branching species, almost a trailer in fact. At Kew it is used as an edging plant for borders in the warm houses, and it is also grown in pots for the decoration of the Begonia house, in which house plants of it have been flowering freely since last autumn. It ripens seeds very freely, and soon becomes almost a weed in a house where it is allowed to remain long. I. flaccida appears to be a variable species, of which the plants figured in various botanical works under the names I. latifolia, I. bipartita, I. bifida, and I. floribunda are considered to be varieties by Hooker in his "Flora of British India."—B.

GARDEN FLORA.

PLATE 444.

STENORHYNCHUS SPECIOSUM.*

ALTHOUGH Stenorhynchus is now considered to be only a section of the genus Spiranthes, which in the "Genera Plantarum" is made to include what have hitherto been known as Neottias, Stenorhynchus, and the old Spiranthes, the several garden Orchids generally known by the name Stenorhynchus are distinct enough in a horticultural sense to justify us in the retention of the old name for the plant here figured and one or two nearly related species. S. speciosum, the West Indian representative of our native "Lady's

Stenorhynchus speciosum, showing habit of growth.

Tresses," has been cultivated in English gardens for many years, but, lacking the brilliancy of colour and grotesqueness of form characteristic of the majority of popular garden Orchids, it has never become widely known, and is at the present time rarely met with in other than botanical collections. Taking into account, however, the size and bright red colour of its erect growing spike, the shining green, healthy herbaceous foliage, and the simple character of its cultural requirements, there is, notwithstanding the comparative obscurity into which this plant has fallen, sufficient to recommend it to general favour as a useful cool Orchid that will grow well and flower freely if treated as Bletias, Disas, and many other terrestrial Orchids are treated. Nestling under the shade of trees in moist woods or on the edge of a shaded stream, S. speciosum is found plentifully in Jamaica and other West Indian Islands, as well as in Mexico, &c., where it appears to favour most a strong loamy soil, in which we know from experience it thrives best when grown in pots. Water should be liberally supplied during growth, but after flowering it should be gradually lessened, as a period of rest before it again starts into growth is necessary. There is a variety of S.

* Drawn in Messrs. Shuttleworth, Carder & Co.'s nursery, 191, Park Road, Clapham.

speciosum called maculatum in which the foliage is marked with large silvery spots. S. euphlebium is a new species, figured in the *Botanical Magazine*, t. 6690. In habit it resembles S. speciosum, but differs from it in having flowers which are whitish with red-brown veins and covered with a brownish pubescence. S. cinnabarinum bears a spike of yellow and orange-red flowers, each of which is subtended with dark olive-green bracts, altogether presenting a gay and ornamental appearance. The remaining species belonging to the Stenorhynchus group have little to recommend them for cultivation as ornamental plants, although several of them are interesting botanically.

The whole of the Spiranthes have thick fleshy roots matted together at the base of the annual stem, and therefore it may be inferred that when at rest they prefer to be kept dry at the roots. The leaves are borne in a rosette, or thickly clustered around a short stem, which is prolonged into a flower-spike. These characters distinguish them from the genus Neottia, which is now limited to three species, viz., N. micrantha, N. listeroides and our native Bird's-nest Orchis (N. Nidus-avis). These are leafless plants with brown stalks and flowers, and are supposed to be saprophytic, *i.e.*, to grow only on the decayed roots or stems of other plants, as do the Monotropas and Orobanches. N. Nidus-avis is found almost always in the near neighbourhood of Beech trees, on the roots of which it is supposed to vegetate. Although Bentham, Hooker, Babington, and others state that this plant is a saprophyte, Mr. Webster says that, although generally supposed to be so, such is not really the case. "It is," he says, "a frequent occupant of shady Beech woods, especially on a chalky or clayey subsoil; indeed, the finest specimens I have seen were growing on stiff, tenacious clay, so hard that it was almost impossible to lift a plant uninjured. It is, however, strangely uncertain in its appearance, frequently disappearing from places where it had been known to exist for years and reappearing in quite another part of the same wood. I have repeatedly tried the cultivation of this Orchid, but with no success, the plants never appearing after the first year." This is the experience of all who have attempted the cultivation of this very interesting plant, and it appears to us that, notwithstanding Mr. Webster's assertion that it is not parasitic, its refusal to grow under any conditions other than those under which it grows naturally goes a long way in support of Bentham and others who maintain that it is parasitic. B.

Plants for hospital gardens.—Much as is now done in the way of sending cut flowers to hospitals, country gardens can also help to brighten such hospitals as have any garden ground surrounding them by contributing hampers of plants in autumn, or, perhaps better still, in spring. The proverbial difficulties of town gardening must make such fresh supplies especially needed. Nor should the hampers be filled indiscriminately; all "herbaceous rubbish" should be carefully avoided, and also all plants difficult of culture. Such plants should be chosen as have brightness of colour, sweet scent, or graceful form; and, last, not least, flowers that are likely to have old associations for those to whom country sights are things far away; in this way the most may be made of such limited space as may be available. There are few country gardens where hardy plants are well grown from which an occasional hamperful could not easily be spared, or where the plants could be put to a better use. There is sometimes a difficulty in knowing what plants are best suited to town gardens, but if those who own town gardens would name some of the plants which succeed best in them, that difficulty could be easily removed. Even if shrubs and other plants remained effective for but one season, the cost of replanting would not be much if the supply were well kept up year by year. Where window boxes are allowed, a yearly supply of spring bulbs and of half-hardy flowers must do much to brighten the outlook for the weary inmates, who can at best have so little of the brightness of outdoor life. The lady superintendent of a town hospital tells me that flowers in pots are specially useful for ward tables. They last fresh much longer than cut flowers, and there is the additional interest of seeing them grow and fresh flowers come out. Judging from cottage windows, few plants are greater favourites than the different kinds of Pelargoniums.—C. M. O.

SEASONABLE WORK.

FLORAL DECORATIONS.

Having occasion recently to arrange a centrepiece for a dinner table of considerable size, we selected a glass vase with a single cornucopia rising from its base. Its height was about 24 inches, and the bottom measured about 12 inches in diameter. About the latter we placed a fringe of Fern fronds of such sorts as Adiantum formosum, Nephrodium molle, and a few only of the golden and silver Gymnogrammas with the fronds inverted, Moss being used to cover the sand. Around the stem were placed three or four growths each of Cyperus alternifolius and laxus of various heights; interspersed with these were ten or more fine spikes of the Hare's-tail Grass (Lagurus ovatus), all standing as if growing. Several fronds of Maiden-hair Fern were arranged as an undergrowth. After this the flowers were added. These consisted of three blooms on their spikes of the German Iris, with about a dozen flowers of Gloxinias with all the length of stem we could secure; dotted amongst these were five or six blooms of the yellow Paris Daisy (Etoile d'Or) and a few trusses of a pale Bouvardia. This completed the arrangement of the base, which rested on the table-cloth. In the cornucopia was placed a slender spike of a small form of Delphinium (blue) and three spikes of Astilbe (Spiræa) japonica; dotted here and there were pink and white Rhodanthe, and overhanging the margin of the trumpet, spikes of Begonia odorata resting on a fringe of Pteris serrulata. This completed the arrangement. It will be observed that single flowers only were used, and a very pleasing effect was obtained by means of them; in fact, the addition of any double flowers of any sort would have marred the effect of the whole. Two small plants of Cocos Weddelliana were placed in two soup plates without being turned out of their pots; sand was placed around each and covered with Fern foliage and variegated Begonia leaves. A few blooms of Roses were then interspersed among these, no other flowers being used. These arrangements were placed on either side of the centre, and on each side of these was a well-bloomed plant of Gloxinia in a vase. The Gloxinias were, if anything, too heavy; a smaller plant would have been better. The same day an experiment was tried with some blossoms of Passiflora kermesina, having several open. We cut them early in the morning and allowed them to float in a basin of water till the evening, when they were placed in a small glass for the drawing-room. In this manner they kept perfectly fresh and open; had we left them on the plant, they would have closed before we wanted to use them.

FLOWER GARDEN.

Climbers.—Keep Clematises and other climbers closely trained in; these also need plenty of water at both root and top, more particularly those plants that are growing close to buildings and under overhanging protections where the rainfall cannot reach them. Supports should be placed to Sweet Peas, Scarlet Runners, Canary Creepers, Convolvuluses, and every other kind of annual climber before there is any risk of the growth getting matted. Such plants are alike useful for festooning or drooping over ledges of rock or root-work, but even in these positions it is necessary to occasionally go over them to single out and if needs be to cut away portions of their growth.

Herbaceous and mixed flower borders.—These are now very gay with Pyrethrums, Aquilegias, Campanulas, Delphiniums, Geums, Pæonies, Potentillas, &c., all of which need an occasional overlooking as to ties and supports, the removal of dead flowers and weeds. Any open spaces should be filled up by the planting out of seedling biennials, such as Wallflowers, Sweet Williams, Canterbury Bells, and Delphiniums, or, failing these, with Asters, Stocks, Zinnias, and Everlastings, and in back part of borders with single Dahlias, Sunflowers, and Hollyhocks for autumn flowering. Bulbous plants that have matured their growth should have their tops cleared away, and if time can be spared for such work—which, unfortunately, is very rarely the case—the bare places should be filled with surface-rooting plants, such as Sedums and Saxifrages.

General work.—This will consist in finishing bedding out and in the removal of every trace of untidiness that for a time is unavoidable whilst such work is in progress. Trim or peg into form every kind of plant that will look the better for such manipulation. Pinch the flowers of Calceolarias, Violas, Verbenas, Petunias, and Pelargoniums to ensure their early and more vigorous establishment in the soil. The flowers of Lobelias and carpeting plants we prefer to remove with a pair of sheep shears, which at the same time take off any uneven portions of the plant, the growth afterwards being more dense and tufty. In the early stages of growth, Alternantheras and Coleus quickly resent artificial watering by refusing to grow at all; preference should therefore be given to mulching the beds with Cocoa fibre refuse; this renders all waterings, except the first to settle the plants in the soil, wholly unnecessary. Mowing of lawns and weeding of walks are now at the maximum point, and with the stinted labour, now common to most gardens, it is difficult to keep abreast with such work; where this cannot be done without neglecting other and more important departments, it would be well to consider whether or not it would not be wise to reduce the amount of ground that ought to be highly kept to such limits as the labour allowed would be able to maintain in perfect order.

INDOOR PLANTS.

Kalosanthes.—Young stock of these should be propagated yearly. They strike readily; in fact, cuttings will root if merely laid on the surface of the soil in a greenhouse or pit. The best way is to put single cuttings into small pots filled with ordinary loam and sand, selecting from established plants moderately strong shoots that have not set any flowers. These will root in a fortnight if kept a little, but not too moist, as succulent plants of this kind if too wet in the cutting state are liable to rot. In preparing the cuttings all that is necessary is to make a clean cut at the base, and to strip off the leaves of the lower portion that is inserted in the soil. When well established in small pots move them into others about 4 inches in diameter, which will be large enough for this season. They will make good flowering plants in two years. During summer they will succeed in an ordinary greenhouse or pit, giving them enough water to keep the soil in a healthy condition. Kalosanthes are amongst the easiest of all plants to manage, but it frequently happens that they do not flower freely; where this occurs it is the fault of the treatment. All that is requisite is to get the shoots properly ripened the summer previous to that in which they are intended to bloom. This can only be done with certainty by setting them out-of-doors exposed to full sunshine for a considerable length of time, say from the beginning of July to the middle of September. To have the flowers highly coloured the plants required to be placed in the

open air just before they begin to open. The north side of a wall where they will get plenty of light, but not exposed to the mid-day sun, answers well.

INDOOR ROSES.—Where these are planted out they will not require nearly so much watering as when in pots, but care must be taken that the beds they occupy are not allowed to become too dry, or the foliage will be sure to be attacked by mildew, and the crop of flowers will be much reduced both in size and quantity. It is the more necessary to see to this, as the daily use of the syringe keeps the surface soil moist, whilst that underneath may be dry. When the plants are strong and making vigorous growth they require to be well supplied with manure water. Tea varieties, which are much the most suitable for indoor cultivation, are all but continuously in a growing state the whole year round, and to maintain their vigour they must have the soil regularly assisted in this way, or else have the surface dressed with some light manure that will be washed down in the operation of watering. The same applies to pot Roses that have been started in succession to follow the winter bloomers. Where a house is devoted to Roses it is desirable to keep the plants on in a flowering condition, even after a supply can be had out-of-doors, for in many localities the Tea varieties seldom produce flowers in the open air that will bear comparison with those grown under glass. Plants that have given two or three crops of flowers during the winter and spring will now show signs of requiring a rest, however strong they may have been, but on no account turn them out in the open air until they have been somewhat hardened off by discouraging growth through cooler treatment. Even in the case of such plants as are being thus subjected to a resting process, whenever mildew appears it should at once be checked by the application of sulphur.

HERBACEOUS CALCEOLARIAS.—Where a good strain of these exists and they are well grown they will have been very effective. Any that show marks of superiority in habit of plant or form and marking of the flowers should be placed by themselves and kept for purposes of propagation, as well as for seed saving. By selecting individual plants in this way the strain may be continually improved, but in all cases remember that a vigorous, healthy constitution is of the first importance, so that the plants are able to make plenty of stout foliage, for without this the flowers, however perfect, are of no value for general decorative use.

CINERARIAS.—These, like Calceolarias, Primulas, and some other plants that used to be all but exclusively propagated from suckers or by division, are now so much improved that varieties good enough for any purpose can be had from seed. Amongst these it often happens that a few plants of unusual excellence make their appearance. In such cases it is well to preserve them. When the seed which they bear is ripe the flower-stems should be cut away and the plants turned out in light soil mixed with vegetable mould, selecting a place where they will not be exposed to the mid-day sun. So treated they will make abundance of suckers that can be taken off and potted.

CELOSIA PYRAMIDALIS AND BALSAMS.—Another sowing should at once be made of these, the produce of which will bloom later on after the earliest are over. Where there is a good strain of this elegant feathery Celosia, comprising the brightest shades in yellow and pink to deep crimson, and the plants are well managed, there is nothing more beautiful. The small side branches of the flower-spikes are most effective when mixed with any combination of cut flowers. The length of time during which they will last either in a cut state or on the plant is not the least valuable property which they possess, but to prevent their getting tall and leggy, they should from the time when the seedlings first vegetate be subjected to plenty of light and receive as much air as can be admitted without the atmosphere of the house or pit being too much dried up. The same applies to Balsams. Where these are allowed sufficient head room with timely shifts into pots big enough to admit of due extension of the roots they have a very different appearance from the starvelings too often met with. Both the above plants enjoy a liberal application of manure water after they have begun to go away.

ORANGES.—Where these exist in either small or large examples, and the greatest quantity of flowers which they can be made to produce are wanted, they should not be allowed to bear fruit, as when the plants are in good condition and kept a little warmer than in an ordinary greenhouse, they flower oftener than when their energies are overtaxed by fruiting. Whilst in full growth the plants should have frequent applications of manure water, in which soot ought to be an ingredient, as it is distasteful to worms usually so troublesome in the soil. Where Oranges are grown in more or less warmth one of the principal things requiring attention is keeping down scale and mealy bug. Where these pests are allowed to get numerous before means are taken for their destruction the foliage always suffers in a way that makes them unsightly, and the free production of flowers is also impaired.

ORCHIDS.

EAST INDIA HOUSE.—The following Dendrobiums may not be classed with the occupants of the East India house, but at this stage of their growth they are greatly benefited by the temperature of this house. They are D. Wardianum, D. crassinode, D. nobile, D. moniliforme, D. Dalhousianum; also the evergreen species, D. thyrsiflorum, D. Farmeri, D. Farmeri anreum, D. densiflorum, and other species. We have just gone over our whole stock of these and repotted them. The small plants get more root room annually; while those of larger size remain two and three years in the same pots, pans, or baskets, for we use all three. Some of them are just starting to make their growths; others have made very considerable progress; in most cases they are just starting to root. The D. Wardianum and D. crassinode type make a quantity of roots from the base of the young growths when they have grown from 4 inches to 6 inches. It is not well to wait until these roots have made considerable progress and then pot the plants; it ought either to be done just before the roots start or as soon as they are perceived. Do not over-pot them; indeed we never use pots for these two, but pans or baskets, so that the plants can be suspended near the roof where they get a sufficiency of light and air. The very handsome D. formosum is one of the most difficult varieties to keep growing well and flowering freely annually. We have so far been very successful with them, but they are now under different conditions, and as they have also been repotted, we will have an opportunity of testing whether it is possible to grow and flower them as freely as Dendrobium nobile in different houses. They certainly like the heat of this house when making their growth, but ought to be kept rather dry in winter, and in a temperature from 55° to 60° rather than a higher figure. They are also just pushing their roots from the base of the new growths. We would urge the importance of keeping a sharp look out for slugs and the small garlic-scented snails which are imported with the fresh Sphagnum. Even if it is supposed the house is free from them they may be lurking somewhere, and if the new roots are destroyed, it greatly injures the plants. There is now no difficulty in keeping up the temperature to 65° all night, although the nights are still cold. The thermometer fell to 36° on the 28th of May: we happened to be out late that night, and felt greatly the need of a warm overcoat as we faced the east wind. It is easy enough to tell at nine or ten o'clock at night whether the fires have to be pushed a little or not. Orchids do not like more artificial heat than is absolutely necessary.

CATTLEYA OR MEXICAN HOUSE.—None of our own old-established plants require re-potting at this season, but we have just purchased some C. Mossiæ and C. Trianæ; the plants were in very small pots indeed, and it was absolutely necessary to re-pot them. In fact, this is not the worst time to re-pot Cattleyas, as any roots injured very soon make a new start, and healthy plants soon recover themselves. Now that plants of these useful Cattleyas named above can be purchased so cheaply, we would strongly advise cultivators to purchase plants; they can never be sold cheaper than they are. Good established plants are sold from 3s. 6d. to 5s. each; so that, looking at the matter from a purely financial point of view, it would be an excellent investment to purchase 100 plants of each species. Many of them would be worth a guinea next year, while a few would probably command fancy prices.

C. Mendeli will probably never be so cheap as the others; it does not grow quite so freely. Those plants that have gone out of flower are now starting to grow, and they are also pushing roots on the surface. The enthusiast in Orchid culture will not think it too much trouble to watch these plants, and see that they do not get eaten through with slugs. During the last three months we have killed hundreds by examining the baits early in the morning and late at night. The days are now hot, and the drying east winds have a tendency to develop thrips. A careful watch must be kept over the plants, and if any of these active little parasites are to be found, they must be destroyed. There are many Dendrobiums yet in flower, and the very beautiful D. suavissimum is always late; we keep them in this house until they are out of flower, and if space can be afforded in a warmer house, they will be taken there to make their new growths. The Cymbidiums are now quite out of flower, and as they are starting into new growth, it would be a good time to repot them if repotting is required. The loam they are grown in has a tendency to decay, and if the plants look sickly, they may be started into vigorous growth by carefully turning them out of the pots and repotting in fibrous loam with good drainage. Lycastes may also be potted now. The last of L. Skinneri has gone out of flower, and the young growths are also pushing up strongly. Nearly all the plants in this house require plenty of water—rain water if possible. Admit plenty of air, and let the wall ventilators be open at night. It is still cold out-of-doors, but the temperature may be kept between 60° to 65° by the aid of the heating apparatus.

COOL HOUSE.—Where Odontoglossums and Masdevallias have become well established, they seem to have made a really good growth and have flowered well this season. Probably a better plant of M. Veitchi than that exhibited by Mr. Catt, gardener to Mr. Walter Cobb, of Sydenham, had not been seen previously at any of the London shows, and plants of M. Harryana were very fine indeed. The satisfactory growth of cool Orchids is doubtless owing to the cool weather we have had during the last few months. We would not advise repotting any of the occupants of this house now, but if any plants seem to require fresh compost they may be surface-dressed with advantage, finishing off with a dressing of fresh and clean Sphagnum. Nearly all the Odontoglossums succeed best, as also do most of the other occupants of the house, if they have a dense growth of Sphagnum over the whole surface. When the Moss grows too long it can be pressed down with the fingers, in preference to cutting it off with a large pair of scissors. We once gave orders to have this done, and the young man who performed the operation managed to cut off a quantity of active rootlets which had worked into the Moss. In very hot weather we do not mind giving the plants a dewing overhead with a syringe, taking care not to do so where there are any flowers open; but an occasional use of the syringe cleanses the leaves from dust when there is but little time to sponge them over. Air must be admitted all night by the wall ventilators, and in warm weather the top ventilators may also be left open at night. The hot-water pipes must be used very sparingly, but on cold nights a little artificial heat prevents the moisture from settling on the flowers, which it otherwise would do and cause spot. It is difficult

to keep the flowers of Masdevallias and Odontoglossums quite free from green fly. The only way to remove it without injuring the blooms in the least is to take a soft camel's-hair brush and hold one hand underneath to prevent any of the insects escaping. The temperature may be from 50° to 55° now at night.

KITCHEN GARDEN.

EARLY Potatoes should now be earthed up, and if this operation can be done after a night's rain, they will be made almost independent of the weather, the soil added to the rows and the foliage together making a capital mulch. Early Broccoli raised under glass should now be pricked out. We use 2 inches of Mushroom manure and a thin layer of soil, placing them in the alleys left for fruit trees by the side of the wall—generally a west one. The bottom under such circumstances is hard, and the Broccoli does no harm for the short time it requires the ground; in fact, in dry seasons the mulch actually benefits the wall trees. The Mushroom house should now be thoroughly cleaned out, removing all the old beds; sweep down the walls, and give them a good syringing, and when wet sprinkle them and the path and roof with fresh lime, opening all ventilators, doors, and windows, so that a sweet house may be the result. Mushrooms more than anything enjoy a pure atmosphere. Outside beds are bearing here very well. Keep them damp by watering the covering of the bed, letting the water soak through the straw slowly, but surely. Tomatoes should now be planted out; bear in mind they want a good sound loam, but not much manure. It is a question whether we do not, as a rule, use too much manure. If Tomatoes require any assistance after the fruit is set, they will tell you by their looks; and if so, give them a couple of good waterings, either with manure water or guano; 1 lb. of the latter to 36 gallons of water is sufficient. Keep a good supply of Lettuces tied up and plenty of small salads sown.

FRUIT.

PEACHES.—Early houses from which the gathering of ripe fruit was commenced in May require very careful management to keep the trees in a vigorous state of health for a number of years, and as the replanting of a house is attended with considerable expense, too much care cannot be bestowed on large healthy trees from the time the last Peach is plucked until the leaves fall early in autumn. As lean-to houses are best adapted for early forcing, movable lights are preferable to fixed roofs, particularly where gardens stand high and airy, and the borders, as all early Peach borders should be, are confined to the interior of the house. When all the fruit is gathered from the earliest trees, cut away all superfluous wood which has been retained for the benefit of the crop of the current year; remove breast-wood, and tie in the shoots left, allowing plenty of room for the full development of the foliage and the free admission of light and air. Syringe well to clear away insects which may have gained a foothold, and water with tepid water until every part of the border is properly moistened. Tie down the shoots in succession houses, and shorten back to increase the size of the fruit where the wood will be no longer wanted after it is gathered. Gross shoots from behind, as well as in advance of the fruit, which will be expected to produce the next crop, may also be pinched and the final thinning of the fruit completed, as healthy trees are often injured by being overloaded through the trying ordeal of stoning. Give plenty of water of a stimulating nature to inside borders. Syringe early and well with clear, soft water. Ventilate freely through the first part of the day, and assist the fruit through the last swelling by closing in good time with plenty of sun-heat. Trees in late houses require more decided disbudding than is sometimes bestowed upon them, as it often happens that the fruit in these structures is kept back until many of the wall Peaches are over, and the wood of such kinds as Barrington and Walburton Late Admirable does not get properly ripened. Growers of late Peaches who have not planted Sea Eagle will do well to give it a trial. With us it yields very fine fruit, which keeps a long time after it is gathered, and, unlike the Barrington, it always completes its last swelling and finishes properly.

VINES.—Gradually reduce the temperature in early houses in which the Grapes are quite ripe, and maintain a fresh, healthy atmosphere by damping the floors and by giving just enough gentle fire-heat to admit of a free circulation of air. Cleanse the foliage with clear water as the Grapes are cut, and stop any extra strong growths to encourage a general break of laterals all over the Vines. Succession houses in which the fruit is now colouring may have more air whenever the weather is favourable, and a nice circulation throughout the night will be highly beneficial to the Vines, particularly where they have been hard pressed and perfect finish is doubtful. If Madresfield Court Muscats are growing with the Hamburgh, see that the roots at the time they commence colouring are in a nice growing border, neither too wet nor too dry. Mulch well to keep in moisture, as moisture after the skin is set causes many of the berries to crack, and allow all the laterals to grow to their full extent until after the fruit is cut. It will then be necessary to shorten back, and give more water to plump up the buds. Look over the main crop of Muscats, also the choice late kinds intended for autumn and winter use, and if any of the berries show signs of remaining small, let them be removed while there is yet time for those properly fertilised to fill up the weakest parts of the bunches. In the selection of the bunches of Gros Colmar and other sorts intended for bottling always give preference to medium-sized taper bunches of good outline, as they generally set well and keep better than larger clusters, through which the air cannot pass so freely. Persevere with thinning the latest crops as they become ready. Mulch and water the inside borders as soon as this tedious operation is finished; stop gross laterals where they are likely to rob the fruit and weaker growths, and then help them along to the stoning period with plenty of heat, air, and atmospheric moisture. If late spring planting has not been finished, free young Vines from this year's eyes may be put out up to the end of this month with every chance of their filling the trellis. Two points are essential to success—the borders should be made inside the house, and the temperature of the compost should not be less than 70° when it is placed in contact with the roots. For this kind of planting Vines struck in sods of turf are preferable to those which have been grown in pots.

WALL FRUITS.—The wall culture of fruits of any kind for market is by no means well done, the expense of walls and the uncertainty of tenure rendering it impossible for the tenant to properly carry it out. Walls, however, would well repay the expenditure bestowed on them; not only could choicer kinds of Pears, Cherries, Peaches, Plums, &c, be produced on them, but they would also shelter other crops; in addition to the greater certainty of crops that shelter-walls would give, there is a still greater one of getting the produce from their immediate vicinity into market a few days before that from open quarters, and everyone in the market trade knows that a few days even frequently make all the difference between profit and loss in the case of any crop. Walls of the massive character one finds in private gardens would not be needed; wooden framework covered with stout felt, as one finds at Barham Court and in other experimental fruit gardens, would answer, and would not cost much—a great point in fruit culture for market.

ORCHARD HOUSE.—Remove the early kinds of Peaches to a cool part of the house or a separate house altogether as they are cleared of ripe fruit. Thin out the wood from which the fruit has just been gathered, stop exuberant growths, and syringe well to free the foliage from spider. Vigorous young trees which require a shift into larger pots may either be potted as they are cleared of fruit, or they may be kept well supplied with water of a stimulating nature until the whole of the first batch is ready for overhauling. Keep them under glass and maintain a moist, growing atmosphere until the roots have taken to the new compost; then plunge in ashes in the open air, mulch to economise watering, and syringe overhead on fine evenings. Pay particular attention to the watering and syringing of all kinds of fruit trees in mid-season and late houses, and make sure of the water reaching the roots of those planted in the borders by mulching or forcing a basin round the stems. The best time to ascertain whether a tree wants water is just before the afternoon syringing, when a glance at the pot or the foliage will tell whether the roots are dry. Make the final thinning and shorten back the shoots where a sufficient number of promising fruits are swelling near home, and the shape of the trees can be improved thereby. Let the trees be well syringed soon after six on fine mornings, and not later than four in the afternoon. Open the ventilators when the temperature begins to rise, and let the time when the fruit is wanted be the guide in closing for the day. Late or unheated houses, which now in many places give a more certain supply of fruit than can be obtained from open walls, may from this time forward have the ventilators left constantly open until the fruit is ripe. An erroneous opinion prevails with some that house Peaches ripen earlier than they do on walls, but if judiciously selected kinds are potted, or, better still, planted out, and a constant circulation of air is maintained, with due attention to atmospheric moisture, fruit equally late and of finer quality may be secured.

ROSE GARDEN.

ROSES AT MANCHESTER.

THE Roses in pots at the late Manchester Show, though not so large as we have seen them, were good examples of high culture and free flowering. As a rule, too, the smallest plants were the most effective. Plants in 10-inch pots, averaging a dozen nice blooms each, were far more effective on the whole, and the blossoms much finer, than the plants in 12-inch, 16-inch, or 18-inch pots with fifty or more blooms each. As Teas are in full bloom alike out of doors and in towards the end of May, it would have been well to have had prizes for dozens or twenty-fours of cut Roses, and this is a suggestion which possibly Mr. Findlay may take up and embody in his next year's Whitsuntide show schedule—already a model of comprehensive liberality. The two finest lots of Roses were Mr. George Paul's, of Cheshunt, group of thirty, and Mr. Turner's, of Slough, group of twenty Roses. These great growers were each first in their class, though neither showed the monster Rose plants that they used to struggle for supremacy with a few years ago. Mr. Paul had over a score of large plants, though not so large as they used to be, and these were supplemented by much smaller ones. This disparity of size and of quality would have doubtless told against him had the competition been close, which it was not, for no one was within measurable distance of him in the thirty class. Mr. Turner was also far ahead of all competitors for twenty, and his plants had great equality of merit. Had the competition been close, the fact of his exhibiting pairs of Celine Forestier and several others in the twenty would have lost him a point or two probably, though nothing was said in the schedule about distinct varieties. However, in the nurserymen's class it would be as well to insist upon this, as it would afford more trustworthy data concerning the best early-flowering Roses. Céline Forestier was unusually good in this class, the bloom being large, specially well formed, and remarkably highly coloured—almost matching Maréchal Niel. Among the very finest alike in form of plant, colour, general quality, and profusion of bloom in Mr. Turner's twenty were Edouard Morren (of which two were shown alike by Messrs. Turner and George Paul), Beauty of Waltham, Duchesse de Vallombrosa, Comtesse de Serenye (two), M. Paul

Néron, Mdme. Gabriel Luizet, John Bright, Charles Lawson, Juno, Charles Darwin, Mdme. Lacharme, Marie Baumann, Vicomtesse de Cazes, and Souvenir d'Elise. Among Mr. George Paul's best were Edouard Morren (two), Beauty of Waltham, Mdme. Lacharme, Mdme. Clemence Joigneaux, Charles Lawson, Mdme. Vallombrosa, Catherine Soupert, John Stuart Mill, Etoile de Lyon, Baroness Rothschild, Marie Guillot, La France, Ulrich Brunner, Comtesse de Serenye, Souvenir de Mdme. Berthier, and Victor Verdier. Mr. Paul also exhibited a Rose unknown to commerce under the name received with it from the Continent, Celestina Borreanx, which may be best described as a robust Victor Verdier; and there are few rosarians that will not add, the more of this type the better. Writing of improvements and novelties, it may interest many to hear that Edouard Morren is threatened with a rival to his generally admitted supremacy. Melanie Vigneron is said to be such an improvement on Edouard Morren as to take its place of honour in the future among the great family of rose-coloured Roses. Well, this season may decide this and other matters; but for the present we advise all to hold on to Edouard Morren until they have proved Melanie Vigneron to be superior to it. D. T. F.

ROSA RUGOSA AS A LAWN SHRUB.

IN selecting shrubs for a lawn, one scarcely thinks of using Roses singly, or even gronped as shrubs. A number of Roses are usually huddled together in a bed for the purpose of making their somewhat sparse and ofttimes mildewed foliage more presentable. A better way, says the *Rural New Yorker*, would be, in order to secure the benefit of their flowers, to dispose them in the nooks and corners of a shrubbery in clusters of threes or fives, or even singly. Here their flowers would develop well and their mildewed foliage be less conspicuous, while the plants themselves would occupy a position properly and naturally related to the other members of the shrub group. The Japanese Rose (Rosa rugosa), however, needs no sheltered nook wherein to hide the deficiencies of its leaves, for in the excellence of its foliage under all circumstances lies its greatest charm. Dark, rich green leaves, curled and wrinkled (whence the name), make up this foliage in the most luxurious abundance. Nor do mildew or worms seem ever to attack it. Broad and rounded, and of vigorous habit, these solid masses give rise to the doubt whether after all the plant can be really a Rose. The shape of the leaf and the flowers, however, at once dispel any such doubt, and we find, moreover, the rich, full, single, distinctive flower a charming addition to the beauty of the foliage. Flecked with numerous clustered yellow stamens, these flowers stud the surface of the solid-looking leaves with brilliant effects of mixed red and green. Usually about 3 inches in diameter, the flowers are to many persons specially admirable for their simple character. The innumerable double flowers of every shape and hue seen now-a-days make it a pleasant change to revert once more in Rose novelties to the simple combination of petals, such as we find in the old Sweet Brier of the roadside. Rosa rugosa is hardy, easily transplanted, and readily propagated. A lovely, excellent shrub in many ways, it is somewhat strange it is not planted more extensively. Nurserymen have not offered it for sale until recently, but now that it has become well known to many, its popularity should rapidly increase. As an illustration of the length of time during which a good plant may grow and thrive in a country without gaining recognition, we may cite the fact —well known to several—that down on Long Island there exists a large hedge of what is evidently Rosa rugosa, apparently twenty or thirty years old, and doubtless brought over from Japan by some ship master of a generation ago.

Fortune's Yellow Rose. Mr. Fortune, who introduced this Rose from China, recommended that it be planted at the foot of a sunny old wall and allowed to scramble over it as it pleased. It is one of those Roses which do not submit with good grace to pruning or training. The Chinese recommended night soil as its favourite manure.—J. D.

MARECHAL NIEL OUT OF DOORS.

THIS Rose, with slight protection, has come as well through the trying spring as almost any other Rose. It has also come into bloom about as early as usual. About the second week in May the first flowers were gathered in the open on a low south wall; on May 25 the first blooms were gathered on the east end of a glasshouse; and on the 28th several fine flowers were fully opened. This early habit of Maréchal Niel renders it most valuable for either in or outdoor culture. Where a continuous supply of bloom is necessary, it is most important to have a succession of plants of this fine Rose on walls in the open air, to succeed those that bloom under glass; otherwise a longish break in the supply of golden Roses is almost sure to occur. Only those whom this magnificent Rose has spoilt for all others can fully appreciate the sense of loss when the supply fails; hence the importance of adopting all possible expedients to bridge over the hiatus that is apt to occur between the last of those under glass and the first Maréchals from the open air. A few plants on a south wall, partially protected in winter, prove invaluable for this purpose. From such plants a few flowers were gathered even this season early in May, while plants on a south-eastern aspect are now showing fine flowers in quantity. Plants on western walls, and standards in different localities and aspects, will do a great deal to maintain the supply of Maréchal Niel to the end of September. The mortality among Maréchal Niel Roses of late years has, however, been frightful, and it needs courage to go on striking and budding plants for open-air culture in full view of our late heavy losses. For those, however, in sheltered sites and on warm soils, the advice may safely be given to plant Maréchal Niel anywhere, everywhere. Some may die, but others will live, and will assuredly yield rich harvests of golden beauty in the most unexpected times and places. For this style of culture poor soil and dry sites are most suitable. Sensational growths must neither be expected nor encouraged; but moderate, semi-stunted wood will not fail to yield blooms of the richest colour and fullest fragrance. It may seem injudicious to try Maréchal Niel on a north wall; but, with proper protection, there could be little difficulty in keeping it alive through the winter. We might protect Maréchal Niel, as we used to do our Figs, until May or June, and with equally successful results. Possibly by some such means the general dearth of Maréchal Niel Roses throughout the summer might be exchanged for a second, or even a third, season of gold equal to that of the early spring. D. T. F.

FERNS.

BEST CULTIVATED FERNS.

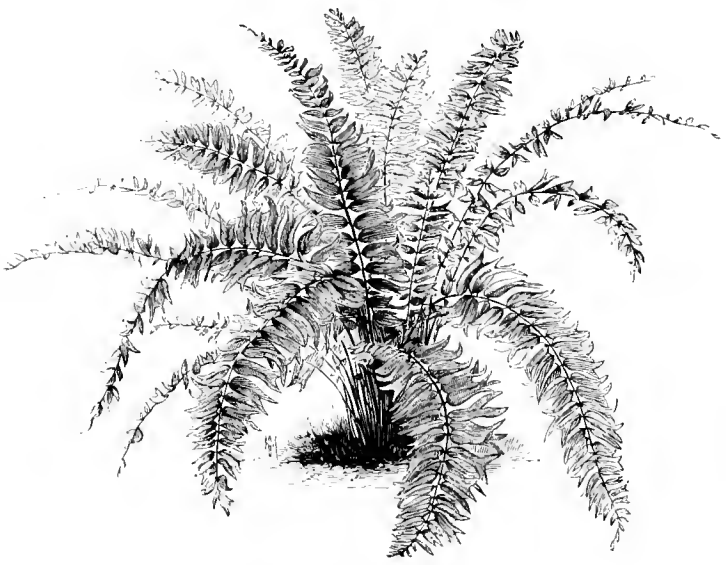
(Continued from p. 459.)

NEPHROLEPIS.—This, though not a large genus, is nevertheless one which contains some of the most valuable species for planting on rockwork—a position in which they soon form very ornamental masses of a particularly striking and attractive character. They are strictly pinnate, the pinnæ being articulated, and instead of being fastened to the rachis or mid-rib of the frond, are set in a little joint, which prevents their thorough adhesion to it. This distinguishing character of the fronds, which is only shared by the Didymochlænas, some of the Goniophlebiums, and Pellæa, is not, it is true, of very great advantage in a decorative point of view, for should the watering of the plants be in any way neglected, even for a short time, they will not, as most other Ferns do, droop their fronds, but every pinna will fall off at the joints, beginning with the upper part of the frond, and no amount of watering will then prevent the whole of them coming off, leaving on the plants nothing but the bare, stick-like mid-ribs. Fortunately, plants which have been thus ill-treated are by no means killed outright; on the contrary, they are most tenacious of life, and after a few weeks of attentive nursing another crop of fresh foliage will take the place of the one previously destroyed. Their fronds, which in some kinds attain 4 feet in length, are in most, if not in all, cases produced from long, thin, wiry, rapid-growing rhizomes—another feature quite peculiar to plants of this genus, and by which means most of the kinds are readily increased, especially the reputed barren forms, such as N. Duffi and neglecta, and the fertile, but very changeable, N. davallioides furcans, which, when propagated from spores, produces many worthless varieties. Where it is desired they should be increased, they should be planted in a shallow bed made of coarsely broken peat, chopped Sphagnum, and silver sand in equal parts, so as to make a compost in which the rhizomes can freely run and produce young plants, which may be safely severed from the parent when they have made three or four fronds. Besides the usual rhizomes, a few species, such as N. tuberosa, pluma, philippinensis, and undulata, are also provided at the roots with small tubers of a succulent character, which likewise produce young plants in a remarkably short time. In this latter section N. pluma and undulata are entirely deciduous, and from want of knowledge respecting their habit have often been lost during their resting season when some growers will persist in keeping them so dry that long before the time comes when they should start into growth again the tubers have ceased to exist. The soil which contains them must be kept all through the winter in a moderately moist condition so as to prevent them from shrivelling up, this being an essential point as regards securing a healthy strong spring growth. All the species of Nephrolepis are particularly well adapted for basket culture, being all of an elegantly drooping character; they have also a curious propensity for taking possession of the outer surface of the basket and growing all round it, thus making a perfect ball of gracefully pendulous foliage which, provided the plant is well supplied with water at the roots, remains a long time in a perfect state. On account of their jointed pinnæ the fronds are of but little use when cut, and they only last in good condition a very short time. The Nephrolepises all enjoy a strong light and are benefited by occasional syringings overhead; they are specially useful for covering walls and pillars, as they require but very little soil and can be kept thriving almost on moisture alone.

N. DAVALLIOIDES.—This is a very fine species from the Malay Islands, its graceful habit of growth and handsome arching fronds making it a plant of no ordinary merit. For covering walls or planting on dead Tree Ferns it has no equal in its genus. Its crown is fibrous, and sends forth filiform stolons of some length, which delight in creeping on the surface of the ground or in some very loose material, such as half-decayed Moss, sending up here and there tufts of new fronds. These are borne on rather stout, round stalks, from 12 inches to 15 inches long, channelled in front and scaly at the base only. They are simply pinnate, the lower pinnæ being barren, opposite, lanceolate-acuminate in shape, and serrated at the edges. The upper portion only of the fronds, which sometimes measure 4 feet in length, is fertile, differing in that respect, as well as in general appearance, from all other known species. The fertile pinnæ, which, as well as the barren ones, are opposite, nearly sessile, but narrower, measure from 6 inches to 8 inches in length; they are much contracted and elongated, with rounded lobes, the apex of which is terminated by a single sorus situated on the extreme edge—hence the name davallioides. The two portions of the frond are as distinct in appearance as those of the well-known Asplenium biforme. Although this Fern thrives well in an intermediate house, it only attains its full dimensions in a stove.

N. DAVALLIOIDES FURCANS.—Among the many crested Ferns in cultivation, this, of which the annexed is an illustration, is one of the most distinct; so different indeed is it from the type, that it is questionable if it really is a form of it; the most essential characteristic, that of the fructification at the extreme edge of the lobes of the pinnæ, is altogether absent, and the whole habit of the plant is also thoroughly distinct. It is of

equally robust growth, but its handsomely arching fronds, which are from 3 feet to 4 feet in length, are produced in great abundance from a central tuft or agglomeration of crowns. Its most distinct characteristic is the furcation of the pinnæ, which are all of the same dimensions, whether sterile or fertile; they are all opposite and closely set along the mid-rib, whereas those of N. davallioides are set much further apart. In the barren pinnæ, which are only situated on the lower portion of the frond, and which generally are only few in number, the furcation is rudimentary; in the fertile pinnæ it is twice, and even three times repeated in the extremities of the first division, becoming more complex towards the point of the frond, where it often forms quite a large tassel, whose weight gives the fronds quite an elegant, arching habit. On that account this plant is valuable for growing in baskets of large dimensions, in which it shows itself off to good advantage, and never fails to prove attractive. Although it produces spores freely, it is best to propagate it by means of the young plants produced from rhizomes in the ordinary way, on account of the extreme variations



Nephrolepis davallioides furcans.

which take place among the seedlings, a small percentage only of which are possessed of the true character of the parent plant. Stove.

N. Duffi.—This pretty neat-habited species, of which an illustration, kindly lent us by Mr. Bull, appears in another column, is a native of the Duke of York's Island, in the South Pacific Ocean, and is undoubtedly one of the most interesting of the whole genus. Its compact habit, its comparatively small dimensions, and the bright glossy colour of its beautifully tasselled fronds render it a most welcome addition to a group of Ferns naturally rich in decorative plants. Its curiously and irregularly pinnate fronds are borne on slender stalks, terete towards the base, and covered with reddish brown, downy scales; instead of being produced loosely, as in most other Nephrolepises, these are densely crowded, and the outcome of closely clustered crowns. They measure from 15 inches to 18 inches long, and are terminated by very handsome massive crests, which vary in size according to the temperature in which the plant is grown. We have at different times heard complaints of these fronds being simply furcate, when the same plant, after being subjected to a greater amount of heat and moisture, produced fronds very heavily tasselled, and partaking of an elegant vase-shaped appearance. In fact, nothing short of the moist heat of a stove will induce it to show its characters in their best condition. The pinnæ, which are small, of different sizes, rounded and serrated at the edges, are produced in pairs, one overlying the other, and, curiously enough, those on the top are the largest. The pairs are sometimes opposite, but mostly alternate, distant towards the base, approximate higher up, and crowded and quite overlapping in the crested portion of the frond. This, being a thoroughly barren kind, can only be propagated by division of the crowns, an operation easily done at any time of the year, but most safely in early spring and by young plants produced from the rhizomes, which, however, are produced much more sparingly than in any other species. It is also one of the best adapted for pot or pan culture, its somewhat upright habit making it less suitable for baskets, brackets, and wall covering than other species. Stove.

N. ensifolia.—A robust-growing species from Java very often mistaken for N. davallioides, which it only resembles as far as size and general aspect are concerned. The habit of its handsome fronds, which often measure from 3 feet to 4 feet in length, is equally graceful, but it greatly differs from it in all other respects. It is much more bushy, each crown producing a quantity of fronds much softer in texture and lighter in colour, and borne on round, downy stalks. It is also a most prolific and easily propagated species, which does equally well in a stove or in an intermediate house with an abundance of water at the roots.

N. exaltata.—This Tropical American species, though one of the commonest of the whole genus, is very justly also one of the mose popular. For indoor decorations, as well as for general use, it has no equal, and being of a particularly accommodating character, it thrives under other Ferns in places which possibly would otherwise remain bare. It is also particularly well adapted for planting on a cool rockery either in out-of-the-way corners or on rocks near water; but wherever it is planted care should be taken to give it plenty of room, so as to ensure the full development of its beautifully arching and somewhat massive fronds. The latter measure from 3 feet to 4 feet long—linear-lanceolate in shape, and with pinnæ closely set; these latter are also lanceolate, slightly undulated, of a bright glossy green colour, and good in texture, and they often measure 2 inches in length. It is a rapid grower, and one which soon forms very ornamental masses when planted out, but care must be taken that it does not overrun more delicate Ferns which may be near it. Greenhouse.

N. falciformis.—A handsome species of medium growth from Borneo, and still rare in cultivation. In habit it is intermediate between N. davallioides and ensifolia, but of shorter stature than either of these two species. Its fronds, which are of a more upright character than those of most other kinds, are produced freely from a crowded crown; their pinnæ, which are broad and falcate, slightly auricled at the base, and of a firm texture, are closely set, and the whole plant is of a particularly dark green colour. Stove.

N. hirsutula.—This East Indian species, although of early introduction, is still scarce in collections. It is probably grown less extensively than other kinds on account of the softness of its foliage, which is entirely covered with short soft hairs of a peculiar greyish hue, thus giving the whole plant quite a distinct appearance. The fronds, which are linear-lanceolate in shape, seldom grow to more than 2 feet long, and the pinnæ, which are closely set, and measure from 2 inches to 3 inches in length, are of a soft velvety texture and dark green colour. Stove.

N. neglecta.—A singular form of garden origin reminding one by the strange way in which the pinnæ are set of some of the depauperated and cruciated forms of our Polystichums and Athyriums. The fronds, which vary in length from 1 foot to 2 feet, have a peculiarly narrow appearance on account of the pinnæ, which, instead of being falcate or linear lanceolate, as in all the other kinds, affect different forms; some are cordate, some cruciate, and some again almost triangular; they are set rather far apart on a thick, round, and slightly scaly stalk. They, however, possess the advantage of being much more securely attached to the mid-rib than those of any of the other kinds belonging to the genus, and are not so easily affected from want of water at the roots. It is not a good Fern for a pot, but very striking when planted on the rockery, where it grows in fine masses. Stove.

N. pectinata.—This tropical American species is undoubtedly the gem of the genus; its close, compact, yet graceful habit, coupled with the greyish colour of its comparatively short and slender fronds, make it quite unique. Either grown in a pot or in baskets of small dimensions, it is most useful, as, contrary to all other kinds, it produces fine bushy plants in small pots suitable for table decoration, and it is not uncommon to find in a 10-inch basket as many as 150 most gracefully pendulous slender fronds, seldom exceeding 12 inches long. The pinnæ, which are oblong in shape and toothed at the edges, are set closely together, and, being strongly auricled at the base, form an uninterrupted line all along the rachis. It is one of the kinds most readily propagated from spores. Stove.

N. philippinensis.—A lovely and most distinct species from the Philippine Islands, which, like the preceding, also forms plants of small dimensions and compact habit. It is, however, entirely distinct from all others, inasmuch as its narrow, lanceolate fronds, which are from 12 inches to 18 inches long, are quite erect, and produced abundantly from single crowns almost devoid of stoloniferous rhizomes. On each side of the rachis, which is of a bright shining brown colour, are the pinnæ, set very closely together and affecting a deflexed position; they are of a pleasing dark green, strongly auricled at the base and finely serrated at the edges. Their curious position and the upright habit of the whole plant make it a most interesting stove Fern.

N. pluma.—This is a deciduous species from Madagascar, with pinnate fronds beautifully pendulous in habit, and attaining from 3 feet to 4 feet in length. They are borne on slender, round stalks, whose base is completely deprived for at least 8 inches of pinnæ, which higher up are closely set on each side of the rachis, when they generally number from eighty to a hundred each side in the largest fronds. These pinnæ, which are usually falcately curved, broadest at the base, which is also slightly auricled and tapering to an attenuated point, are about 2 inches long, and have their margins notched in a series of oblique crenatures, a characteristic peculiar to this particular species. The fronds are thus 4 inches broad, and when produced in large numbers, which they are on strong plants, they have an

elegant appearance, especially in a basket suspended from the roof. Being thoroughly deciduous, care must be taken to keep its tubers, which are of a woody character, about 3 inches long, and of a dark brown colour, in a constantly but moderately, moist soil during the resting period, which corresponds with our own winter, otherwise they will shrivel up, and the plant will be lost. It is a Fern which requires abundance of water at the roots all through the summer. Stove.

N. TUBEROSA.—Like the species just described, this East Indian kind also produces tubers, which, however, are different in texture, being very succulent and found among the fibrous roots in more abundance, but not so useful for propagation. It is of intermediate size, and its pretty pinnate fronds, which are of a somewhat thin character, seldom measure more than from 18 inches to 20 inches. The stalk, which is of a light or yellowish brown colour, is furnished, nearly to its very base, with numerous pinnæ serrated at the edges and roundish at the apex; these are set at little distances apart and are of a rich dark green colour, lighter, however, when grown near the glass. It is also known under the name of N. cordifolia (?), and very often erroneously under that of N. exaltata, to which it bears very little resemblance. It is best adapted for growing in baskets or for planting in the rockery. Greenhouse.

N. UNDULATA.—A pretty, dwarf-growing species from West Africa, rather scarce in collections, owing, doubtless, to its being of deciduous habit, and accordingly thrown away, unintentionally, during its resting period. Like N. pluma and tuberosa, it produces small tubers, from which it can easily be propagated after its resting period. Its fronds, which are of an arching, but not drooping habit, seldom exceed 15 inches in length; they are linear-lanceolate in shape with narrow oblong pointed pinnæ, crenated at the edges and of a cheerful light green colour. Stove.

N. ZOLLINGERIANA.—A Malayan species, of somewhat upright and stiff habit, differing from all other kinds by its pinnæ being so deeply serrated as to appear bipinnatifid; these are set a little way apart on slightly tomentous stalks, green in early stage of development, but turning with age to a dark brown colour. It is of medium growth, seldom attaining more than 18 inches in height, and of a lively green colour. The stoloniferous rhizomes are in this species very freely produced and extend a very long way from the plant, which thrives best when planted in rockwork of either warm or intermediate temperature.

PELLÆA.

NOTES.

The Royal Gardens at Kew are always interesting, and great improvements have been made of recent years in the outdoor departments as well as elsewhere. At no time does our National Botanical Garden look fresher or more attractive than at this season of the year, but I am afraid that but few of those who visit Kew take advantage of the now excellent collections of hardy trees and shrubs to be found in the arboretum, between the large Palm house and the river Thames. The collections of Coniferæ, Oaks, Acers, Elms, and Hollies are most interesting, and should be seen by all who take pleasure in planting for permanent beauty in the garden. But of the thousands of visitors who rush through the hothouses one after another on broiling hot days, how many dozens are there who care to stroll leisurely over the cool green turf to admire the beauty of the trees? Of the many thousands who walk through the large Palm house at Kew every year, few know that its enormous iron framework is of Irish manufacture. It was cast and fitted by the late Mr. Turner, of the Hammersmith Ironworks, at Ball's Bridge, Dublin, many years ago, and is even in our own day perhaps the most remarkable of all iron-framed horticultural buildings.

Plant pictures.—Of all modern additions to the botanical department of Kew, however, the "Marianne North Gallery" of plant pictures, made in nearly all parts of the world, deserves first place. I had the honour of seeing the fair artist and most of her sketches before I went abroad, and can testify to the faithful way in which she has pourtrayed the wild and garden plants and fruits of Borneo, Singapore, and Pulo Penang. Those who have a delicate eye for northern colour effects must needs bear in mind that these pictures have mostly been painted where light is most full and brilliant, hence vivid effects are presented which are certainly not familiar beneath our dull and oft-clouded skies. All gardeners who visit Kew should make a point of seeing these pictures—about 600 or 700 in all—as they afford a unique bird's-eye view of the scenery and vegetation of the whole world. Among the Orchid portraits we recognise that of Vanda Hookeri in one group, which is very interesting, as this plant has only quite recently bloomed for the first time in Europe. In Eastern gardens this Bornean species and its congener, V. teres, from Burmah, are quite commonly grown in the open air. They are planted out in the red loamy soil of Singapore, while stakes are driven around them, up which the plants climb by their aërial roots. When in bloom these masses of growth and blossoms are singularly suggestive of Sweet Peas as seen at home.

More about Moss culture.—A lady who has a well-earned right to be proud of a well-stocked garden writes to say that she has for years grown many plants in common wood Moss with success. Her plan is to pot cuttings rooted in Hypnum Moss into larger ornamental vases, using the same material instead of earth. She adds: "I can grow most of my plants in an ordinary garden frame during the early summer months by syringing them and shutting up the sashes early in the afternoon, so as to conserve the sun-heat. My Moss is not fertilised with dry manures, such as you recommend, but as soon as it becomes full of roots, I water with very clear sheep manure water, into which a small canvas bag of soot and a handful of guano have been steeped. Most of my vases contain 'combinations' of plants, such as Dracæna rubra on a carpet of Selaginella or Pilea muscosa nana, or Aralia Sieboldi, India-rubber (Ficus), or Grevillea robusta on a carpet of Panicum or Tradescantia in variety. So, you see, my plan is very simple, and it answers well in practice."

A floral time-table.—It is a most interesting fact that certain flowers open and close their blossoms at least once every twenty-four hours, although the cause of this action is as yet but imperfectly known. In some cases it may depend on heat, in others on light being present in sufficient force. The fact has long been known. It was known to Linnæus, and some of the early gardeners mention floral clocks or dials among the quaint conceits offered to the readers of their books. Here is a list of plants which open at different hours during the day. The first column of figures gives the time of opening in the morning, and the second column shows the time of closing:—

	H.	M.	H.	M.
Goat's-beard—Tragopogon luteum	3	5	9	10
Late-flowering Dandelion—Leontodon serotinum	4	0	12	1
Hawkweed—Picris echioides	4	5	12	0
Alpine Hawk's-beard—Crepis alpina	4	5	12	0
Wild Succory—Cichorium Intybus	4	5	8	9
Naked-stalked Poppy—Papaver nudicaule	5	0	7	0
Copper-coloured Day Lily—Hemerocallis fulva	5	0	7	8
Smooth Sow Thistle—Sonchus lævigatus	5	0	11	12
Field Bind-weed—Convolvulus arvensis	5	6	4	5
Common Nipple-wort—Lapsana communis	5	6	10	0
Spotted Cat's-ear—Hypochæris maculata	6	7	4	5
White Water Lily—Nymphæa alba	7	0	5	0
Garden Lettuce—Lactuca sativa	7	0	10	0
African Marigold—Tagetes erecta	7	0	3	4
Mouse-ear Hawkweed—Hieracium Pilosella	8	0	2	0
Proliferous Pink—Dianthus proliferus	8	0	1	0
Field Marigold—Calendula arvensis	9	3	3	0
Purple Sandwort—Arenaria purpurea	9	10	2	3
Creeping Mallow—Malva caroliniana	9	10	12	1
Chickweed—Stellaria media	9	10	9	10

Plant food in solution.—Near rivers all the world over vegetative growth is most luxuriant. This is in part due to constant moisture, but much manurial *débris* is also washed from the high lands and hill sides into the rivers, and Mr. David Thomson some time ago pointed out how gardeners might utilise their knowledge of this fact. "Let anyone mix pure clay in water and water plants that are potted in light, sandy soil with it, and its beneficial effects will soon be seen." I make this extract from a note on p. 488 of the *Gardener* for November, 1882, because it is a statement which I can testify, by my experience on the same lines, is founded on facts, and may be worth the attention of cultivators generally. As I have before stated in these pages, I knew an Orchid grower who always used a solution of peat in which to dip such of his Orchids as were grown on blocks, and the remainder of this "extract of peat" was not thrown away, but given to Camellia plants, that appreciated it at its true worth. Most of us use manure water of some kind or other, and some day we may find repotting in some part superseded by water in which the very essence of good soil, be it peat or loam, is held in solution or suspension. The above note contains the germ of a practice which may be turned to good practical account. There seems to be a little yeast there—leaven of a very suggestive kind.

Christmas blooming Calanthes.—At this season, those who desire to have a good display of Calanthes of the deciduous section must needs be wary. In growing good Calanthes, as in most other things, much depends upon a good start being made. No other Orchids I know require such a dry resting season, and none other start so badly if they are over-watered. A shelf near the glass suits them best, and a moderate amount of sunlight is beneficial to them. Syringing or watering overhead is apt to produce the black spots on the leaves and young growths, which many growers know too well. We pot them in peat and loam fibre, mixed with Sphagnum Moss, nodules of charcoal, and crocks. With this the bulbs are wedged tightly into the pots, and but little water is given until the growths are 6 inches high; then the roots begin to stitch themselves into the fibre, and more water is necessary. About the end of June, as the roots begin to fill the compost, we give weak manure water made of sheep manure and a handful of soot. With this assistance through July and August the growths make great progress; but at any time care is taken not to over-water. As the leaves fade at the tips, less water is given, any during the blooming season scarcely any is requisite. There is a little secret in Calanthe culture; at no time should these plants be in a lower temperature than 60° if the best results be desired. VERONICA.

TREES AND SHRUBS.

SOIL FOR RHODODENDRONS.

"J. C. C." says "we are not yet in a position to decide what kind of soil will not suit Rhododendrons," whereas nurserymen and gardeners are agreed that we have learned a good deal on that subject in recent years, and one result of this is that gardeners now plant Rhododendrons in any common soil not too strongly impregnated with lime, and nurserymen advertise their plants as "grown in common soil." How much trouble and expense the now indisputable fact that Rhododendrons will grow without peat has saved gardeners and nurserymen who plant Rhododendrons extensively, only those know who have much to do in that way. One firm used at one time to transport hundreds of tons of peat from the moors here, squads of men staying for weeks on the moors to dig it up. They still use it, but in very reduced quantities, and many of their plants do not receive any peat at all. Many years ago, where the writer was great quantities of Rhododendrons were planted in the gardens and throughout the woods in large clumps where every particle of soil in which they would have grown well enough, and do grow now, was dug out and replaced by peat carted miles for the purpose. On the limestone they will not do. About Doncaster, on the exten-

sive limestone tract there, they have been tried in gardens, but do no good. They live or rather exist for a time but that is all. As regards other soils, however, my experience is not the same as "J. C. C.'s," for I have never seen Rhododendrons refuse to thrive in any ordinarily loamy soil, and it does not seem to matter in the least whether it be wet or dry, extremes either way in that respect suiting them perfectly well, as I once pointed out before. Probably the largest Rhododendron bush in England grew at Wentworth Castle, in Yorkshire, on a high knoll and in a thin and dry soil. It was cut in some years ago, and I forget how many paces in circumference it was, but probably 150 will be well within the mark. Take the other extreme. Over 30 years ago an islet was made in the centre of a reservoir here by building an open drystone circular wall to the level of the water surface and filling it with soil. In this Rhododendrons and other shrubs were planted, and all that time the roots have been constantly water-logged, the water standing among the roots where ever a spade is thrust in, and yet the Rhododendrons are just as healthy and as large as those growing on the bank not far off, where the soil is so thin and poor that the leaves droop severely in dry seasons, though the plants do not die. I never was more surprised than by the sight of these Rhododendrons when I first came here, about 20 years since, and "J. C. C.," who cautions planters against putting Rhododendrons near "stagnant water," may see and examine them any time he is in this neighbourhood. The only other tree alive of the others on the islet is a common Yew. There are four Rhododendrons (different varieties), and one is about 12 feet in diameter each way, and all are in fine health, and flower freely every year. If anyone was to ask me, therefore, if it was necessary to drain moist land for Rhododendrons, I should say no, and I would add if needful that they would grow freely in almost any common soil not on the limestone formation. On the islet mentioned the ground just feels like a morass under the feet when the reservoir is pretty full.

J. S.

KITCHEN GARDEN.

CUCUMBERS FROM CUTTINGS.

WHEN once a few Cucumber plants have been raised and become large the best way of increasing one's stock of plants is to propagate them from cuttings. Cuttings are very easily rooted, and they begin to bear immediately. They will produce fruit fit for cutting in half the time plants from seed will. We have cut good fruit from plants raised from cuttings when three weeks old. The best parts to make cuttings of are the ends of the young fruiting shoots. As it is often necessary to stop these, the pieces taken off may be made into cuttings in the ordinary way. They may then be either inserted in the mounds of soil in which the old plants are growing or potted singly in small-sized pots. In stopping our Cucumbers we often put the pieces taken off in round the margin of the mounds, and can always find young plants when any are wanted. Rooting them in pots is also a very good plan; it is astonishing how quickly they strike root into any light sandy mixture, and from pots they are easily transferred to the fruiting beds. The cuttings being made of shoot-bearing small fruits, these very often remain fresh and good, and swell up immediately they are planted out. It is in this way plants from cuttings bear fruit so soon and freely, as they do not make long stems like seedlings before emitting side shoots on which the fruit is borne, and the main stems of the cutting plants fruit too, some being produced only an inch or two from the soil. As a rule seeds of new and valuable Cucumbers are sent out in very small quantities, half-a-dozen seeds for half-a-crown being no unusual price, and when half of these are bad or fail to germinate, the cultivator may be put to some little inconvenience owing to the smallness of his stock; so long, however, as I had one plant of any kind, I would not trouble about seed failures or more seed, as I could raise plants by the dozen if necessary from cuttings. In the case of almost every kind of Cucumber where numbers of plants are grown, one or more will come better than the rest. The only way, therefore, of securing more of the same sort is to resort to cuttings. In raising plants for late autumn and winter fruiting, the cutting plan is by far the best. Cuttings can be taken from the most fruitful of the summer plants, and plants thus raised will be very short-jointed and fertile, while seedling plants might be rambling over the trellis, producing big soft leaves and pithy long-jointed wood. J. MUIR.

Margam.

Asparagus.—M. Godefroy-Lebeuf, of Argenteuil, has sent us some very fine specimens of his Asparagus growth in that district. Without being over large or monstrous, they were extremely fine, and even the long journey and the dry, hot days did not much injure their good flavour and tenderness. Asparagus has been shown of late in good condition in the Kensington International Exhibition, and we believe also that excellent samples have been shown at Manchester, where the prizes for Asparagus were this year given.

Remedy for gumming in Cucumbers.—Last season I had a fine fruiting plant in a frame attacked in three places by the gum disease, the worst being close to the root. I got a new paint-brush tied up ready for use, took about a teacupful of warm water, dipped the brush in this and then rubbed it on a cake of yellow soap, and brushed the sore places, cleansing them thoroughly, and finally washing with clean water. I then took some fine dusty soil (quite dry) and sprinkled it into the wounds with the thumb and finger. Under this treatment the plant got all right again, and I had about two dozen fine fruit off it. Perhaps someone will try this, my supposed remedy, and report results.—C. D., *Derby*.

Fern *v.* clubbing.—A few days ago one of my garden men, when digging up a piece of old sprouting Broccoli, drew my attention to the roots of the plants growing in decayed Fern. They were much stronger and healthier than those of plants not planted in the Fern, and there was not the least sign of club, while of roots not in the Fern every one was clubbed. I had often before used Fern as manure, but had not taken any particular notice of the result. I have now, however, a good opportunity of having plenty of decayed Fern, and I mean to dress a piece of ground entirely with it, on which I shall grow Brussels Sprouts. I shall also use on a portion of the ground ordinary farmyard manure, and shall record the result. Cottagers in some parts of Scotland grow fine crops of Potatoes by means of rotten Fern as manure. The Potato sets are generally planted upon the Fern, which is spread in the bottom of the trenches and covered with the soil. The Fern is cut when partly green and stacked; it then heats and decays. When left until ripe it is dry, and unsuitable for putting into the ground.—WM. CHRISTISON.

Absorption of water by plants.—Mr. T. Darwin, in an article on this subject recently published in *Nature*, shows that the rate of absorption is influenced by the dampness or dryness of the air being more rapid in dry air, owing to the more rapid evaporation from the leaves, and more rapid in sunlight than in shade. He also confirms Baranetzky's statement that a small disturbance, such as a slight shake, by increasing the transpiration from the leaves increases the rate of absorption, while cutting off a twig rapidly diminishes it. A. Sorauer, however, found in some experiments on Gourds that the removal of leaves from plants on two occasions did not alter the amount of evaporation in the least; and even when half the leaves were removed from another plant, although a reduction in the amount of evaporation ensued at first, after eleven days the evaporation was equal to that of an untouched plant.

ORCHIDS.

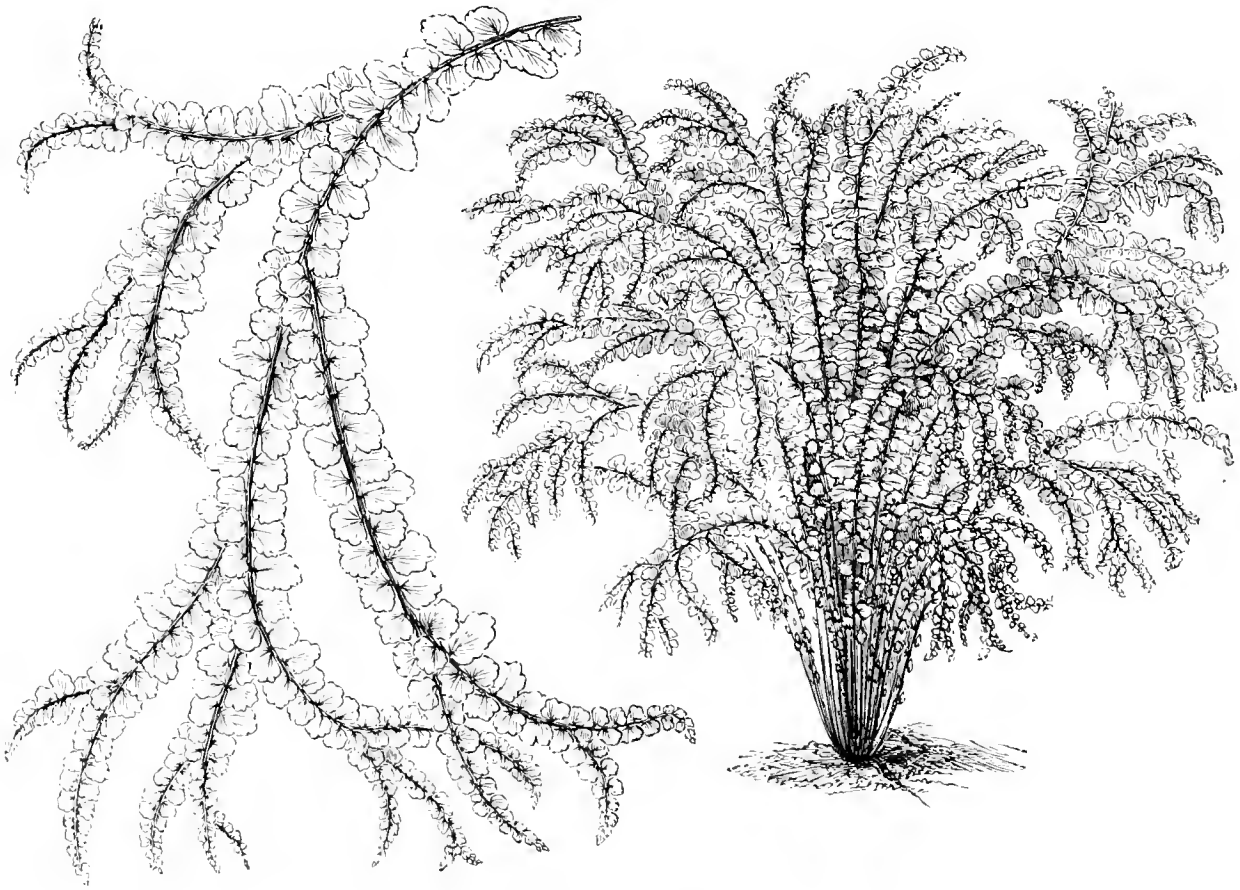
MR. BULL'S ORCHID EXHIBITION.

ONCE more flower lovers crowd Mr. Bull's nursery in the King's Road, Chelsea, attracted by the fascinating flower feast annually provided for them there during the Orchid flowering season. Marvellous as these shows have been in previous years, the present undoubtedly eclipses its predecessors, not only in extent, but also in variety and novelty. It is in truth a charming exhibition, in which are displayed all the brilliancy of colour and beauty of form that it is possible to derive from any one tribe of plants. As in former years, the exhibition is held in a large span-roofed house, and the effect of so many flowering plants gathered together viewed from whatever point they may be is indescribably lovely. An exhibition such as this fascinates and charms even those unacquainted with Orchids, while for the Orchid connoisseur it abounds with interest, inasmuch as he sees in it not only the ordinary run of popular Orchids, but hosts of new varieties, and not a few species which are either new or seldom met with.

THE MASDEVALLIAS constitute, we consider, the most important element in the display, on account of their brilliancy and diversity of colour, together with their elegant growth. At present there cannot be far short of a thousand blooms and buds of Masdevallias in the show, and some of the free-flowering varieties fairly bristle with flower-spikes. It is surprising to see what a large number of distinct varieties of M. Harryana alone are here represented—many of them unseen elsewhere. The distinctness of these varieties when placed side by side is very apparent; the majority differ in colour, but several vary also in the form and size of the flowers. It is really surprising to see the numbers of distinct varieties of this Masdevallia, especially having regard to the fact that it has only been introduced a few years, and that all these splendid forms must have sprung from among consignments of imported plants. When such an array of varieties of this Masdevallia is seen in one house, the question not unnaturally arises as to what is to be regarded as the typical form. If you ask for the type, you will invariably get a poor-looking form with flowers about a third of the size of those of the finest varieties, and ten times less brilliant in colour. Taking into account the whole of the named varieties of M. Harryana in Mr. Bull's collection, there cannot be far short of half a hundred, and these are absolutely distinct from each other, though of course some differ more markedly than others. Those which we singled out as being the most distinct as well as the most beautiful include the following. First on the list must be placed the magnificent newly-named variety Comet, which unquestionably is the finest of the whole gathering on account of the large size of the flowers, and their splendid and brilliant colouring. The flowers of this variety are nearly 3 inches across, and the sepals are so shaped as to form almost a perfect oval flower in outline, and they possess, moreover, unusual substance. The colour is a glowing scarlet and vivid as a scarlet Pelargonium, and this body colour is intensified by the bright yellow throat and tube. Among the scarlet tinted varieties this would be our pick of the collection, and among the magenta hues we should choose one named M. Harryana splendens. This is almost the counterpart of the Comet as regards size, form, and substance, but the colour is the richest magenta overlaid with a purplish lustre, which in sunshine is indescribably brilliant. The colour at the tips of the sepals is so intensified as to appear as if the colour was dropping from them. Third on the list we should place one called Meteor, a companion to Comet, but differing in colour. This could not be more intelligibly described than designating it fire colour, it being exactly the hue of a tongue of flame. This has a yellow centre and tube. One of the most remarkable forms is aptly named concolor, on account of the absence of any other colour on the flower, not even in the tube, except a bright magenta overlaid with crimson. This variety is,

moreover, a wonderfully free flowerer, and the finest plant of it is carrying quite a sheaf of spikes. Quite as fine as concolor is cœrulescens superba, which is even superior in every respect to the highly prized cœrulescens now to be found in all good Orchid collections. In a similar way is brilliantissima, which not only possesses a splendid vivid magenta colour, but a large, well-shaped flower. There are few more striking sorts than regalis, which is particularly remarkable in point of floriferousness. The colour is a deep crimson-carmine, but the flower is somewhat defective in shape, the sepals being more widely separated than is desirable. The most distinct of all the race, so far as structural characters go, is acanthifolia. It may always be identified by the prickly prominence on the leaf-stalk, and this character is invariably correlated by a rather long flower of medium size, but of a most beautiful carmine-crimson colour overlaid by a velvet-like lustre. This is an extremely rare variety and is much sought after, especially as it differs from all others in its prickly leaf-stalk. There are numerous other varieties that cannot be passed by, as they possess such high merit. Among these we must mention triumphans, bright purple-violet with no colour in the tube; magnifica, large, finely shaped, and bright magenta in colour; cœrulescens gigantea, of the same colour as typical cœrulescens, but with flowers 2½ inches across; conchiflora, the most distinct of all as regards the shape of the flowers, which exactly resembles a shell; and elegans, with roundish flowers of a light purple. Then there is a set of varieties whose names are sufficiently expressive of their colours. Of these we should select lilacina, deep lilac; rosea, pale mauve; sanguinea, almost a blood red; and coccinea, a vivid scarlet. These comprise the cream of this remarkable collection of Harryana varieties, and although there is a wide range of colour, a pure white and a clear yellow are great desiderata, and Mr. Bull does not despair in obtaining these in course of time, as both whites and yellows are represented in most all the varieties. Besides the Harryanas there are numbers of other species represented in flower, such as M. Lindeni, the near relative of Harryana; M. Veitchi and the variety gigantea, with flowers a third larger than ordinary; M. Shuttleworthi, several forms of this little gem; M. trochilus, the Humming-bird Orchid; M. Chimæra, the true erect-flowering species, as well as a host of miniature flowered species which might be easily passed by, but which are intensely interesting to those who do not admire flowers merely from a colour point of view. The M. ignea section, too, is worth a note. Besides the typical ignea, one may see its allied species or varieties, or whatever they may be. For instance, it is interesting to see side by side M. Stobartiana and Massangeana, also coccinea and militaris, all of which are so closely related that they require to be seen together in order to fully appreciate their differences.

THE CATTLEYAS are, next to the Masdevallias, the most noteworthy, and though it is not the best season to see a great number of species, the genus is grandly represented, but of course chiefly by C. Mossiæ, of which Mr. Bull possesses a large number of forms, to which he sees the propriety of attaching names. Although it would be a difficult matter to find two individual plants of C. Mossiæ producing flowers exactly identical in colour, those which Mr. Bull has selected from his immense stock as being worthy of varietal names are all more or less distinct, and some are abundantly so. Among the most beautiful of the named sorts we singled out the following. The loveliest of all we considered was albo-marginata, the flowers of which have a broad and distinct white frilled margin to the lips surrounding an exquisite ground colour of the intensest magenta-carmine. C. Mossiæ grandiflora has flowers considerably larger than ordinary, and possesses, moreover, splendid colouring; Mossiæ imperialis is remarkable for its finely shaped bloom and broad sepals, the latter being 2¾ inches in width. Another, named pulcherrima, is uncommonly highly coloured, as is also amœna, but the latter is much more delicate in tone. A very pretty variety is that named venosa, in which the lip is traversed copiously by distinct crimson veins on a pale ground. C. Mossiæ Chelsoni is particularly notable, inasmuch as its flowers are more like those of a Warneri than of a Mossiæ, there being an entire absence of the yellow tinge which usually characterises C. Mossiæ. The remarkably distinct variety named C. Mossiæ Lawrenceana is the loveliest of the group on account of its having pure white sepals and a richly coloured lip As we saw it in the height of its beauty we thought it one of the most superb Cattleyas we had seen. Less numerous than the Mossiæs, but equally remarkable, are the Warneri varieties, the early-flowering type of C. labiata; there is not much diversity of tint colour among these, but all are so lovely. There are, however, a few among the numbers of plants of it that are distinct. These are named picta, in which the colour of the lip is very intense. There are still a few stragglers among the Mendeli race, and these arranged as they are in a few groups by themselves create a most beautiful display. Among them are some forms of high merit, particularly those named picta and pulcherrima, both of which are far ahead of the other



Nephrolepis Duffi. (*See page 499.*)

varieties in point of colour, and another called delicata was the embodiment of loveliness. The finest of the Mendeli race, however, flowered some weeks ago. The grandest Cattleyas in the show are unquestionably those of the gigas race, and these may be seen here in great perfection; indeed, we do not remember to have ever seen the C. Sanderiana so finely represented. At the time of our visit there was a plant carrying no fewer than four gigantic flowers on one spike, and as the flowers all faced one way, the spike had a very fine effect. This particular plant represented a variety remarkable for the delicacy of the tones both on the sepals and lips, hence has been named formosa. Another form of Sanderiana is called rosea, as the tints are decidedly more rosy than those of the type. Of C. imperialis, the near ally of C. Sanderiana, there are some grand examples which represent the gorgeous Cattleya in perfection. Then of C. gigas itself there are numbers of flowering plants, the admiration of everyone. Other Cattleyas that contribute to the display are C. superba and C. Schilleriana, and a variety of it called splendens, in which the labellum is several shades deeper and richer in tint than in the type.

LÆLIA PURPURATA.—Of this most beautiful Orchid there are about a hundred flowers, which, as may be imagined, constitute one of the main features of the show. The noble habit of this Orchid adds a great deal to its appearance when in flower, and as the plants are made to form irregular groups, jutting a little from the main bank of flowers and foliage, they are seen to the greatest advantage, and create an effect that it would be impossible to surpass. Orchid fanciers may find among the crowds of plants of this Lælia some of the finest forms that have yet been seen. One of these, a form of L. purpurata alba, is without question the finest we have seen. The flowers are much larger than usual; the sepals are snowy white, and stand out boldly. The lip is 2 inches across, in colour an intense purple-crimson, blotched in the centre with white, and pencilled and veined with blackish purple. This is a very fine specimen, carrying several spikes. It is named gloriosa. Another variety of L. purpurata is named nigrescens on account of the lip being of an intensely deep plum-purple—almost black, in fact. Rather lighter in hue and somewhat different in shade is one named atrosanguinea, but the most remarkable of all in this way is a new one named L. Chelsoni. The flowers of this are of medium size, but very finely shaped, the sepals and petals being firmly held together. The sepals are lilac-rose, and stand out well. The lip is round in outline, and of a very dark purple, while the throat is yellow. Those interested in Orchids should not miss seeing this if they have the opportunity. L. majalis, the Mexican Mayflower, asserts itself prominently in the show, as does also L. cinnabarina.

ODONTOGLOSSUMS.—Perhaps the majority of the visitors think that the glory of the show are the wonderful plants of O. vexillarium, for which Orchid Mr. Bull is unapproachable, both as regards the number of plants, the size of specimens and varieties. At the entrance a grand mass of this Orchid confronts the visitor, comprising, we might safely say, hundreds of spikes. Though there is not a great variation in this Orchid, some are superlatively finer than others both in colour and form, some possessing flowers twice the ordinary size. Among those remarkable for colour are those named picturatum, a very lovely form, with the sepals of a deep magenta, and the lip almost white. Albescens is almost pure white, there being only the faintest suggestion of pink. Venus is a sweetly pretty variety, with rather small flowers, pure white, save the central rays of crimson; roseum giganteum is remarkable both for large size and rich colouring; and mosaicum is the most uncommon of all, as the lips of the flowers are copiously spotted and blotched in an irregular manner, somewhat resembling mosaic characters. Then, again, the popular O. Alexandræ, the queen of Odontoglossums, may be seen in all her most beautiful phases, there being upwards of a thousand spikes of this kind expanded. Some of the varieties are exquisite, as are also those of O. citrosmum, which were the admiration of everyone on account of their graceful growth and delicate colouring. The varieties punctatissimum, with the flowers copiously spotted; album, creamy white; roseum, rose-pink; carneum, flesh-pink, are the most noteworthy. Besides these there are numbers of hybrid and other kinds, such as Andersonianum, Halli leucoglossum, and Roezli, which all add to the display. Oncidium Marshallianum was past its best, but the numbers of specimens told how fine they were.

Other species and varieties in the show worthy of note were Calanthe Dominii, a large number of fine plants of this uncommon plant, the first hybrid Orchid raised in this country; C. anchorifera, a new species in the way of C. veratrifolia, but distinct from it; Vanda Denisoniana with pure ivory white flowers, numerous varieties of V. tricolor, Epidendrum vitellinum majus, E. Frederici-Guilielmi, a very handsome rose-coloured species; Lycaste Skinneri alba, Angulca Clowesi, and A. eburnea, the latter a lovely species with massive colourless flowers, as if chiselled out of ivory; Cymbidium Lowianum, which has been in flower since January; the atrosanguineum variety has an intensely deep lip; while flavescens has the lip of a yellowish green. Of Dendrobiums are primulinum giganteum, among the finest of all Denbrobes; D. dixanthum, D. Parishi, Calceolus, D. Bensoniæ, Oncidium lamelligerum, a very handsome species in the way of O. macranthum, but quite distinct from it and quite as beautiful; O. macranthum and its variety hastiferum are represented grandly. Of East Indian species, such as Vandas, Aerides, Saccolabiums, there is a fairly representative collection, and some of the Aerides Fieldingi (the Fox-brush Orchid) there are some uncommonly fine plants with branching spikes. Cypripediums include some fine specimens of C. Parishi, not often seen so well flowered; C. lævigatum Lawrenceanum and its variety majus Hookeri and others; and lastly we must not omit the grandest plant probably in the country of the rarely seen Cœlogyne Lowi. This is a species bearing long racemose spikes of flowers with straw-coloured sepals and a chocolate-coloured lip. Of this there is a plant in a large pot crammed full of bulbs, and carrying no fewer than a dozen of its long spikes amidst the foliage. This plant is one of the most remarkable in the whole show, and is itself worth the journey to see. Space will not permit of a further notice of this exhibition, and we need only say that all who see it are charmed with it. The arrangement, by the way, is excellent this year, Mr. Bull having adopted more largely the plan of forming small gatherings of particular kinds. There is also a good sprinkling of fine-foliaged plants to soften down, as it were, the gay hues of the Orchids and the edging to the stages, which consists of a new kind of Panicum, a tropical Grass which is particularly charming.

Masdevallia Harryana. — The deepest coloured variety of this Orchid we ever remember to have seen comes to us from Mr. Hugh Scott, Ashfield House, Belfast. The upper part of the flower is a vivid magenta, while the lower part is of the intensest crimson imaginable. If a "fixed" variety, it will be a telling one in a collection. Mr. Scott states that it is the first time of flowering, and he expects that it will be much finer next season.

Vanda suavis.—This Vanda does not, as a rule, vary much, but there are some varieties with much larger flowers than others. There is now in bloom in Mr. Bonny's nursery, at 88, Down's Park Road, Hackney, an uncommonly fine variety, remarkable for the large size of the flowers and their rich markings. The plant, too, is a fine one, as it has five leads about a yard in height. One of the spikes carries twelve flowers, rendering the plant highly attractive. Among the Cattleyas at this nursery an extremely fine form of C. Mendeli has just flowered. It was not remarkable for large size, but was as perfect in shape as we have seen a Mendeli. The lobe of the lip was quite round in outline and most beautifully coloured, which contrasted finely with the white sepals and petals.

Cattleya Mossiæ.—A flower of this Cattleya sent to us by Mr. W. H. Cannon, Avenue Lodge, Merton, represents an exceptional variety, inasmuch as the colour is different from that of the generality of C. Mossiæ. The flower is large, with broad sepals of a deep lilac, while the broad, shallow labellum is beautifully tinted with citron-yellow and lilac blotched with amethyst, and the whole lip is broadly margined with white and finely frilled. We want more variety of colour in C. Mossiæ, especially lighter tints, such as this variety affords.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 10.

BEYOND a very fine exhibition of hardy flowers from various nurserymen—the finest we have seen at South Kensington—there was an unusual dearth of exhibits on this occasion, both as regards flowers and fruits. A few novelties were submitted to the committee, among which the following were awarded first-class certificates:—

ODONTOGLOSSUM CRISPUM ROSEUM GUTTATUM.—An extremely fine and very uncommon variety, remarkable both for the large size of the flowers and their colouring. They were nearly 4 inches across, with wide, overlapping sepals. The colouring was very peculiar, inasmuch as the sepals were marked with large irregular blotches and spots of rosy purple on a white ground. We had not hitherto seen any coloured in this way; hence we think it must be rare. Exhibited by Messrs. F. Sander & Co., St. Albans.

ODONTOGLOSSUM CRISPUM SOUVENIR DE PRINCE LEOPOLD.—Another extraordinary variety with very large flowers having broad overlapping sepals of spotless whiteness, while the broad labellum is copiously spotted with chestnut-brown. Such a variety as this probably only occurs once in 10,000 plants. Also shown by Messrs. Sander.

KALMIA LATIFOLIA MAJOR SPLENDENS.—A variety differing from the ordinary variety in the colour of the flowers being very much richer and brighter than that of the type, and also in the flowers being larger. The colour is a bright cherry-red in the bud state, changing to a lighter hue after expansion. It is a desirable addition to hardy shrubs. Shown by Messrs. Veitch from their Coombe Wood Nursery.

BEGONIA CANARY BIRD.—A tuberous variety with large and perfectly double flowers of a pleasing soft canary-yellow and extremely pretty. The habit is dwarf and sturdy, and the plant promises to be floriferous. Exhibited by the raisers, Messrs. Laing & Co., Stanstead Park Nurseries, Forest Hill. Begonia Lucy Lemoine, a beautiful new double white tuberous variety, the flowers of which are large and rosette-like. Shown by Messrs. Cannell and Sons, Swanley.

BEGONIA MADAME CASTAIGNEY, also a tuberous-rooted variety with double flowers, which are very large, rosetted, and of quite a distinct colour, being a kind of purplish rose. Also shown by Messrs. Cannell.

VERBENA LORD BROOKE.—A very fine variety, with large pips of a vivid scarlet colour, with conspicuous white centre. Exhibited by the raiser, Mr. Stacey, Dunmow.

A second-class certificate was awarded to

STATICE CANDELABRA.—Apparently a new species, similar to if not identical with the new S. Suwarowi. The plants shown bore erect cylindrical spikes densely set with minute rosy pink flowers, and lower down the stems secondary spikes were produced, suggesting candelabra-like growth. Exhibited by Messrs. J. Carter and Co., High Holborn.

Other plants shown before the committee included the following: From Messrs. Veitch came

Abies Douglasi glauca, a fine variety with the young growths quite silvery. Gloxinia Flambeau, an erect flowered variety of a brilliant carmine-scarlet colour, one of the finest; Weigela hortensis nivea, a snow-white variety, very chaste and beautiful; Veronica Lyalli, a little New Zealand species, shrubby in growth and with mauve-coloured blossoms. Mr. Gair, of Falkirk, sent flowers—a spike of Dendrobium Farmeri with slightly rose-tinted blossoms, and two fine varieties of Cattleya Mendeli. A new Tea Rose named Souvenir de Thérèse Levet came from Messrs. Paul & Son, Cheshunt. It has finely shaped flowers of the colour of those of Reine Marie Heoriette, but the plant is dwarf in habit and most floriferous. It is highly spoken of and a bright future is predicted for it. A fine new Abutilon named Lustrous, with large open flowers of a bright orange-red came from Mr. Stevens' nursery at Putney, and the Verbena raiser, Mr. Stacey, Dunmow, sent a dozen new sorts, including the one certificated. Mr. James, Farnham Royal, showed very fine flowers of his superb strain of Calceolarias, which the committee highly commended. It is remarkable for the great variety and richness of the colours. Mr. B. S. Williams showed an Australian shrub, Meterosideros floribunda alba. Its flowers are creamy white borne in a bottle-brush manner on the leafy stems. Prunus Pissardi, the new purple-leaved French Plum, was shown by someone, but by whom there was no indication. Besides the Orchids certificated, Messrs. Sander showed Cypripedium ciliolare superbum, which has larger flowers than those of the type. A very fine spike of a variety of Oncidium Marshallianum with flowers over 2½ inches across, came from Mr. G. N. Wyatt, Cheltenham. It is the finest form we have seen of this Oncidium. Ornithogalum caudatum was shown by Mr. Woodbridge, from Syon; and Mr. Ware showed two forms of the Iceland Poppy, the white (Papaver nudicaule album) and the orange-red (miniatum). A cultural commendation was worthily awarded to Mr. Hill, gardener to Sir Nathaniel Rothschild, Tring Park, for a specimen of Cattleya gigas, carrying ten flowers. It was an excellent variety, and the plant had a fine appearance.

Fruit.—Melons were the chief exhibits placed before the committee. Mr. Herrin, gardener to Mr. Hibbert, Chalfont Park, Gerrard's Cross, showed several fruits of his new seedling Melon named Chalfont Favourite, which, it will be remembered, took the first prize among thirty fruits exhibited for the prizes offered on the last occasion. It is a handsome round fruit, well netted and with thick green flesh. It is very juicy, sweet, and of excellent flavour. It is a cross between Victory of Bath and a scarlet fleshed variety. A very fine fruit of the new variety named Goodwood, which was certificated last year, was shown by Captain Le Blanc's gardener (Mr. May), from Northaw House, Barnet. It is a huge, deep-ribbed fruit, weighing about 6 lbs. or 7 lbs. The fruit was not cut, so we could not speak of its quality. Mr. May also showed an excellent fruit of Sutton's Masterpiece Melon, which is undoubtedly one of the finest Melons now in cultivation. It is a handsome, round, scarlet-fleshed fruit of delicious flavour. A dish of Royal George Peach was shown by Mr. Aslett, Manor Wood, Hatfield; and a singular Cucumber—two fruits fused into one—was shown by Mr. Thompson, Oakfield, Beckenham. Fruits of the Lady Apple were shown by Mr. R. Smith, Worcester.

Promenade show.—As we before remarked, there was a very fine exhibition of cut hardy flowers; indeed, with the exception of a group of Calceolarias from Mr. Rapley, at Balham, the show consisted exclusively of hardy flowers. These afforded a pleasing and instructive entertainment to the throngs of visitors to the Health Exhibition. The whole of one side of the conservatory was taken up by a really grand display of hardy plants of all kinds from Mr. Ware's nursery at Tottenham, while the opposite side was occupied by an equally large show from Messrs. Barr & Son, Covent Garden. A large collection of Pyrethrums and other flowers was contributed by Messrs. Kelway & Son, Langport, and Messrs. Hooper had cut Pæonies, Poppies, and other flowers. Messrs. Veitch added largely to the show by an extensive exhibition of cut hardy flowers, including bearded and bulbous Irises and some very fine Brompton Stocks—quite pyramids of double magenta-coloured flowers. There were also hybrid Columbines, Ixias, and other bulbous plants. Mr. Ware's was a wonderful collection—the cream, we should say, of his extensive hardy plant nursery. The kinds are too numerous to mention, but we picked out a few as being most noteworthy. Messrs. Barr's exhibition consisted mainly of Irises from their very rich collection grown in their grounds at Tooting, besides a host of rare bulbous plants such as are seen but seldom at exhibitions. The collection of varieties of Iris aphylla and I neglecta was extremely rich, and among the named sorts we thought the most pleasing were those named Bridesmaid, pale mauve and white; Garibaldi, delicate lilac; Madame Cheveau, white edged with purple; and Victorine, well known as being one of the finest of all the bearded Irises. It has rich purple falls and white standards flaked with purple. Messrs Kelway's Pyrethrums included the finest assortment of double and single kinds we have hitherto seen, and each sort was named, though it must be admitted that some of the tints were extremely alike. The herbaceous Pæonies from Messrs. Hooper served to show the beauty of this noble race of hardy perennials, which are not half enough known in gardens.

The following is a list of the awards: A silver-gilt floral medal to Mr. Ware; bronze floral medals to Messrs. Barr, Mr. Kelway, and Messrs. Veitch; a bronze Banksian medal to Messrs. Hooper; and a bronze Banksian to Mr. Rapley for his fine group of Calceolarias, which included, by the way, a group of that fine yellow self called Cloth of Gold, which is regarded as one of the finest yet raised. The other varieties were equally remarkable, and all were well grown. We understand that some of the exhibitors, including Messrs. Veitch, Mr. Ware, Messrs. Barr, and Mr. Kelway, intend to maintain their present displays in a fresh state for the next fortnight in the conservatory at South Kensington.

QUESTIONS.

5206.—**Sonerila Hendersonl.**—Will any of your correspondents inform me if a large pan of Sonerila Hendersoni, made up of a number of plants, can be objected to as one in a collection of twelve stove plants for competition?—Enquirer.

5207.—**Bloomless Rose**.—I have a Rose, Cheshunt Hybrid, four years old and 10 feet high, against glass, west exposure, in a cool greenhouse, which will not bloom. A hint on its treatment from some correspondent would greatly oblige.—T. C. H.

5208.—**Aquilegia cœrulea.**—Can anyone tell me whether or not a variety of Aquilegia similar to A. cœrulea was known either in England or Scotland before the Rocky Mountain species was introduced? If so, what was the colour of the flowers?—J. C. C.

5209.—**Green slime on water.**—Will any reader kindly tell me how to destroy green weed, [or rather slime in water? Directly it is cleared off it comes again. I have planted many aquatic plants in the water, but they are greatly damaged by the slime.—T. D

5210.—**Vegetable cookery.**—Can any one add to the account of cooking vegetables given in The Garden (p. 475) a corrective to the evil smell that arises from cooking many of them, especially Cauliflowers? In the old open ranges the steam and smell went up the chimney, but in the close ranges it has no escape but into the kitchen, and so into the house. I know houses where for this reason some vegetables are strictly forbidden.—H. N. Ellacombe, *Bitton*.

5211.—**Red spider on Gooseberries.**—Many growers of Gooseberries are greatly plagued with red spiders, which in some districts are doing very serious injury to the trees the result being curling of the leaves, which wither and then drop. The trees appear dead, and doubtless will die when severely attacked. My brother has tried the following experiments, but without any good result—viz., dusting with hellebore and Keating's powders, also syringing with soft soap. He has also syringed with gall, only sufficiently diluted with water to destroy the spider, but this destroys the trees as well. We are in a fix, and shall be glad of any suggestion on the subject which your readers may kindly make.—Mid Kent.

English plant names.—Perhaps the readers of The Garden may like to know that the double white Narcissus, about which there has been some correspondence in its columns lately, is called in this neighbourhood "Primrose of Paradise," a name I have not seen mentioned in any of the books on the old-fashioned nomenclature of flowers. There is a good deal of information to be gleaned on the medicinal properties of flowers and herbs from persons who make use of them still near here, and if any of the readers of The Garden would care for such traditional lore I will be very happy to supply it.—M., *Annesley*.

*** We think it would be very interesting to many.—Ed.

New labour-saving machine.—Mr. Moore, of Clontarf, having taken out a patent for a new hoeing and raking machine, a trial was made of it the other day in the Phœnix Park, Dublin, in presence of several well-known horticulturists, amongst whom was Mr. Dick, the Park superintendent. The machine, which is set on wheels, consists of a knife that scrapes the surface of the walk, and a set of incurved tines that rake up all weeds or grass. The wheels are included within the framework, so that the whole space traversed by the machine is subjected to the action of the working parts. A lever handle regulates the action of the knife and tines, and a slot and turnscrew in the handle enable the operator to adjust them at pleasure to the inequalities of the ground. The whole machine is of extremely light draught, and on emergency could be effectively pulled, it is said, by a boy. The machine was pronounced by those present to be "a thoroughly practical and efficient labour-saving implement." We hope soon to be able to give an illustration of it.

Hypericum calycinum (*D. A. M. T.*)—This is called the Rose of Sharon. It is a shrubby plant that grows from 1 foot to 2 feet high.

Seedling Snapdragons (*W. Caudwell*).—A fine selection, the self-coloured sorts being particularly good. The light kinds, too, are chaste and beautiful.

Double Rockets (*J. Green*).—Your Rocket, though beautiful, does not appear to be the much-prized old double white, the spike being taller and looser. The perfume, however, is the same.

Presentation to Mr. Smith, of Newry.—An address and a handsome accompaniment, in the form of a tea service, was presented, on the 6th instant, by the workers in Messrs. Rodger, M'Clelland & Co.'s nurseries at Newry, to Mr. T. Smith on the occasion of his giving up the management of that establishment.

Names of plants.—*J. D.*—Iris Xiphium (English Iris).—*A. T. H.*—1, Libertia ixioides; 2, Staphylea pinnata; 3, Fuchsia corymbiflora.—*J. G. K.*—Masdevallia coriacea.—*A. B.*—Pernettya mucronata.—*R. Kennedy.*—Gilia capitata.—*A. Elder.*—1, Sempervivum ciliatum; 2, Euphorbia Cyparissias; 3, Anthyllis Vulneraria; 4, Diplacus glutinosus.—*Cork.*—Syringa or Mock Orange (Philadelphus coronarius).—*T. M. B. O.*—Next week.—*T. E. F.*—1, Ornithogalum tenuifolium; 2, Celsia Arcturus.—*Mac.*—The Grass is Phalaris arundinacea variegata; you must send the Violas in a box, so that we receive them fresh and uncrushed.—*Y. O. & Co.*—Scilla peruvima.—*C. W. H.*—1, Berberis stenophylla; 2, Escallonia macrantha; 3, Iris furida; 4, Oncidium sphacelatum.—*W. D. S* (purple flower in tin box)—Geranium pratense.—*Xero*—Pronenea citrina.—*W. Spencer.*—1, please send again; 2, Iris pallida; 3, Iberis Garrexiana superba; 4, Cheiranthus alpinus.—*A. J. H.* (*Co. Clare*).—Muscari comosum (purple); Philadelphus coronarius (white shrub); Cytisus racemosus (yellow); Iris Victorine.—*Anon* (in cardboard box)—Cynoglossum sempervirens (blue); Veronica gentianoides (mauve); Pernettya mucronata (prickly shrub); Thalictrum aquilegifolium.—*G. L.* (*Wokingham*).—1, Viburnum Opulus (Gwelder Rose, not doubled); 2, appears to be Rosa centifolia; 3, cannot name; 4, apparently Aimée Vibert.—*G. Preston.*—Will you please send your specimens again? The Columbine was crushed.—*Takiti.*—Scilla italica.—*W. H. M.*—Next week.—*H. W. E.*—Austrian Brier (Rosa lutea).—*J. C. O.*—1, Sanseviera zeylanica; 2, variety of Tydæa; 3, Sonerila margaritacea; 4, Oncidium flexuosum.—*J. T. M.*—Pyrus latifolia (a Continental representative and near ally of our native White Beam).—*H. R.*—Apparently Pelargonium (Ivy-leaved) M. Dubois.—*E. F. C.*—1, Orchis maculata alba; 2, Orchis maculata; 3, a deep-coloured variety of No. 2; 4, monstrous form of Geum rivale (No. 4 is very uncommon).—*Aqua.*—Aponogeton distachyon.—*S. A.*—Pulteneea stricta.—*C. A. N.*—1, Arenaria grandiflora; 2, Saxifraga ceratophylla; 3, Achillea umbellata.—*S. M.*—Gymnadenia conopsea; Viola species; Daphne Cneorum; Androsace villosa.—*J. Hall.*—Next week.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

MASSING V. BEDDING OUT.

THESE two phrases represent two aspects of garden arrangement, which should be kept distinct in our thoughts and expressions, as they are distinct in the estimation of the best gardeners of the present day. A most salutary reaction has set in against that style of gardening which consisted almost or exclusively in bedding out. It is too well known to need any description. For nearly a generation gardens were given up to Tom Thumb Geraniums, yellow Calceolarias, blue Lobelias, and such like. Later on arose the carpet bedding, in which a number of mostly insignificant plants were arranged with infinite patience, so as to produce the much-desired representation of a gaudy shawl or hearth-rug. It was the fashion; employers would have it so, and it is not to be wondered at that a race of gardeners arose who knew not the names or the culture of any outdoor plants which did not fit in to some style of bedding out. But, thanks to the example of some amateurs here and there, and largely to the teaching and influence of THE GARDEN, this state of things is yearly becoming more a thing of the past. People are tiring of walking round their gardens, looking day after day at the same glaring beds or at intricate patterns, which would do credit to the patience and skill of a Chinese, without a flower to cut or a flower to smell. It was not a satisfying style of gardening to anyone who really loved flowers, and its long toleration is but proof of the iron rule of fashion; but it is difficult to observe moderation, even in doing right. The revolt against the artificialism of bedding out is tending with some to what we may call the lawlessness of naturalism. I grant that in large places and in suitable spots in those places a wild garden is a charming feature; but the garden proper is not, and ought not to be, considered as in a state of nature. Plants as growing on the hillside or in some shady copse are delightful as we pass by; but to try to imitate this in gardens of the dimensions of which the great majority are possessed is a disastrous failure. Yet the backward swing of the pendulum away from bedding out has carried some persons so far as to advocate the abolition of all beds, and to propose that everything should be grown on Grass. Of course, there is no need to prove that one season would see the end of everything that was not able to hold its own against the Grass in the struggle for existence. But this, and talk like this, is going wildly too far in the revolt against excessive artificialism. Borders, quarters, raised beds, and rock beds we must have for the proper culture of everything that requires cultivation. And though I am no advocate of bedding out, but quite the reverse, still it seems to me a mistake so to broaden bedding as to include massing. After all, we grow plants chiefly to please the eye; and there are very many plants that are incomparably more pleasing when grown in masses than when grown alone. A single Hyacinth here and there in a mixed border is not as beautiful an object as five or six dozen grown together in a bed, or even in a patch in the border, which to all intents and purposes is a bed. The same remark applies to many other plants. Begonias, Asters, Zinnias, Violas—though here I am drawing dangerously near the bedding-out style—and many more present but a poor appearance as solitary plants in a mixed collection of hardy things. Beds we must have for the effective culture of numerous plants, or give them up altogether. Because bedding out was bad, it does not follow that massing is bad also.

FREDERICK TYMONS (Clk.).

Cloghran, Co. Dublin.

WALL GARDENING.

"VERONICA" (p. 468) directs attention to this most interesting phase of gardening. I saw an example the other day which fairly enough illustrated what it is possible to do in that way within even a limited area. The position was the top of a square tower. The wall varied in height from 2 feet to 4 feet, and was topped with semi-perforated sea stones—excellent material for the purpose. There was, however, here a feature of the system not included in "Veronica's" remarks—viz., the necessity of clothing the face of the wall as well as the top. Against this wall there grew various small-leaved Ivies, Ampelopsis Veitchi, a variety of Cratægus, small-growing species of Roses, Lespedezia bicolor, Fuchsias, Genista capitata, Eurybia Gunniana, Escallonias, Abelia floribunda, several Euonymuses, and in one corner a large mass of sweet Honeysuckle welling up and pouring over the wall vigorous and healthy sprays densely crowded with flowers and buds. The collection of plants on the top was extensive, and some account of it may be instructive to those who intend converting unsightly wall tops into things of beauty. Aubrietias were there in plenty, both plain and variegated, but in the limited root-run afforded them their growth was restricted, and the bloom of short duration; Achillea umbellata and aurea were quite at home, and so was Antennaria dioica, and the dwarf forms of Antirrhinum were as happy as could be, and coming up in all directions self-sown. Aster alpinus, Alyssum olympicum, saxatile, and spinosum, Gnaphalium arenarium, Phlox amœna, setacea, and its varieties, and Veronica repens were all healthy and fairly vigorous. Cerastium arvense suffered evidently from want of water, while C. tomentosum was quite at home. Linaria alpina, as a matter of course, was vigorous, and hanging down in long festoons, while L. maritima, pallida, and pilosa were charming, and the common Toad Flax was creeping about and cropping out here and there in all directions. The Creeping Jenny (Lysimachia Nummularia) is one of the best of all plants for this kind of work, covering large spaces with all the year round greenery, and in June and July sheets of golden blossoms. Various mule Pinks were there, but owing to the limited amount of food at command all their stems were single-flowered and quite distinct looking from their fellows on the level ground hard by, which bore tall, branching, many-flowered stems. Some of the species of Dianthus were, however, evidently as happy as a Drosera in a bog, such as D. alpinus, cæsius, viscidus, deltoides, glaucophyllus, and petræus; while D. atrorubens was most distinct with its erect 18-inch high stems, bearing aloft its small capitate head of rich crimson flowers. Papaver alpinum, white and yellow; P. pyrenaicum, orange; and Erysimum pulchellum appeared to be quite acclimatised, seeding and growing everywhere. Several species of Iberis, Hypericum hœticum, perforatum, and repens, Campanula garganica and fragilis were all doing well. One lovely group consisted of Erinus alpinus and its white variety and Myosotis rupicola growing together. Chamæpence diacantha is an excellent Thistle-like plant for such positions—small in growth and very distinct. Canterbury Bells had established themselves in nearly every cranny, but owing to the limited amount of soil afforded them, they were all unbranched. On the shady side were various species of Asplenium and Polypodium. I should imagine, too, that nearly every species of encrusted Saxifrage was there, all healthy and beautiful. Amongst a large collection of Sedums I noticed the following distinct sorts, viz: S. alsinoides, amplexicaule, brevifolium, Douglasi, Ewersi, oregonum, spathulæfolium Nevii, pulchellum, and spurium splendens. There were likewise various Sempervivums and a few of the mossy Saxifrages—the latter so restricted in growth as to be, except in shade, undesirable plants for such work.

T. SMITH.

Newry.

RHODODENDRONS IN DIFFERENT SOILS.

FROM long experience I have arrived at the conclusion that it is not so much the soil or even the situation that favours the growth of the Rhododendron as the moisture in the soil, be it peat or loam in which it is grown. In order to show how Rhododendrons adapt themselves to different soils, I may mention that we have them here growing in poor sandy loam, in a holding yellow loam, in a gritty open loam, in a peaty fibrous loam, and in each and all these cases they are all that could be desired, though the soil in each instance only averages about 7 inches in depth. The most notable circumstance of all, however, is a Rhododendron bank which we have here 150 yards long and 12 yards wide, sloped to an angle of about 45°; this has an average depth of 6 inches of soil, and that of a poor, open, gritty character, resting on a bed of gravel. This bank just now is quite a sight; the various hybrids, freely intermixed with ponticums, are one mass of bloom, and their dense foliage betokens the best of health. It is, however, only fair to remark that Grass is allowed to grow all over the bank, and doubtless serves to keep the roots cool and moist, a point of primary importance as regards their culture. Mulching Rhododendrons is often ignored, but I am of opinion that if in dry districts they were mulched, as one would Roses, and watered during very dry weather, much benefit to the plants would be the result. Where good leaf-mould is abundant, it might be mixed with the soil liberally, but judiciously—*i.e.*, according to the character of the soil. If retentive and void of sandy particles, sand might also be added with an unsparing hand. After planting a bed or border composed entirely of leaf-mould and soil a good heavy mulching of well-rotted manure would be beneficial. Peat is generally considered to be an absolute necessity in Rhododendron culture, but in some districts it is difficult to get, and, as I have just shown, they will succeed in other soils almost equally well. Two things which they dislike are chalk or lime and a sharp, draughty corner; in such a position, though in the best of soil, they only eke out a miserable existence. Rhododendrons are to a limited extent shade-loving and certainly moisture-loving plants. Therefore in planting these matters should not be overlooked, particularly the latter; in dry districts it is even desirable—however incongruous it may seem—to have the beds

slightly under the level of the surrounding ground. In short, in ground of almost any description, if moist, but not charged with stagnant water, Rhododendrons will grow and flower satisfactorily. J. PROCTOR.

Glenfinart, Greenock.

PLANTS IN FLOWER.

Chrysanthemum segetum.—Herewith I send you a very fine form of Chrysanthemum segetum, a mass of flowers. I shall try and increase it from cuttings, and if it can be perpetuated in that way it will be quite worth naming.—T. SMITH, *Newry.*

**** Truly a fine flower, fully twice the ordinary size and particularly bright in colour.—ED.

Double white Columbine.—Examples of a beautiful double-flowered Columbine with pure white flowers have been sent to us by the Rev. H. T. Ellacombe, from his garden at Clyst St. George, Topsham. We do not remember having seen this particular variety before. A good sized plant of it in full bloom must be a handsome object.

Veronica Girdwoodiana.—Mr. T. Smith, who has often sent us interesting plants from Messrs. Rodger, M'Clelland's establishment, now sends us from his own nursery at Newry some excellent specimens of this charming New Zealand Veronica. This species is one of the semi-hardy shrubby sorts. It grows from 1½ feet to 2 feet high, is of a rather upright habit, and blooms most profusely. Coming in, too, at this time of year, it is a very welcome addition to flowering shrubs.

Sweet Pea Invincible Carmine—Some flowers of a new Sweet Pea have been sent by its raiser, Mr. Laxton, of Girtford, who says that it is the brightest coloured of all Sweet Peas, and we think so too. The colour is exceedingly brilliant, the upper petals being a vivid carmine, the lower bright carmine-crimson flushed with lake. It is stated to be a cross between Invincible Scarlet and Invincible Black.

Iris pallida—So lovely a flower as this Iris bears entitles it to a place in every garden. It is at its best when the six large perianth segments are almost on the same level, forming a circle about 8 inches across of such colouring as an Orchid must be fine indeed to equal. Its tallest stem is over 3 feet high. No one should be disappointed at German Irises not succeeding well the first year after they come from a nursery. They evidently require to be well established, but how few good flowers require less trouble afterwards.—C. M. OWEN, *Knockmullen, Gorey, Ireland*

Stocks and Rockets.—I have sent you some spikes of Scotch Rockets cut from same border as those I sent you last season. The border now contains over 800 plants, and is at present in full bloom. This Rocket is one of the good old plants well deserving of attention. The Stocks sent are what we term here The Queen; they stand our winters the best. Up to this season we have only had the scarlet and deep purple; the mauve is a new shade we have got by crossing, and find it far more effective, more especially for cut flowers. I wish some of your readers could see our display of Rockets.—J. GRAY, *Eglinton Castle, Irvine.*

**** Both the Rockets and Stocks are of uncommonly fine growth; the former are of beautiful colours, particularly the mauve, which Mr. Gray says is new. The Rockets have dense massive spikes of pure white, and very double flowers deliciously fragrant. The large border of them mentioned by our correspondent must indeed be a beautiful and striking sight.—ED.

East Lothian Stocks.—Some fine examples of this beautiful race of Stocks have been sent to us by Messrs. Stuart & Mein, of Kelso, where Stocks evidently flourish with unusual vigour. The sorts sent are of various colours—bright crimson, pure white, and rich purple. Amongst these are two new sorts, named New Purple Wallflower-leaved and New Crimson Wallflower-leaved, both of which are excellent; their shining narrow foliage forms a well-marked distinction. Messrs. Stuart & Mein state that the whole of the East Lothian Stocks are very free flowerers if managed according to their plan of treatment, which is as follows: They sow early in spring in gentle heat, prick off into boxes, and finally plant out in May. In order to protect them during winter the plants may be lifted in September, potted in 8-inch pots, and placed in a cold frame, or they may be shifted to a warm, sheltered position at the foot of a wall, and there protected during severe weather. They come into bloom in May if the weather is mild, and continue all the summer to give successive trusses of their fine double flowers.

Rosa Brunoniana.—I am delighted with this, now in flower with me for the first time. It has large ivory-white flowers with tufts of golden stamens in the centre. The flower clusters are large, but loose, and the foliage has a kind of silvery appearance. I can see that it is a capital Rose for a shrub rambler, producing showers of blossoms. The old Bower Rose is always, to my notion, one of the prettiest of all. I do not know its right name.—G. J.

Tree Lupines.—Amongst the many pretty flowers noticed in your columns, I do not think Lupinus arboreus is included. I send a few blooms of various colours; these, however, give but a poor idea of the effect produced by large bushes, I may call them, from 6 feet to 10 feet in height, and with hundreds of large spikes of flowers upon each. In the warmer parts of England they grow as standards, but in other counties there are few, if any, plants which are more worthy of wall protection. The blooms which I send are mostly laterals; the largest spikes are going to seed. They require renewing by seed every two or three years.—S. H. ARCHER-HIND, *South Devon.*

**** With this came fine sprays of this charming plant, well varied in colour and deliciously fragrant. There is a pure white variety, also a pale primrose-yellow, pale lilac, yellow and lilac, and one straw coloured. It is a plant not half known enough, though perfectly hardy and a rapid grower; a good-sized bunch of it furnishes an abundant and continuous supply of bloom for cutting.—ED.

Rhododendron calophyllum.—This is a grand Rhododendron when large for conservatory decoration, the whole plant when in flower being a mass of pure white tube-shaped blossoms, which with us are later in expanding than Edgeworthi, ciliatum, Dalhousiæ, or any of that class—a circumstance which renders it particularly valuable, affording, as it does, a good succession to some of the early-flowering kinds. Though a free-growing species, it flowers readily enough in small pots, but is scarcely suited for this mode of culture, as the foliage becomes scant and by no means to be compared with that on plants treated liberally. It produces seeds freely, from which young plants may be raised, but cuttings make the most floriferous plants, at all events in their earlier stages of growth. There seems to be some confusion with regard to this kind, for besides Maddeni and Jenkinsi, recently mentioned as being indistinguishable from it, I also fail to see in what respect it differs from R. tubulatum.—T.

NOTES.

Cultivated plants.—We are indebted to Chinese gardeners for many beautiful garden plants; amongst the finest of these are Chinese Primulas, Roses, Azaleas, Moutan Pæonies, and last, but by no means least, the Chrysanthemum. That this flower had been much improved long ere it reached our shores is well proven by the figure in the *Botanical Magazine* (vol. x., t. 327), and it is necessary that the work of Chinese cultivators should receive due recognition at our hands. Conservative as "John Chinaman" is in many ways—fixed as are his ideas in a sort of national mould—he nevertheless has had great faith in the mutability of his native flowers, and the results of his faith and labour have extended even unto the "outer barbarians.' The Chinese are born gardeners, and, as Fortune has told us, grow the Chrysanthemum to great perfection. But then Chinese land culture is a miracle. If you give a few rods of land into the hands of a Chinese gardener, its productiveness becomes quite a revelation. One reason of this is, that of all other cultivators the "one piecy Chinaman" has strong belief in manurial stimulants. One of his first cares is to make a collection of manures of all possible kinds. Indeed, he seems proud of his manures; and in the cool morning he comes out with the earliest birds to sit amongst them and get a whiff or two of tobacco ere his work begins. Such a cultivator, fond of flowers, and fond of manures as well, is sure to be successful with such a *bon vivant* as the Chrysanthemum undoubtedly is.

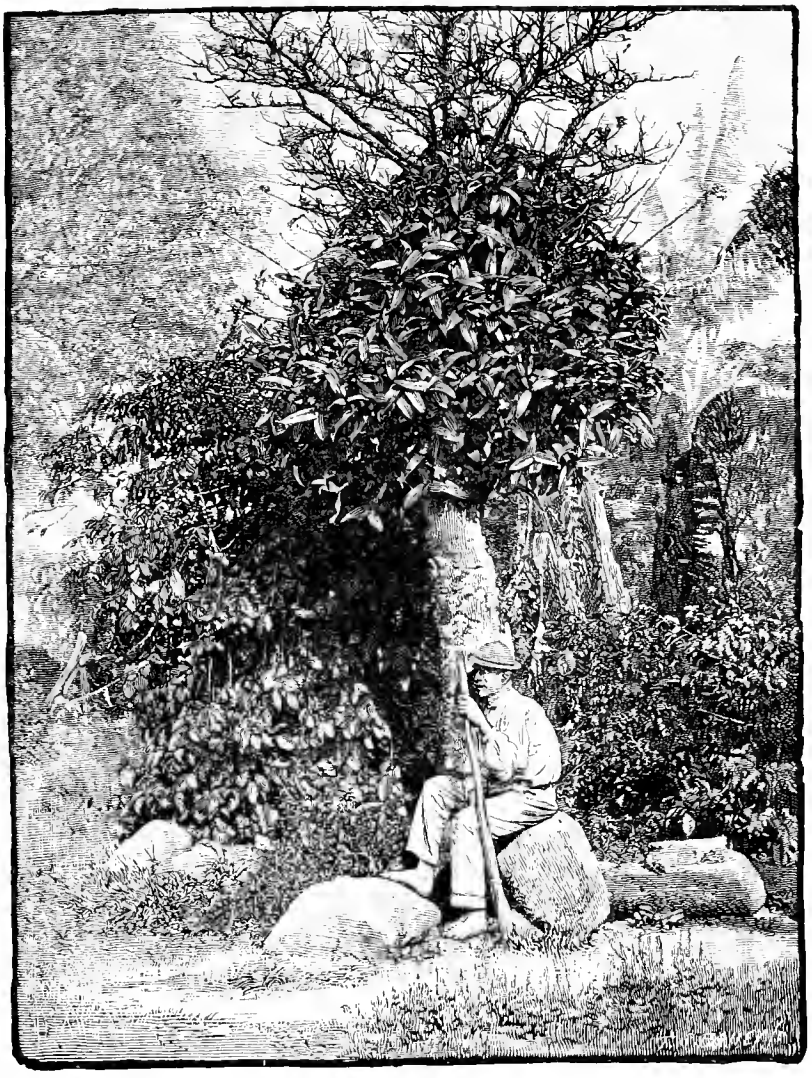
Sermons in stones.—When I visited Mr. G. F. Wilson's charming wood garden at Wisley last April I was lamenting the difficulty I had experienced in growing the Parsley Fern as planted out in the open border. "Well," he said, "you must place a stone over its crown before it begins to put forth its fronds in the spring." Then I at once remembered that I had often seen it peeping out from under the stone boulders in the lake country of England in the most vigorous and luxuriant manner, and I remembered the fact that if a stone is dislodged from a ledge and falls down and rests on a patch of smooth grassy sward on a mountain side, there around that stone the Grass at once grows fresh and taller, and by-and-by other little plants crop up, such as wild Heath or Gorse, and that "rolling stone" becomes when stationary the foundation of quite a flourishing little colony. That "a rolling stone gathers no moss" is a well-worn proverb, but stones are, when rightly employed, a great help to the gardener. In planting mossy Saxifrages, Sedums, Acæna, and other dwarf carpeting plants, our plan is to detach small bits and to lay them on the surface of the soil where they are to grow. A stone as big as the fist is laid on them towards the root end, and then stone and plant together are pressed firmly into the soil with the foot. So treated they never fail to grow, as the stone keeps the stems firm, cool, and moist until roots are emitted.

Stimulants for Orchids.—The question of whether manure water is beneficial or injurious to Orchids is far from settled; but my own plan is to give pure rain water to all Orchids which have permanent or long-lived roots. Those Orchids which produce annual roots only—such as deciduous Calanthes, Pleiones, and Phajus—may not be injured; indeed, I am quite sure Calanthes are benefited by liquid manure waterings. And I am equally confident that Vandas, Cattleyas, and many other Orchids of a similar habit have been much injured by its application to their roots. Only the other day I saw a plant of Vanda Batemanni 4 feet high, and once the picture of health, spotted and disfigured by a dose of liquid manure having been given to it by a man who was deputed to water some Gardenias in a stove wherein it grew. A friend of mine had some healthy Cattleyas quite ruined by an artificial manure having been surreptitiously applied to their roots by the man in charge, his idea being that the manure in question would improve their growth. When we think of the splendid specimens of Orchids which a judicious use of pure water has sufficed to produce, the wonder is that anyone can be found willing to subject valuable plants to experiments of this kind. I even question whether throwing an occasional can of weak manure water on the flooring or stages of the Orchid house is productive of any permanent good—albeit that a deeper tint of verdure may thus be gained. Mere greenness in Orchids, however, is no sure test of healthy, long life, or of free flowering; and I earnestly advise all who grow Orchids to pause ere they even think of giving manure water to valuable Orchids. VERONICA.

MR. C. CURTIS, well known for his plant-hunting travels in Borneo and Java and the Moluccas, has been appointed assistant superintendent of forests in Penang, which district embraces Malacca and province Wellesley. Mr. Curtis carries with him the good wishes of all who know him and his work in plant collecting.

A MONSTER CATTLEYA SKINNERI.

ONE of the "sights" during the past few weeks at the nurseries of Messrs. F. Sander & Co., the enterprising Orchid importers at St. Albans, is a wonderful specimen of Skinner's Cattleya, recently imported by this firm from Costa Rica. It is indeed a most remarkable plant, by far the largest specimen of an Orchid that has ever reached Europe. The plant forms a symmetrically shaped and compact mass, measuring 7 feet in diameter and over 6 feet in height, and weighing 12 cwt. This huge plant must be of great age, having regard to the fact that Cattleyas increase so slowly; indeed the plant, Mr. Sander tells us, is quite a historical one. Not only was it well known to plant collectors of the present day, but Mr. Skinner himself, after whom Lindley named the species, saw this same specimen upwards of sixty years ago. Our illustration, for which we are indebted to the proprietor of the *Illustrated London News*, shows the plant situated in the tree, a species of Euphorbia, with its late owner at the foot of the tree, having an axe in his hands with which he was about to fell the tree. The owner carefully tended it, and it flourished under his care and soon became one of the sights to which botanical travellers in that part of the world were irresistibly drawn. Roezl, the well known plant collector, states that at one time he counted over 1500 fully expanded flowers on it at one time; and many other travellers have seen and tried to purchase it, but to all their offers the simple owner returned the same answer, and refused to part with it. At last Messrs. F. Sander made the owner a tempting offer, which proved too much for his desire to gratify his love for his pet monster by keeping it, and the result was that the tree was cut off above and below the plant. It was placed in an immense case of 16 tons (ship's measurement), and with great labour and cost conveyed to Puntas Arenas, and from thence by royal mail steamer *Midway* to Southampton. As soon as the telegram was received from Southampton, intimating that the plant had arrived in fine state, carpenters and bricklayers were set to work to build a special house for it, and it will be suspended on a chain from the ridge of the house over a tank of water.



The monster Cattleya Skinneri.

Here, it is to be hoped, the specimen will soon recover from the effects of the rough treatment it has necessarily received during the transit from its South American home to its adopted home at St. Albans. Mr. Sander is sanguine of the complete success of his venture, and hopes that henceforward this monster Cattleya will be one among the many attractions which he is endeavouring to form in his vast Orchid establishment. Already numbers of Orchid lovers have been to see it and all express their amazement at its prodigious size.

Besides this great mass, Skinner's Cattleya has been imported lately by Messrs. Sander on a large scale most successfully, there being some huge masses among the consignment, and all the plants bear evidence of having been collected in the nick of time. A houseful of this Cattleya in flower similar to that we described of C. Trianæ at this nursery some time ago would be a glorious sight, as there are very few Cattleyas that possess such delicate colours in the flowers; besides, such a vast importation would undoubtedly yield some exceptional varieties, and probably the much-coveted pure white form. The Orchids in flower in the St. Albans Nurseries just now are a most beautiful sight. The capacious Cattleya houses, which early in the season were gay with C. Trianæ bloom, succeeded by C. Mendeli, are now enlivened by a glorious show of C. Mossiæ in almost endless variety; some are so distinct and so superior to others, that they have been given varietal names. For example, aurantiaca is remarkable for its extremely rich yellow throat, while another called reticulata has a network of veins over the face of the sepals. Another lovely picture is formed by Odontoglossum citrosmum, which has been imported largely. The infinite variety of tints in this species alone is remarkable, there being every gradation from the purest white to a deep purple rose, while some are copiously spotted. Passing by the housefuls of O. Alexandræ, which we noticed a short time since, we come to a houseful of O. vexillarium, which affords a charming spectacle, inasmuch as the plants are all well loaded with flower-spikes.

FLOWER GARDEN.

BULBS.

"VERONICA" has struck the right note. I hope others will play the same tune. Our lists of bulbous plants might be indefinitely increased, and I should be thankful for more information about some of them. Still, with only the ordinary run of bulbs in one's garden, how great is the pleasure which they afford! At this moment Iris juncea commands admiration with me, and no one can pass through the garden gate without being struck by it at once. It certainly is the finest of all the Irises that I know anything about, and unless it is eclipsed by Iris Korolkowi — whose acquaintance I have not yet made — I hardly see how it can be excelled. Then take the whole race of Ixias, Sparaxis, and such like. Splendid as Mr. Bull's collection of Orchids is, it certainly is not more splendid in point of colour than a fine bed of Ixias, and for gracefulness what can compete with the arch of Sparaxis pulcherrima and its beautiful pendent bells? Nor do I think that quaintness need be left out of account. Iris tuberosa has a most fantastic appearance, and I remember a few years ago an Indian colonel mistaking the blossom of Ferraria undulata for an insect and in his wrath treating it accordingly.

Nemastylis geminiflora should have a place wherever bulbs are grown — its only fault is that the blossom is rather fugacious, but its soft, tender blue is inimitable. One might add name to name, so great is the difficulty of selecting where nearly all bulbs are good, but Calochorti can upon no account be overlooked. I think that if it can be said of anything that "even Solomon in all his glory was not arrayed like one of these," it might be said of a Calochortus. It can vie with a Lily, or an Anemone, or a Sternbergia (the three candidates, I believe, for the honour of being referred to in the 6th chapter of St. Matthew's gospel), and in some respects win the palm from them all. The markings on the petals of Calochortus venustus are simply gorgeous, and Calochortus luteus var. oculatus is even more striking; the clear yellow of the flower gives such a beautiful background for the picture which is painted upon it. Calochorti gave me some trouble before I could properly manage them, but they have grown easily enough when once the real secret had been found out. Their manner of operation exactly

reverses that of a Crocus. They dive into the ground instead of throwing themselves on the surface, and they must be planted in the autumn if they are to do well; they cannot be kept out of the ground, like Milla biflora, till the spring. But what most astonishes me about them is their comparative hardihood and the way in which they can bear many degrees of frost. I have several times seen Calochorti spearing up through 2 inches or 3 inches of snow in the months of December and January without feeling it at all. One never would have expected this from the denizens of a Californian plain, and where they are flooded with sunshine for so many months in the year. Milla biflora is a gem among bulbous plants, or, indeed, any others, and its clear white starry blossom is refreshing to look at on a hot day in August. It has been for a long time with me a favourite among favourites. I always think white flowers are more captivating than any others, and there is purity written upon this one in a very marked degree; but Milla biflora shows how easily we may be deprived of our greatest treasures. Five or six years ago our best authority—Herr Max Leichtlin—bewailed the loss of this fine bulb in Europe, and now it may be often purchased for 6d. in Stevens's sale-room. Does not this suggest the idea that other things might be forthcoming in the same way? It seemed as though one year Milla biflora could not be obtained anywhere for love or for money, and the next year it was showered upon us from the skies. Your description and picture of

Bessera elegans came on me like a special revelation some months ago. I had read a short notice of it in Mrs. Loudon's "Flower Garden," but its praises were not accentuated as they were by you. The next thing was to get hold of it, and because it is a bulb this was not easy at all. Attempts in two or three places quite failed, and I should almost have despaired about the matter if my Colchester friends had not kindly come to the rescue. Through their aid I succeeded at last, and Bessera elegans is now coming up strongly in a sandy border in loving companionship with its old friend, Milla biflora. It would be an odd thing if they parted company on the Mexican hills only to shake hands again once more in this little island. At any rate, I should say that they will do well together, and the same treatment is good for them both. But what I should be thankful for—and, indeed, it was with this object alone that I took up my pen—is to know where bulbs, other than those which appear over and over again in the trade lists, may now be met with. I have, with "Veronica," often wondered where that glorious assemblage of Ixias, whose names are given in the early volumes of the *Botanical Magazine*, have all gone to. It makes one's mouth water to read of sickle-leaved Ixias, and velvet-flowered ditto, and long-spiked and bending-stalked, and curled-leaved, and a hundred other species and varieties of Ixias, which seem utterly lost to us, and so it is also with many other things. It is no consolation to read that you may find this or that glorious prize at Mr. Loddiges' nursery in Hackney, or with Messrs. Grimwood & Wykes at Kensington, or at Clapton, or at Vauxhall. These interesting localities are not even suggestive either of plants or bulbs, and an ocean of houses covers the spots where a hundred years ago rare Gladioli used to wave, and Ixias danced in the sun, and Tritonias and Babianas, and I know not what besides, found themselves at home. The times have changed, and there has been a most melancholy change about all this. Now and then I have had just a glimpse of it in a box, which had been sent from the Cape, but even the Cape does not now yield what might be expected of it, and one could almost fancy that the bulbs were being returned to us from England rather than sent to it for the first time. Uppolm used to do work for me when he was alive at Rondesbuch, but it is some time since we lost him, and I cannot make out if he is represented there now, and if so, by whom. It would be a very great kindness if any missionary or traveller in the out-of-the-way parts of the world would declare himself and forward to England any new and interesting bulbs he may find. They are sent so easily when they are at rest, that there is no difficulty at all about the matter, and remuneration could be made either in kind or in money. I have just now tried both ways with Mr. Griffiths, of the Neilgherry Hills, and the result has been eminently satisfactory. He tells me he lost nothing of what I despatched to him, and I have been greatly pleased with his consignment to me. But I think at present we are all sadly at fault, and unless travellers will help us we are likely to be so. A bulb garden with all its undeniable wealth and splendour still lacks the variety we ought to see in it. Treasures of the most superlative excellence are either not known or not cared for by anybody—*e.g.*, I doubt if Watsonia alba is at all commonly known, but no one could see it without falling in love with it on the spot, and wishing to have it among his floral possessions. A few years ago I showed it to Sir George Macleay, and even he was greatly struck by it, and expressed admiration. He had never seen it before.

At this moment I am hunting for Ixia speciosa all over the kingdom, and no one can say where it is to be found, though some four or five years ago it was purchasable in London. In short, "Veronica," in my opinion, will do a good work if he stirs up more interest in the matter of bulbs. We want to know where to procure a great many which do exist, but which seem to have dropped out of sight altogether, and hints about growing them would be very often acceptable. As a rule, bulbs are not difficult where they will do at all, but they cannot be grown in a wholesale manner, I have had Spatalanthus speciosus for a long time but I am sorry to say it has never once blossomed. Just a word or two of direction will often make all the difference between failure and success, and I doubt if there is anything much more beautiful, and certainly if there is anything more arresting in point of colour to the eye than is a border full of bulbs when they are contented and doing well. To get hold of a new and good bulb is to me a source of the greatest delight, and if it were not for the fact that Herr Max Leichtlin most kindly takes compassion on me and my garden I should almost despair of it, and think progress impossible, but I hope better days are coming, and that "Veronica's" remarks will inaugurate a more flourishing state of things for us all.

St. John's, Ryde. HENRY EWBANK.

HARDY FLOWERS FOR CUTTING.

IN 1874 the most enthusiastic admirer of hardy flowers could not have formed the faintest idea of the extent to which his *protégés* would be cultivated in 1884. Only some ten years ago plants now being planted by the thousand were hardly allowed a place even in shrubbery borders, where they had to struggle for existence with the roots of coarse growing trees; some, too, might get into a mixed kitchen garden border, where they spread out into great patches or clumps, the strongest growers soon having the soil to themselves, for they smothered the choicest weakly varieties until one rarely met with any but the very commonest sorts that were proof against long continued neglect. Happily all this is now changed; scarlet and gold have been reduced to more reasonable limits: and although bedding out still forms an important feature in English flower gardens, it no longer monopolises everybody's whole attention. The desire to have more flowers at all seasons of the year both in private and public gardens has given a great impetus to the culture of hardy plants; in them one finds something to suit all tastes, and, above all, a maximum amount of flowers can be produced at a minimum of labour and expense. The main points are selecting the right plants, giving the soil a thorough preparation, and keeping each variety by itself in beds or patches in size proportionate to the demand. One of the best plans I have found of growing nearly all kinds of hardy plants for cutting is to have rows of dwarf fruit trees or bushes planted wide enough apart to allow a range of beds, 4 feet or 5 feet wide, to be placed between them for flowers; the two get on remarkably well together. Ordinary bush fruits, such as Currants and Gooseberries, bush Apples, Pears, and Plums planted in rows 10 feet to 12 feet apart, make capital shelter for the flowers, and as they need replanting about every second or third year, and in some cases every year, the soil can be enriched, and the fruit trees will be found to yield better results, owing to the extra space afforded them, the digging acting like root pruning on such as are inclined to get too strong.

THE OLD SYSTEM of crowded beds, in which one plant struggled for existence with its neighbour, has given place to a more rational plan of treatment, every plant being attended to individually. I may mention Schizostylis coccinea as an illustration of what may be done in this way. This we used to find in dense masses, sending up spikes from 9 inches to a foot high; now we find single crowns of it planted out a foot apart, and every plant yielding two or three spikes 2 feet high, and having the appearance of those of a crimson Gladiolus, and the same holds good in nearly all cases. Under good treatment, too, the season of flowering is greatly prolonged, for plants in good soils keep growing and flowering, while those of the same kinds in old, worn-out herbaceous borders made but a brief display. The following sorts will make a good beginning, and they can be added to as opportunity offers, viz.:—

ANEMONES.—The different varieties of coronaria flower during the greatest part of the year, even in the depth of winter, and by having beds of seedlings and others of roots planted at various seasons a long succession of bloom may be had. We have French Anemones, "St. Brigid's" Anemones, and others; all are beautiful, and for an autumn display do not forget japonica.

ACHILLEA PTARMICA FL.-PL. is one of the loveliest of white flowers, and for cutting a real gem.

ANTIRRHINUMS.—These are, perhaps, the most continuous-flowering plants in the whole of our garden flora; they need only liberal culture to keep on blooming the season through, and amongst them may be found a great variety of colour.

COLUMBINES.—These are such lovely flowers as to be really indispensable; being borne on long footstalks, they impart a lightness and grace to any kind of floral decoration into which they may be introduced.

CAMPANULA PERSICIFOLIA ALBA FL.-PL. is one of the very best of all hardy white flowers; either in the form of a full-blown spike, or in the shape of single flowers, it is equal to any expensive indoor plant, and for making up wreaths, bouquets, and similar purposes it is unique.

DIANTHUSES, or Pinks, rank amongst the oldest and most popular of garden flowers; their grateful perfume, freedom in the way of bloom, and easy culture ensure them a ready welcome from everyone. Both single and double kinds are equally useful; the old fringed white now loads the atmosphere with its grateful perfume, and in every cottage garden may be seen tufts of it.

DELPHINIUMS, or Larkspurs, have been marvellously improved of late, producing, as they do, branched spikes of every shade of blue. They are most useful in a cut state, and when the first spike is cut they send up a succession of flowering shoots from the base.

GAILLARDIAS have had of late their merits recognised. Their flowers, being borne on long footstalks and possessing brilliant colours, are most useful when cut; they may also be had during the whole season. A bed of these, with their beautiful blendings in the way of colour, is a sight not surpassed by anything else in our flower gardens.

IRISES claim a foremost place in the ranks of hardy flowers, their lovely shades of colour being almost indescribable. They form beautiful objects in beds or in vases arranged with their own Reed-like foliage, being little inferior as regards effect to even Orchids themselves.

GLADIOLI, with their massive spikes in autumn or the lighter elegant-looking early-flowering varieties, are amongst the most valuable of all hardy flowers for cutting. The fiery spikes of brench-

leyensis are striking features in autumn decorations, and the blossoms of the pearly white Gladiolus The Bride grown under glass find great favour with bouquetists.

MARGUERITES, or summer Chrysanthemums, including many beautiful Daisy-like flowers, are plants of the easiest possible culture, and flower continuously. On the south coast they attain the dimensions of large bushes, but a dry soil, in which they make moderate growth, is best.

PYRETHRUMS, single and double, are a host in themselves, the Anemone-flowered sorts being very beautiful; in fact, no one could recognise the Pyrethrums of to-day, as exhibited by Messrs. Kelway, who make a speciality of them, as descendants of the Pyrethrums of a dozen years back; the colours range from pure white to deep purple, and the only care they require is keeping slugs from them when first planted. They are readily increased by division of the roots.

PHLOXES of the tall herbaceous kinds have long been favourite border flowers, but, like the preceding, they have of late been greatly improved; they are strong-growing plants and need frequent division of the roots, but they well repay liberal culture.

PENTSTEMONS, both in size of flower and beauty of colouring, are hardly comparable with the Pentstemons which we used to grow; their flowers, which are like those of Foxgloves, are excellent for vase decoration.

PÆONIES, both tree and herbaceous, are now in great request as cut flowers for such purposes as church decoration; the beautifully fringed petals and soft delicate colours, added to the large handsome foliage, make them most useful for that purpose.

SPIRÆAS have all beautiful foliage and a light feathery inflorescence, with which one can hardly be overdone in a cut state.

SOLOMON'S SEAL, with its great arched spikes of pure white bells, is too well known to need comment.

TRITOMA UVARIA is a grand flower for autumn, lighting up the sombre tints of the Chrysanthemum, that during the dullest months give us a feast of floral beauty.

Gosport. JAMES GROOM.

HARDY PLANTS AT MANCHESTER.

LOVERS of hardy plants had again the pleasure of seeing some good collections of them staged at the late Whitsun show at Manchester, and all who saw them agreed that such exhibitions are most interesting. No one could witness such plants without admiring their quaint and lovely forms. Conspicuous amongst alpines were Campanula Portenschlagiana, with its bright blue bells; Erinus alpinus, growing on tufa, with scarcely a particle of soil to nourish it, smothered with bright pink flowers; the Edelweiss, a plant familiar to Swiss tourists, with its quaint woolly heads of flower; Ramondia pyrenaica, with flowers rather paler than usual; Androsace lanuginosa, A. carnea, and A. villosa, dense verdant cushions, and all three remarkably good. Along with these were also Onosma tauricum, with bright yellow drooping flowers—quite a treat to see; Armeria Laucheana, a pretty dwarf-growing plant, with bright pink flowers; and Primula farinosa, the latter a plant which everyone having a garden should possess, growing equally well on borders or on rockwork in damp places. The Phyteumas were really grand; P. comosum had several very fine heads of bloom on it, as had also alpinum, Mitcheli, and Schenchzeri, the last being one of the best plants shown amongst alpines. One would scarcely have expected to find Tropæolum polyphyllum in flower (its usual time of flowering being August), but a good specimen of it was exhibited. Phlox ovata and setacea var. The Bride make handsome rock plants, the last named being a freer bloomer than Nelsoni. Good pans of Saxifragas, such as Tombeana, caroliniana, diapensoides, Rochelliana, and cochlearis major, were shown. Turning to taller growing plants, perhaps the most conspicuous was Lilium longiflorum eximium with sixty blooms; L. dalmaticum and L. longiflorum albo-marginatum were also good. Of Trollius Gibsoni, with dark orange coloured flowers, and Campanula glomerata speciosa, good plants were shown. A good plant of Orchis foliosa with eight or nine spikes was much admired, and of Achillea tomentosa there were some very fine examples profusely flowered. Allium pedemontanum was shown with several spikes of flower on it, and Pæonia tenuifolia fl.-pl. with its finely divided leaves looked very graceful. I omitted to mention Sempervivum arachnoideum, of which there was a very grand specimen exhibited. Pansies and Violas were again good; but would it not be better if the exhibitors were required to grow them in pots instead of lifting them a day or so before the show and cramming a dozen or so into an 8-inch pot, some without even a particle of root attached to them? The same remark applies to some of the herbaceous plants, such as the Pyrethrums, Lupines, Ranunculuses, Mimuluses, and several other things exhibited.

MELPOMENE.

NEW TUBEROUS BEGONIAS AT STANSTEAD PARK NURSERY.

WHEN noticing in your columns some eighteen months ago the principal novelties of the two previous years in tuberous Begonias raised for the most part by Continental nurserymen, and grown for comparison in the open air in my garden in the south of Ireland, I ventured to express an opinion that whatever improvement there might yet be made in the varieties with double flowers, the single-flowered sorts had reached their acme and highest point of excellence and development in the fine variety named Countess of Kingston, sent out some five years ago by Messrs. Thibaut and Keteleer, of Sceaux, near Paris. As none of the more recent so-called novelties in single flowers that had reached me from Continental raisers had more than approached this fine variety in size and beauty of flowers as far as the Continental growers are concerned, I am still of the same opinion, but I am compelled to modify it, if not to retract it altogether in favour of the really exquisite novelties which have resulted from the careful selection of seed parents, and successful crossing and hybridisation carried on with such untiring zeal during the last three or four years at the Stanstead Park Nursery by Mr. John Laing and his assistants. The efforts of these zealous hybridists have been specially directed to improving the substance and perfecting the form of the flower, to providing it with a stout and upright footstalk, that it might look its admirers straight in the face, and not hang its head and flop about, as so many of the Continental varieties unfortunately do; and in their efforts in this direction they have been exceptionally and almost unexpectedly successful, as a visit to their show house at the present moment cannot but abundantly prove to any intelligent florist. They have also devoted special attention to the obtaining of good white and pure yellow flowers without the greenish or reddish back or under petal, which disfigures nearly all the Continental whites and yellows, and in this direction they have also been most successful, some of their seedlings now in flower leaving little if anything to desire, either in size or substance of flower or in delicacy or purity of colour. Among the most novel and beautiful of their many lovely seedlings I may specially mention two which were exhibited at the first great summer show of the Royal Botanic Society, Regent's Park, on May 18 last, when they were much and most deservedly admired by all who saw them. They are, first, Mrs. Weekes, a fine flat flower, of a clear pearly white borne on a stout and erect footstalk, and distinctly margined with a narrow band of deep clear rose colour. The only variety at all resembling this fine novelty is Souvenir de W. Wilson Saunders, sent out by Van Houtte, of Ghent, some six or seven years ago, but on its elder sister, the new comer is in every way a most distinct and marked improvement; and, second, Distinction, a most beautifully cupped flower of a clear, pure rose colour, shading off by imperceptible degrees to almost pure white in the centre. This is by far the nearest approach to real bicolor, the only thing in this way that has yet been seen, being Messrs. Thibaut and Ketcleer's Miss Briscoe, which, however, is but a poor thin flower, and only interesting for the outer half of its petals being deep buff colour, and its centre pure white. A visit to Stanstead Park Nursery during the next two months cannot but afford genuine pleasure to any true florist.

WILLIAM E. GUMBLETON.

Double scarlet Geum.—What a fine bit of colour this bright hardy flower furnishes at this time of the year! It is one of the very few hardy flowers that can compete with the scarlet zonal Pelargonium in brilliancy. Even a few flowers produce a telling effect, but a well-grown group gives such a mass of bright colour as cannot, I think, be obtained by any other means at this season.—J. C. B.

Saxifraga longifolia.—I saw this in fine condition some time ago on a small rockery at the foot of a wall in a south exposure. The soil in which it was growing was stiff loam without any admixture of other soils, and the surface was made quite hard. The plants have been there upwards of ten years, and seem to be increasing in vigour. Full exposure to sun, a good loamy soil, and perfect drainage seem to be the essential points in the cultivation of this Saxifrage.—B.

Ox-eye Daisies.—A friend of mine took some white Stocks to Covent Garden Market a week or two ago. "They are very good," the salesman said, "but we cannot get much for them; they are only Gillyflowers, but if you have some Ox-eye Daisies send them on; we can get you a good price for them." Who would have thought some three years ago that the value of good white Stocks would be compared to that of such a common weed as Ox-eye Daisies, and to the advantage of the latter?—J. C.

Seeding of Christmas Roses.—Why is it that the common Christmas Rose does not seed in some places? Here one rarely finds a pod of ripe seeds, although the capsules swell up and the seeds form, but instead of maturing they shrivel up. This does not arise from want of vigour in the plants, for they grow with great freedom, and, curiously enough, the most vigorous specimens are the most barren. They yield plenty of good blooms, but no seeds—a strange fact, as the soil here seems to suit most things very well indeed.—J. C. B.

Phacelia campanulata.—May I add this to the important annuals named in THE GARDEN (p. 470)? Its prettily shaped blossom is a deep clear blue, with rich brown spots at the base of the petals and clear gold stamens. I have had it for the past three years from Mr. Thompson, of Ipswich. I saw early in warmth, and it begins blooming the third week in May, having been put out into the open ground at the beginning of that month.—H. STUART-WORTLEY (Colonel).

Double Daffodils seeding.—Is "F. W. B." of opinion that double Daffodils, like Telamonius, never bear good seed—not even when fertilised with single kinds? I always thought that the common large Daffodil had been much employed in the raising of new varieties. This year I happened to plant a few bulbs of the Tenby Daffodil in February and they came into bloom at the same time as Telamonius. I fertilised the latter with pollen from the former, and I see that one bulb carries a fine large pod of seed—conclusive evidence, I thought, that the cross had taken effect, as I have never seen a pod of seeds on the large double Daffodil before. I cannot, of course, assert that good seed will be obtained, but the pod is so firm that I can scarcely doubt that such will be the case. Moreover, from the seeding of this Daffodil a hint has been gathered which may prove useful to those engaged in hybridising. Only one plant, as I have stated, has borne a pod of seed, and the flower of this one was fertilised three or four times, the others only once or twice. Here,

then, we have a proof of how necessary it is to use the foreign pollen several times in order to make sure of a cross, for on each occasion I smothered the stigma with pollen when the flowers had been some days expanded, and yet but one bloom has produced a seed-pod. Perhaps in the case of species and varieties of various plants which have hitherto persistently refused to intermingle repeated fertilisations might conquer their disinclination to do so. Of one thing I am certain—viz., that by setting a flower several times the quantity of seed is much increased. I have proved this in the case of Cyclamens and other plants.—J. C. B.

Double Poet's Narcissus.—Much has been said and written about this Narcissus during the past spring—how the double form becomes single and the single form at times double, also as to what is the single form of this variety. I wish to add my experience to what has already been noted, which is that out of a large number of the double form and a still larger number of the single N. poeticus growing in different parts of my garden I have never yet found a single appear amongst the doubles, or a double amongst the singles.—J. T. Poë, *Riverston, Nenagh.*

Fasciated stems.—I send curious fasciated forms of two indigenous plants—Chrysanthemum Leucanthemum, or the Ox-eye Daisy, and Polemonium album, or white Jacob's Ladder. The former was given to me by a botanical friend: the other I found in a cottager's "knot." In both the character is fixed, and the Polemonium perpetuates itself by seed.—J. M., *Charmouth, Dorset.*

*** The stem of the Jacob's Ladder was 1½ inches wide and quite flat; that of the Ox-eye Daisy, which carried some half-a-dozen flowers set closely together at the top, measured about an inch wide, and it was somewhat twisted and doubled. Both were good examples of this peculiar form of stem, or rather fusion of stems.—ED.

Small white Carnation Pink. This is a great favourite with all who know it, being in substance and appearance a tiny Carnation, but in freedom of habit and longevity a Pink, spreading into wide masses like the common border white Pink, and just following it in time of blooming. It was one of a bed of seedling Carnations, at once conspicuous by its small neat habit and early flowering. Has it anything of the nature of the new French hybrid lately described in THE GARDEN by M. Jean Sisley, of Lyons, as being intermediate between Carnation and Pink?—G. J.

Primula sikkimensis.—This lovely Primrose has proved itself to be quite hardy here. In October last we planted out in a bed fully a thousand one-year-old plants, and amongst them there are not more than a dozen failures. Notwithstanding the cold east winds, many of them have been blooming during the last month, and there are still over a hundred in bloom. There was no special soil prepared for them, Pansies having been grown in the bed the previous season, and no protection was given to them during the winter. The habit of the plant is so graceful, and it is altogether so distinct from any other hardy border flower, that it only requires to be known to be extensively cultivated. DICKSONS & CO., *Pilrig Park Nursery, Edinburgh.*

SHORT NOTES.—FLOWER.

The Adonises.—Referring to "D. K.'s" remarks on these in THE GARDEN (p. 471), I may state that I have pyrenaica and vernalis, but I was not aware that there were the other perennial species mentioned. Will your correspondent kindly say where sibirica, volgensis, Sibthorpi, and Walziana can be had?—RUBY.

Pink Mrs. Sinkins.—"Veronica's" allusion to Pinks in THE GARDEN (p. 469) induces me to say that for outdoor work, out of a large number I know of none to come near Turner's Mrs. Sinkins—the largest and purest of whites. It will not, however, give the wealth of numbers of bloom noted by "Veronica" in the old sweet rough-edged white Gibbon's Lady Blanche is more tender, but good; while no garden should be without the well known old Pheasant's-eye.—W. J. MURPHY, *Clonmel.*

Brodiæa volubilis (syn., Strophohirion volubile).—Amongst a number of other interesting and beautiful plants now in bloom at the Hale Farm Nursery, Tottenham, by far the most curious from a botanical point of view are a row of luxuriant and fully-developed specimens of the above-named singular bulbous plant, which I have never before seen in anything like so fine condition as it now is, growing in an open frame, in which the bulbs can be protected during winter from excessive wet and cold, but from which the covering is totally removed as soon as spring fairly sets in and winter is well over. The long, stout, fleshy flower-stems of this most singular plant measure from 4 feet to 6 feet or more in length, and twist themselves closely round the supporting sticks and small bushes stuck into the ground to support them, and are each terminated by a bunch of pale pink tubular flowers. Such is the strength and consistency of these long and stout stems, that, even when disconnected with the root, they are able of themselves to support and nourish the flower-head, and even ripen seed, from their inherent substance.—W. E. G.

Three interesting British plants.—Amongst June flowers, perhaps few are more beautiful or highly valued for their continuity of bloom than the Welsh Poppy (Meconopsis cambrica), Globe Flower (Trollius europæus), and the Water Avens (Geum rivale). These three plants may well be associated, for they not only flower at the same season, but frequent similar situations, and very nearly approach each other in stature and habit. Whether growing on the exposed mountain-side or along the more sheltered banks of rivers and streams, the large golden flowers of the Welsh Poppy never fail to attract attention, and produce a most pleasing effect. It is a plant well adapted for the ordinary border, its wealth and beauty of bloom being special recommendations. Stony fragments, freely mingled with sand, seem the best medium in which to grow it, the long taproot requiring ample scope in a loose deep soil. The deep purplish orange flowers of the Water Avens are now very conspicuous and beautiful. Here it is usually found at a higher elevation than either the Globe Flower or Welsh Poppy, being almost confined to the banks of mountain streams and rivulets; whereas the latter are most frequently met with, and always most luxuriant, at or near sea level. Not less beautiful than either of the preceding is the Globe Flower, which at present enlivens with its large, globular yellow flowers our rural landscape. This plant is the Lucken Gowan of the Scotch, and is thus spoken of by Allan Ramsay in his "Gentle Shepherd":—

> We'll pu' the Daisies on the green,
> The Lucken Gowan frae the bog;
> Between hands now and then we'll lean,
> And sport upon the velvet fog.

—A. D. WEBSTER.

Caterpillar on Auriculas.—This sly little marauder needs close watching for just now, as he is certain to be busy in collections of Auriculas. From whence or how he comes is not made very clear to growers, but he puts in an appearance without warning, and, like a true gourmand, goes right at the most succulent part of the Auricula—its heart or core—piercing it, and arresting the central growth of the plant. The collection should be looked over daily, as constant supervision is necessary, and great harm is done in a very short time. At this season of the year it is a good plan to go frequently over the plants, passing them in review, removing any decaying leaves and stirring the surface soil. If any plant looks sickly, turn it out of the pot and examine the roots. It may be that rot has set in, or that the drainage is defective and needs improvement. Green fly needs looking after also, for this is a pest that spreads with great rapidity when it has effected a lodgment on the plants. An artist's paint-brush is a very useful thing to have handy, and if the heart or leaves of the plants affected with green fly be brushed repeatedly, the fly finds it difficult to make headway. Young plants in small pots that have filled the pots with roots should have a shift to keep them growing on into size and strength. It is at this season of the year that the foundations of good flowering plants are laid, and therefore close attention is requisite.—R. D.

Fringed Carnations.—Errors, like weeds, are hard to kill, and they resemble them, too, in their peculiar faculty of re-appearing when least expected. As regards this particular error as to florists banishing the fringed Carnation, I should have expected that the very vigorous uprooting which Mr. Dodwell bestowed on it only a couple of months ago would have been effectual in preventing its re-appearance, at least during the present season. But, no; here it is cropping up again, this time under the shelter of the gentle "Veronica" (p. 469), nearly as rampant as ever. Mr. Dodwell's claim to speak with authority on everything relating to the Carnation will be readily allowed, and this is what he has lately said on the subject of fringed flowers: "For some twenty years or so this section of the Dianthus has been the subject of special exhibition by representative florists, among whom Mr. Charles Turner will be admitted to hold a foremost place, and from the revival of the National Carnation and Picotee Society in the south prizes have been awarded, and selfs, fimbriates, and fancies have been a special attraction at our exhibitions. No flower, self or fancy, has been refused notice because of a fringed edge; on the contrary, such a property has been regarded as an adornment, as in the case of some selfs or fancies it unquestionably is. *Vide* report of the exhibition for 1882: 'Among fancy or border Carnations, Mrs. Page, exhibited by Mr. Dutfield, received a first-class certificate; it is of fine form, prettily fringed, and of a pleasing flesh colour.' Again: 'The same award was made to Mr. J. Arthur Wallington for Florence, a really pretty flower, fringed, full, and of a colour which may be described as soft apricot or buff.'" Without, therefore, going into the merits of the particular flower to which "Veronica" refers, he and other admirers of fringed Carnations may take comfort in this, that as florists grow, show, and, through their societies, offer prizes for fimbriates in their special classes, the statement that they either ostracise or ignore this handsome form of the flower is simply a mistake.—H. B.

THE BEST PERENNIAL SUNFLOWERS.

THE Sunflowers, although, as a rule, amongst the coarsest of tall-growing Composites, embrace a goodly number of really useful and striking garden plants well fitted for naturalising in wild places, the effect of their large heads of bright yellow or sulphury-coloured flowers being conspicuous at long distances off, especially when planted in groups. Some of the annual species, such as H. annuus, H. californicus and its varieties, H. lenticularis, H. cucumerifolius, &c., are also very useful for enlivening clumps of Rhododendrons, Laurels, &c., where a dash of colour or something bold and natural is required to break and relieve even surfaces. A few also come in useful for the mixed border, and even in flower gardens H. multiflorus, and its varieties, H. mollis, &c., might be utilised with advantage. Being generally strong-growing plants, very little care is required in getting them established, the main point being a good depth of soil, and if stiffish so much the better, although tolerable success will be attained in ordinary light garden soil. Flowering as they do late in the autumn, they rarely, unless in dry seasons, ripen seed in this country; but they are easily propagated by division of the roots, which may be done either in autumn after the stems have withered, or early in spring before they begin to show signs of growth. Rabbits and field mice are said to be very fond of the young shoots, and where troublesome they will have to be protected until strong and hard enough to resist their attacks. The following are a few of the best:—

H. MULTIFLORUS, of which there are two or three varieties in cultivation, notably the double-flowered one, which, from its dwarf and compact habit, stands well as a mixed border plant. It grows from 2 feet to 3 feet high, is well clothed with large heart-shaped or egg-shaped leaves, and pro-

duces numerous heads of deep yellow flowers from 4 inches to 6 inches in diameter. It commences to flower about the end of July, and continues until November. It is a native of North America.

H. ANGUSTIFOLIUS is a perennial North American species of considerable merit, although not perfectly hardy, except in dry situatioos. It grows from 2 feet to 4 feet high, and has slender unbranched stems. The leaves are lanceolate, the lower ones inclining to be oval, dark green, with revolute margins and one prominent mid-rib. The flowers are borne in dense heads about 2 inches across, bright yellow, with dark, sometimes nearly black discs; the flowers are produced from August until the latter end of October. This species, from its free-flowering and slender habit, will be found to be extremely useful for pot culture. The flowers of this, in common with those of nearly all the others, last a considerable time in water after being cut.

H. ORGYALIS.—This is a plant that should find a home in every garden, however small, as it is one of the most graceful and free flowering. The

Helianthus orgyalis, showing habit of growth in autumn.

annexed illustration represents the plant as seen late in the autumn, when the bright-coloured and peculiar-shaped flowers, narrow, wiry, thread-like, brown-tinted leaves, and straggling, natural habit give it a grace seldom seen in gardens now-a-days, owing to the amount of staking which plants of this character receive, and which renders them stiff and formal. It grows from 6 feet to 10 feet high, is very smooth-stemmed, and well clothed with very narrow, strap-shaped foliage, sessile and alternate, from 3 inches to 6 inches long. The flowers, which are about 3 inches in diameter, are very graceful and pretty.

Among others may be mentioned H. giganteus, mollis, decapetalus, and linearis. D. K.

Æthionema coridifolium —Theso-called Iberis jucunda has again flowered with us, and turns out to be, as was expected from its general appearance, Æthionema coridifolium, a name given to the plant by De Candolle, and considered by botauists to be quite appropriate, but in gardens, and also in horticultural papers, the name has been mis-rendered cordifolium. It is a fine bushy perennial which grows from 9 inches to 18 inches in height, inhabiting dry situations on the Rocky Mountains in the East. It is well clothed with pale glaucous linear or linear oblong leaves, about an inch long, broadening to the further extremity and gently tapering down to the base. The flowers, which are of a bright rosy colour, are extremely pretty, and are borne in compact heads. Although it does not flower quite so freely as Æ. grandiflorum or Æ. diastrophis, it has an advantage over these two kinds in being able to withstand comparatively hard winters when planted in well-sheltered positions. It will be all the better for having a fair percentage of stones mixed with the soil in which it grows, and which should be light. It strikes freely from cuttings made of shoots produced on the main stems taken off with a heel and placed in a cool frame in which they require little or no water until rooted.—D. K.

FRUIT GARDEN.

GLASS COPINGS V. HOUSES.

GLASS copings have now been tried for a number of years, and gardeners are now able to say how far they have served their purpose. Formerly the common wooden coping, consisting simply of a board a foot wide, was all that was thought necessary, and the object of using it was to throw off wet as much as anything else, and well such copings answered their purpose, affording at the same time a support for an old herring-net, or hexagon netting, or a sheet to hang over the trees in spring to ward off frosts. It was this old and narrow wooden coping that suggested the modern glass coping, the advantages of which were said to be that it did not obstruct the light, and that it was equal to the task of excluding from 10° to 12° of frost—the most that we are likely to experience in this country when Peaches are in flower. It is now found, however, that a glass coping, however wide, is not sufficient, and the choice of the fruit grower is now reduced, it would appear, to the alternative of a wall of the old and equally effective description, or a wall covered by glass from top to bottom—a house, in fact, with ventilators and all belonging to it, and heated as well, as some maintain to be necessary. The fact is, too much was expected from glass copings, and no sooner were they suggested than the market was flooded with a great variety of inventions of that kind, which were praised and pronounced upon before they had been fairly tried. Before deciding what kind of protection is needed for the Peach and Apricot in this country, we have to consider, first, what the nature of the risks to be encountered are, and these can be correctly specified and provided against if we choose to do so, for out-of-doors no one should expect to grow either Peaches or Grapes without some trouble. The chief dangers to be feared are spring frosts and ill-matured wood in autumn. As to frosts, the utter uselessness of copings, whether of glass or wood, may be judged from the fact that, till past the middle of May at least, there is danger of frosts of from 6° to 10° severity; that copings alone are not equal to keeping out more than 1° or 2° at the most; and that, as Peaches and Apricots are usually in bloom between the middle of March and the middle of May in the different parts of the kingdom, the chances of the trees being caught are very great, and year after year experience has shown this to be the case. Peach blossoms will not endure more than 2° or 3° of frost, especially if the sun shines upon the trees in the morning while they are frozen. It is the sudden thawing under the morning sun which does the injury in many cases.

WHAT AMOUNT OF FROST our fruit trees will endure may be judged from what we have experienced this spring during the month of April and near the end of that month. The promise never was finer, but frost came, and it has all, or nearly all, been destroyed. There was as much as 15° in some places, 10° in others; but with us, where we are high and dry, we had only three nights of frost, the severest being 8°. Yet this amount destroyed all sorts of fruit in flower, even to the hardy Gooseberry and Currant, not a flower escaping that was expanded. What, then, was likely to happen to Peaches on walls protected by nothing but copings? In this district there is only one Peach and Apricot wall with fruit on it that I know of, and it is one of the old-fashioned heated walls, and when I saw it, at the beginning of May, the crops were fine, and very little, if any, behind those in a Peach screen here. Those who will attempt Peach culture on perfectly cold walls may rest assured that a foot coping of wood is as good as any that can be devised, and if they will hang a hexagon netting over the trees from the coping, allowing it to hang during cold winds and frost or sleet, they may secure a crop in severe springs, but that will be all. With a warmed wall, on the other hand, and the coping as well, crops are, if anything, more certain than in an unheated Peach house. In order to test the matter practically, we once hung two self-registering thermometers on a south wall—one under a coping and the other on the open wall, and in the morning there was hardly one degree of difference between them, nor between the thermometer on the south side of the wall and another on the north side before sunrise. In the long, cold, and clear nights which accompany frosts in early spring, all surfaces not heated from within fall to or near the same temperature before morning, as they cannot possibly be any warmer than the medium that surrounds them, and it is this which destroys the effect of copings. After a warm day the south side of a wall will repel frost while it is radiating off the heat it has absorbed during the day, but in a cold night that store is soon dissipated, and the wall then becomes as cold as any other object. At mostly all the Meteorological Society's stations the thermometers are placed inside glazed boxes to keep them dry—a practice which was objected to at one time because it was asserted the inside of such boxes would be warmer than an open wall or board, but it was argued that the boxes could not be warmer than that which heated them—the air around them—and which was proved to be true. It is just the same with walls with copings: in cold nights they become as cold as other objects; hence the records of destruction that has happened under them whenever there has been about 6° of frost, and no other protection given. Another fault of having copings only is that they do not promote the ripening of the wood in summer and autumn in the least degree. They are simply designed to keep off frost, and failing to do that to the desired extent, as we are sure they do, they are scarcely of any service. The ripening of the wood comes before flowering, and unless that be secured neither copings nor anything else will give a crop. It is a dry, warm wall that is needed for Peaches in this country, because our skies are as a rule cloudy, and although the trees grow their tissues do not harden. It is nothing unusual to see Peach trees make splendid growth on the open wall during summer in the coldest situations, but these growths never ripen. Here Peaches on cold walls always grew sufficiently about this season and on till November, but the wood was green and was killed in the winter time, and copings did not help the trees under such circumstances in the least. On heated walls it is different. The growth is well formed by this time, and in autumn the heat from the bricks raises the temperature many degrees, rendering the air about the branches drier and more buoyant, and the wood by November gets hard and ripe nearly to its extremities, just according to the season and the use made of the flues or pipes with which the wall is heated.

THE CONCLUSION at which we arrive from these considerations is that it is very unwise to trust to copings alone, no matter what they are made of, except in some of the most favourable parts of the kingdom. If the wall be heated, a plain narrow coping will be serviceable in various ways, but if not, then the best plan is to cover in the entire wall with glass and make all safe and sure, otherwise growers may rest assured that the cheap, but enduring wooden coping is just as good and as effective as any other kind they can procure. Of course, existing solid walls cannot now be heated

without being rebuilt, but walls that have to be built should be heated, and as such have to be built hollow and cost only about half for building and material, the difference will provide two rows of hot-water pipes to be laid along the bottom of the wall for warming purposes, and as the heat is wholly enclosed within the bricks, exceedingly little fuel is sufficient to keep the walls warm, a fire once in the twenty-four hours during cold days and at critical times being all that is needed. Success in the culture of the trees otherwise depends on pruning and training, and the most important points are to train the shoots thinly and lay them on to the wall as they grow, so that they may have the benefit of the higher temperature which it affords, for in cold weather the heat from the warm brickwork is felt less and less the farther from the wall, till at a distance of 18 inches or 2 feet it becomes almost *nil*.

At p. 469, Mr. Baines says, "Some are under the impression that the bloom of Peaches will succumb to a certain amount of frost, whatever the previous treatment may have been," and then seeks to refute that idea. I am one of those who believe this, and I should regard a Peach blossom that had endured so little even as 5° or 6° of frost as a natural curiosity, no matter what the "previous treatment" had been. Did Mr. Baines ever see a Peach crop survive where from 6° to 8° of frost reached the flowers when expanded? I never did. What will destroy the flowers of our native Gooseberry will destroy those of all other hardy fruits, and from 6° to 8° of frost will do that. That was the maximum recorded here during the late frost on two good thermometers properly placed, and not a Gooseberry flower that was expanded escaped; consequently on some of the earlier varieties we have not a berry this year, and a finer show of flower we never had. It is exactly the same in our neighbours' gardens a few miles off. We have no Peaches out doors, but if we had and they had experienced the same frost, does Mr. Baines maintain they would have escaped? and if not, what does he mean by denying the "impression" just referred to? J. S. W.

PROTECTION, OR NO PROTECTION.

My adoption of the above heading to the remarks I made on the subject of Apricots and Peaches on open walls has possibly led "W. I. M." to somewhat misapprehend my meaning. If he had attentively read what I said he could not, I think, have been led to suppose that I consider protection in all cases unnecessary, but quite the reverse. A fair amount of actual experience with these fruits in places where the conditions differed considerably, and the opportunity which I have had of seeing what has been effected by others, have led me to the conclusion that protection is often used in places where it might be dispensed with altogether, provided the treatment of the trees was such as to give the bloom or newly-set fruits the greatest amount of cold-resisting ability of which they are capable. Few will now contend that these crops are not greatly influenced by the treatment to which the trees have been previously subjected. In expressing my belief that crops are often destroyed through the retention of too many of the summer shoots and other influences that have a like weakening tendency, my remarks had no reference to places like that under "W. I. M.'s" charge where no doubt the trees are skilfully managed, but I maintain that taking those fruits collectively as they are to be met with on open walls throughout the country, all is not done for them that might be; and even where careful cultivation is followed, much more wood is frequently retained in summer than is consistent with ability in the bloom to come safely through a trying spring. I have found by actual test with trees of the same variety standing side by side on the same wall that where the wood was kept considerably thinner than is generally looked on as needful, the bloom and also the newly set fruit would bear more cold than where more, but not an excessive quantity of summer shoots were kept, with, as a matter of course, the wants of the trees in other respects equally attended to, including keeping the foliage free from insects, on which a good deal depends. The weakening effect of the leaves coming off before their time through red spider or being only indifferently developed through the attacks of aphides, does not end with the close of autumn, but leaves its mark in the weakened bloom that cannot bear an adverse spring.

That there are plenty of localities where to succeed with the fruits in question the trees need to be well managed, and also protected in spring, goes without saying, and in such it would be folly to withhold protection so far as it is needful; but I am satisfied that protection, and that of a costly description, is frequently used with no better results than could be had by doing for the trees that which would best enable them to pass through adverse weather in spring. In saying this much, which is neither more nor less than the substance of what I have already expressed, I hope "W. I. M." will now see the difference between what I recommend and decrying protection altogether. "W. I. M." admits that glass copings encourage red spider and cause the earth near the walls to get over-dry, both of which, as he says, can be remedied by the garden engine and water-pot, but unfortunately the press of other work is often the cause of these measures being deferred or omitted just in the way that the glass, even when movable, is not unusually allowed to remain undisturbed.

I can assure "W. I. M." that my views on this subject are not based on what has occurred the present season alone, but on what I have myself experienced during many years, and further borne out in the large number of places which I each season now see, and which I cannot shut my eyes to, disclosing, as they do, results as different as it is possible for them to be, and this in places where the conditions are identical. Regarding Mr. Watson's remarks about the advantages he has found to follow the use of protecting materials in preventing or checking the attacks of insects, as well as curl and blister in the leaves, this is the first instance I have heard of wherein it was alleged that insects were kept down by the trees being shaded; as to curl or blister in any appreciable extent, I have been fortunate enough to keep clear of it. T. BAINES.

PROTECTION NEEDFUL.

THOSE who have Peaches and Apricots this season must be exceptionally favoured in some way if they have afforded no protection, as we all know what 13° or 14° of frost would do in a garden to a tender crop of such fruits; and yet it appears, according to Mr. Baines, that that amount of cold was registered at Manresa House, Roehampton, where he says there is just now plenty of fruit. There can be no question that the thinning out or laying no more wood in than is absolutely necessary has much to do with the trees ripening their young growths, but, though the blossoms are stronger in consequence, it does not make them or the fruit frost-proof, and 13° or 14° below freezing point would be fatal to either. I am acquainted with a garden where Peach and Nectarine trees on an uncoped and unprotected wall generally escape when the blossoms are destroyed elsewhere, but then this wall has a south exposure, and nearly close along the back are tall Oak and other trees, which shut out the cold wind, and as the top of the garden is bounded by very high buildings used for coach houses and stabling, the temperature of that part must be much higher than it is lower down and in parts more exposed. To say, therefore, that they had a crop of Peaches and Nectarines on trees unprotected after the thermometer in that garden had registered 12° or 14° of frost would be very misleading, as the difference on the face of the wall referred to would be at least half, and my experience of Peaches, Nectarines, and Apricots teaches me that that amount of cold is quite as much as they can stand without being destroyed. With regard to

GLASS COPINGS, I know they are of great service, and only wish we had more of them, as by using blinds, or, better still, Reed hurdles, reaching from them down nearly to the ground, the trees are almost as well off as they would be in an unheated house. We protected ours in both ways this year, part with blinds on rollers and the others we used Reed hurdles for, while to keep out the cold wind from passing under, as they stood on legs 2 feet long, and the blinds were that much short, we stuck in a lot of Laurel branches, thus forming a sort of hedge below, and by thus managing the shelter was perfect. The reason why I think so much of glass coping as against wood is that it is lighter it keeps the flowers perfectly dry; and intercepts radiation from the wall, especially when there is some protection in front, and therefore the air is kept quiet and remains considerably warmer. Where permanent glass copings do harm is when they are too wide for the height of the wall, in all which cases they raise the temperature too much during the summer by throwing down the confined heat, and this being of a very dry nature, the trees are apt to suffer in consequence. Our

PRINCIPAL APRICOT WALL is 15 feet high, and on this we have a coping a yard wide, which answers admirably, as by straining a fish-net two or three times double from the rod in front and keeping it out about 4 feet below, we seldom protect further and invariably get a fine crop. This year it is very heavy, and we have pulled off quite half, and ought to have thinned still further, but as the fruit looks a little yellow, as if it had suffered from the cold and might some of it fall in stoning, we left more on than we otherwise should. Not only is a glass coping of great value during spring for keeping trees and walls dry, but it is also of much service in warding off wet when the fruit is ripe, a period when Apricots perish wholesale if we get much rain, as they are so tender in the skin and rot fast. It is the same with autumn Peaches, many of which, if exposed, get damaged; whereas if the trees are under copings, they are safe. This immunity from injury I have experienced again and again, and I should be sorry to be without such protection, as it has saved us a good deal of annoyance, which we should have had in losing good fruit. As to

COPINGS KEEPING OFF NIGHT DEWS AND RAIN FROM THE FOLIAGE, there is not so much in that as many make of it, and the loss of rains and dew is easily compensated for by a good washing from the garden engine, which all Peach and Nectarine trees should have two or three times a week when the fruit is swelling, provided the weather is hot. This frequent rinsing with clean water is very refreshing to the trees, and not only keeps them free from red spider, but prevents aphis lodging on the young tender leaves, or points of the shoots, and crippling their growth. Where many people fail with Apricots, even with the aid of protectors, is in letting the trees get long spurred, which should always be avoided by timely stopping and shortening back of the young growth, and rubbing out any or all of the top shoots which can be spared, as the thinner these are in reason the more the trees continue to break home and keep close to the wall. Not only may spurs be kept shorter by managing in this way, but they may be maintained in a much more clear and healthy condition, as they do not become nearly so knotted and gnarled as they always are when jutting out far from the branches. S. D.

Spur-pruned wall trees. — Where wall trees have long been pruned on the spur system the spurs often get out a long way from the wall, and the principal benefit for which trees are trained to walls is lost. Now I find that in the winter and spring pruning one is apt to leave these long spurs on account of the bloom buds on their extremities giving promise of fruit. But at this time of the year there is really no use in leaving these useless horn-like growths, and if cut close off fresh growths usually start from the base, and make fruitful spurs the next year. Trees to be kept fruitful in all parts must have a succession of young wood coming on in various stages, and the fan mode of training admits of young branches

being laid in wherever a vacancy occurs, but it is useless nailing or tying them in unless they get full sunlight to perfectly ripen their buds. I find Plums to be especially benefited by clearing away a quantity of the old unfruitful spurs and laying in a proportionate quantity of young wood every year, and there can be no question that when the trees are in full leaf is the safest time to prune all stone fruits; the cuts then heal over at once. After trying various modes of removing the long spurs just alluded to, I find nothing equal to strong pruning scizzors; they are less liable to get out of order than the secateur. Wall trees can hardly be kept too close to the wall, in order to benefit by its latent heat, and the finest fruit is produced on young wood; therefore see that there is a good supply of it laid in.—J. G. H.

MORE ABOUT PACKING FRUIT.

IT cannot be too strongly impressed on the inexperienced that cardboard or paper boxes are not at all suitable for carrying fruit safely either by post or rail. Tin boxes have been strongly recommended for the purpose, but I do not believe in them, unless for sending singly by rail. To be sufficiently strong they must be heavy, and this soon makes it more expensive to send by post than by rail. Neither do I like the boxes to be divided, so that each fruit has a separate compartment, as I am certain that the fruit can be better packed without such doubtful aids. Moreover, these many divisions for such fruit as Cherries, Gooseberries, Strawberries, Plums, and even Peaches and Nectarines, tend to make the boxes much heavier and more expensive in every way than they otherwise would be, and they do not hold so many fruit as undivided boxes of the same dimensions. Flat boxes, made of thin tin, are best divided into four quarters, but only for the purpose of strengthening them and preventing them from being knocked out of shape.

PEACHES AND NECTARINES — These, where forced, are now becoming plentiful, and great quantities of them are finding their way to the markets of large towns and the town houses of the wealthier classes. When ripe especially they require the greatest care in packing, the slightest bruise quickly disfiguring them. To pack Peaches, or, indeed, any other kind of dessert fruit, loosely with other fruit or even in the bottom of a cut-flower box, as I have known to be done by inexperienced pickers, is quite a mistake. They should go in flat boxes in one layer only, and be completely surrounded by some kind of soft, yet springy, material. Clean dry Moss is preferred by many market growers as well as private gardeners for packing, but this is not easily procured in many districts, and a substitute has to be found. The best material next to Moss is Grass from the box of the mowing machine. This, when thoroughly dried, is clean, sweet, and serviceable. Some of our lawns are very mossy, and it is from these we prefer to have our Grass for packing. If we have to pack Peaches or Nectarines to go a distance, and have our doubts about the box being returned, we use cocoa boxes purchased from the grocers. Sometimes we cut large mustard boxes in halves, and these with a side added are strong and serviceable for the purpose. Strong tin boxes that we have used for a considerable time are about 15 inches long, 10 inches wide, and 3¾ inches deep; these hold twelve or more fruit. Wooden boxes are made of different proportionate sizes, so as to hold any number from six to twenty-four fruit. Rather smaller boxes suffice for Nectarines, but the days for very small fruit of these are past, and the Peach boxes will generally do if a little extra packing material is used. If Moss or dried short Grass is employed, the boxes should be rather closely filled with this, the spaces for the fruit being formed with the hand. The fruits are best wrapped in tissue paper, and should be packed point upwards, having a bed of the material to rest on, and more placed on the top of them, so as to quite fill the box. For very ripe fruit we still prefer using common cotton wool for packing. This is pulled apart in lengths of about 12 inches, and then divided into strips about 6 inches wide, or if the fruits are extra fine the lengths and widths are increased in size. Each fruit is enveloped in a large young Vine leaf usually gathered from open walls; the strips of cotton wool are once folded, keeping the skin side outwards, and are then lightly bound round the sides of the fruit. Supposing these strips are to be wider than the fruits are deep, no more material is required unless the box is not properly filled. When a strip of cotton wool is placed both below and above the fruit, no complaint is ever heard respecting the packing; but when tin boxes with divisions were used, complaints were sometimes made. It is not advisable to allow the cotton wool to come into close contact with the fruit, and if Vine leaves are unavailable we would wrap them in tissue paper. Much depends upon the state of the fruit to be packed, this being affected by the time of gathering. I hold that no stone fruit should hang on the tree till fully ripe or ready to drop, and for that reason I never fix netting or canvas to catch any falling fruit. They should be gathered directly they will part from the tree when firmly pulled, but never pressed unless near the footstalk. Fruit that almost drop into the hand are much too ripe for the markets; it is best to send them there under ripe than fully ripe. Salesmen and fruiterers are more concerned about the soundness and general appearance of the fruit than its quality. Those intended for private use will ripen to perfection in a fruit room, and be cooler and more refreshing than those gathered and eaten at once.

STRAWBERRIES require very careful packing, and even then, no matter how well they travel, they are never so good as when first picked. Those who grow Strawberries principally for sending away ought always to select good travelling sorts, or those with the seeds prominent. I find Vicomtesse Héricart de Thury, Sir Joseph Paxton, President, Sir C. Napier, Dr. Hogg, and British Queen all suitable, and these sorts retain their brisk flavour better than others that might be mentioned. The best time to pick the fruits is early in the morning or while they are fresh and cool, and all should be fully coloured, but not fully ripe when picked, or they will be useless the next day. Ours are sent daily a distance of 130 miles, and generally reach their destination by 11.30 p.m. As they are sent in small packages, we prefer tin boxes; they are heavier, and therefore travel better than wooden boxes. These boxes, which are 12 inches square, and about 2¼ inches deep, weigh 4 pounds, and hold from 1½ pounds to 2 pounds of fruit. A thin layer of cotton wool is placed on the bottom, this being preferable to any loose material, which might work up among the fruit, and on this a single layer of fruit is closely packed. Every Strawberry is enclosed in a third portion of a previously flagged Strawberry leaf, and they travel better if placed stalk downwards, the points being more liable to be bruised if they have to support the weight of the fruit. More of the leaves are placed flatly on the top of the fruit, then a layer of cotton wool, and on this the lid closely fits. Strawberries being soft and easily tainted, the material about them cannot well be too fresh and clean. It will thus be seen that the fruits are divided, rested on, and are covered by their own young leaves, the other material being necessary to prevent contact with the hard, unyielding boxes. I have also at different times packed large quantities of Strawberries in shallow trays of various widths and about 2 inches deep, these either being packed on the top of each other into another box made for the purpose, or bracketed together and a lid screwed to the top tray only. In such cases the trays have to be padded with soft packing material and the fruit covered with the same or leaves, so that the next box may act as a lid in securing the steadiness of the fruit. We do not attempt sending Strawberries by post, but if we wished to do so I should select the firmest fruits and pack them in light flat boxes made preferably of wood, this being less liable to be knocked in than other material. They should be packed exactly as above advised; the boxes should be well tied up and labelled "fruit" or "Strawberries." To pack these or any other soft fruits in deep boxes simply means sending a quantity of juicy pulp, for that is what would be the result. I am aware that market growers, who annually consign many tons from the open fields to large towns, notably London, pack the bulk of their fruit in punnets, each of which holds 1 lb. of Strawberries, fitting these into square boxes and in one or more layers; but then the railway officials are bound to handle the packages carefully, and this is very different from the treatment with which our various small boxes are liable to meet. Then, again, these large growers have the bulk of their fruit picked early; I have seen as many as 400 pickers at work before 4 a.m. The fruit is never handled a second time, the pickers well knowing the trick of putting the smallest fruit into the bottom and finishing off with the largest. I have observed that they attach much importance to keeping the fruit as cool as possible till the time arrives for despatching it. I have seen it stored on the latticed floor of a large room built over a running stream, and fruit thus treated (British Queen) generally commands the best prices in Covent Garden.

GRAPES.—If these are divested of their bloom their value is greatly impaired; with most gardeners packing Grapes is, therefore, a disagreeable necessity. Pack them how we will they are certain to present a more or less rubbed appearance when unpacked. It is often easier to pack a large quantity for market than to send a few bunches for private use. In the former case we should prefer boxes to baskets in cool weather, but during the hot summer and autumn months square baskets are best, being least liable to cause sweating. Packed in a close box the heat and friction may greatly damage the fruit, but baskets being more airy keep it cooler. The baskets and boxes which I have at different times used are about 18 inches long, 12 inches wide, and 9 inches deep. They are padded or lined with either good clean, springy Moss or cotton wool, and faced with brown kitchen paper. The basket is tilted at a sharp angle; the bunches are generaly cut with a piece of lateral attached to them; the packing is commenced at the lowest end, the bunches being placed closely together points downwards. It is of the greatest importance that the basket be well filled, the bunches, when it is smartly righted after packing, serving to fix and support each other. The lids lined with paper close down lightly on the stems and fix the bunches. If packed loosely they would gradually slip down and rub each other to an injurious extent. Those near the markets and who, perhaps, deliver their own produce may pack their Grapes in cross-handled, flat baskets, covering them with paper only, but this method is hardly suitable for long distances. I have tried, and seen tried, various methods of sending a few bunches for private use, including packing in bran, in Lime leaves, nailed down in boxes or tied in baskets, with and without paper wrappings, &c. Of these I prefer the plan of placing each bunch separately in a paper bag made by folding a piece of stiff kitchen paper, after the manner in which the grocers at one time folded their bags for sugar, packing them closely in a box padded with either dried Moss or the short dried Grass above alluded to. For four medium-sized bunches a box 18 inches long, 12 inches wide, and 9 inches deep is suitable. The bunches should be packed closely, with the points inwards, and the lid ought to be all that is necessary to keep them in position. I have been agreeably surprised at the manner in which Grapes thus packed turn out. They may be packed in a similar manner for sending by post, and I have no doubt they would turn out equally well, but doubt if, in many cases, there will be any saving in the cost of carriage, there being no intermediate prices.

MELONS AND PINE-APPLES — Melons should be cut and placed in a fruit room before they part from their footstalks, thus insuring better flavour and longer keeping. The loss of the footstalk also detracts from the appearance of the fruit, and if

they are separated it is advisable to leave the footstalk on the plant, where it will keep plump and fresh, cutting it off and fixing it to the fruit with a pin or small peg just before packing. In packing it is a good plan to wrap the fruit in doubled tissue paper, and surround it with cotton wool, or else bed the fruits in Moss or dried Grass. They should be firmly fixed in order to prevent rubbing or rolling one against another. The boxes ought always to be deep enough, so that the lid may shut down on the packing material without unduly pressing the fruit. If either Melons or Pine-apples are packed in a large box with other fruit, a temporary division should be made, otherwise they may prove destructive to the rest. Pine-apples are generally carefully wrapped in paper and then doubled cotton wool, particular care being taken with the crown, as if this is bruised, the fruit may be mistaken for an imported one. They are packed lengthways either in a long narrow box, or a division is made for them in a larger box.

OTHER FRUITS.—Figs are usually wrapped in tissue paper and carefully bedded in cotton wool or other soft material. They do not travel well, and ought not to be very ripe when packed. Apricots we pack similarly to Peaches, only shallower boxes are employed. These, again, travel very badly if packed when fully ripe. Plums are wrapped in tissue paper, and, if not very ripe, bedded rather closely on the soft dried Grass. If very ripe, they are best wrapped in Vine leaves and cotton wool. Cherries gathered before they are bursting are packed closely, and in a single layer in shallow boxes, a little packing material going above and below them. Gooseberries may be treated exactly the same, and all the four last-mentioned ought to go well by post if thus packed. Raspberries picked with their stalks and scarcely ripe to be packed similarly to Strawberries, and Currants, loosely in shallow boxes, generally travel fairly well. Any small fruits, such as Strawberries, Red and Black Currants, Raspberries, and Blackberries, intended for preserving are best separated from the stalks and packed in earthenware jars, being converted into jam directly they are received. W. I. M.

Laxton's King of the Earlies Strawberry. Through the kindness of Mr. Laxton, I am enabled to give an opinion of not one of the earliest, but the very earliest of all Strawberries with which I am acquainted. I gathered on Sunday, June 8, a few ripe berries, but the wily blackbirds had the first turn. The fruit is roundish, bright red, and the flavour delicious. Its cropping qualities, judging from the few plants which I possess, are remarkable. I intend to plant an early border of it next year, and shall place the plants 1 foot apart. R. GILBERT, *Burghley*.

*** A few fruits of this Strawberry, sent to us by Mr. Laxton, were found to be excellent in flavour. It is a cross between Vicomtesse Héricart de Thury and Black Prince, and was ripe in Bedfordshire on the last day in May. The Captain, another new Strawberry, also raised by Mr. Laxton, between Crown Prince and Forman's Excelsior, is a large showy fruit, well worth further trial.—ED.

Colouring and flavouring Peaches. In a discussion which took place in THE GARDEN about this time last year on the merits of trained *v.* standard Peach trees, "J. S. W." very strongly expressed himself in favour of standard trees, for the reason, as he very properly remarked, that when Peach trees are trained to wires there are as many fruit under the wires as above them, and therefore trained trees did not give a greater percentage of high-coloured fruit than standards. Now let me say at once that I have not opened the subject again with a view to dispute the ground which "J. S. W." took on the occasion alluded to, but I do so with the view of strengthening my own argument, which is, that no one can get the whole of the crop of Peaches growing on standard trees highly coloured, and consequently well flavoured, without mutilating the branches to let in light and air to an extent that is both unsightly and injurious to the tree; while on the other hand it is possible to have all the fruit that is wanted to furnish a crop on the top of the wires, thus insuring as highly coloured and flavoured fruit as it is possible to have. In order to accomplish this, the cultivator has only to rub off all the flower-buds before they expand under the branches, and it he does not like to do that, he may leave them until the fruit is set, but the work of rubbing off the young fruits must not be delayed after they are sufficiently advanced to be readily seen, because a sufficient number might not swell off on the top if the resources of the tree are overtaxed in the beginning. We have accomplished what I now recommend by rubbing off all the flowers underneath the wires, and on a 30-foot run of wires a magnificent crop of fruit is set and showing boldly above the wires, while beneath them there is not a single fruit.—J. C. C.

Hazel supports for Strawberries.—Where Strawberries grow strongly, as they do here, they often cover the ground the second year after planting, though put in 2 feet apart. The foliage therefore covers the fruit, which is thus deprived of the ripening influence of the sun. If, however, Hazel spray is cut the same height as the foliage, and placed round each plant, it will hold up the fruit and also support the nets that protect it from the birds, thus letting the sun and air in between the plants. A little litter may be used to keep heavy rains from splashing the lower fruit with grit; the spray should be applied whilst the fruit is green.—D. HARRIS, *Munstead*.

Planting forced Strawberries.—Strawberries under glass will now be over for this season, but they should on no account be thrown aside as useless; on the contrary, they are most valuable for planting out, as with but little labour they will yield a good crop next season, and some kinds, such as Vicomtesse Héricart de Thury, will start into growth, flower, and yield a good supply of fruits in the autumn. Therefore, do not let them suffer from want of water, as no fruit which we cultivate feels the effects of drought so soon as the Strawberry, and if red spider gets established on it it will weaken the plants for the entire season. The plan which we adopt is to turn them out of-doors directly the fruit is gathered, setting them in a convenient position for supplying them with water, and giving a good syringing overhead in the evenings of hot days. As soon as ground is cleared of early Potatoes we plant them out 2 feet apart each way, sinking them well in the soil and treading them in firmly. If the soil has been manured for the Potatoes no stimulant is required; a good dressing of manure will, indeed, be of more service spread on the surface on the approach of winter. Should the ground not be ready for their reception, we find it best to knock them out of their pots and lay them in in rows rather thickly; this reduces the quantity of water which they require to keep them strong and healthy.—J. GROOM, *Gosport*.

Thinning Raspberry shoots.—Raspberries are not particular as to the character of the land in which they grow; they will thrive in peaty soil, in light, or in heavy loam, provided it is well supplied with manure, to which this fruit is so partial that the plants soon get weak if the ground in which they are grown is allowed to get poor. Where the treatment is such as to suit them, and the land is of fair quality, the plants will keep on in a vigorous bearing state for an indefinite time. I have had to deal with Raspberries that had occupied the ground for over thirty years without the plants being renewed, and that, through indifferent treatment, had got weak, the annual growth not attaining more than from 1 feet to 5 feet in length, but by a liberal use of manure, confining the season's growth to the number of shoots required to bear fruit and no more, with keeping the ground regularly hoed so as to be quite free from weeds, they soon got as strong as it is possible for plants half a dozen years established to be, and kept on in this condition, yielding three or four times the weight of fruit they did when weak. They were gone over each spring twice, and all superfluous shoots cleared off. The ground was never dug, but in the winter was forked over about 3 inches deep; a good dressing of manure was laid on in April each year, and some soot or guano in the height of the growing season. With the manure applied in this way on the top it acts as a mulching, giving the weeds little chance, which consequently do not give much trouble. I look on this as the best way of manuring Raspberries; the strength gets washed down to the roots, and they are protected from drought, which latter is of no slight importance. When lying, as the roots do, near the top they become stagnant in dry seasons, unless there is something on the surface to keep the soil from getting too dry.—T. BAINES.

GARDEN FLORA.

PLATE 445.

ALPINE CATCHFLIES.*

AMONGST hardy plants, Lychnises or Catchflies stand in the front rank for border decoration or as edging plants; many of them also make desirable rock plants. For herbaceous borders the best is Parkinson's Flower of Bristow, or Nonsuch (L. chalcedonica), a well-known kind which bears large heads of vivid scarlet flowers, together with the varieties alba, mutabilis fl.-pl., and others. Nor must the single and double-flowered Ragged Robins of our hedgerows, with fringe and flounce, be despised. Take, again, the Rose Campion (L. coronaria), of which there are a few pretty varieties all handsome both in leaf and flower.

LYCHNIS LAGASCÆ, of which the annexed is a coloured illustration, is one of the handsomest of small alpines. It is a very scarce plant in this country, a circumstance no doubt attributable to its being confined to only one small locality in the Pyrenees. As will be seen, it is a dwarf habited plant with a densely branched stem. It grows about 4 inches in height, and forms round, compact masses, resembling both in habit and colour, but on a larger scale, some of the pretty Androsaces. The flowers, which measure over half an inch in diameter, are very freely produced. They are of a lovely rose colour, and are shown off to advantage by the soft, glaucous green, oval leaves. This species grows very well in pots, in which it will flower freely in April and May. It may be used for decorating front stages in greenhouses, the colour of its flowers being rather scarce among dwarf-growing indoor plants at that season. As a plant for rockwork it stands almost without a rival, doing well on projecting ledges or between stones in sunny positions, where it grows and flowers with nearly as much freedom as it does on the Pyrenees.

The German or viscous Catchfly (L. viscaria) is a handsome border plant, even in its single form, but where compact, showy flowers is the aim the double varieties are in every way preferable, being much more ornamental. It forms a tuft of narrow Grass-like leaves, from amongst which the flower-stems generally rise about a foot in height. They, however, vary in this respect, those of plants collected in Styria being rarely less than 2 feet in height. The stem near the top is short-jointed, and from opposite sides of it are produced clusters of purplish flowers, the bracts also which separate them being reddish purple and nearly an inch in diameter. There is also a white variety which is rare in cultivation. These German Catchflies flower in May and June, and are generally found growing on limestone.

* Drawn by the late Mr. Noel Humphreys in Messrs. Backhouse's nursery, York.

The alpine Catchfly (L. alpina) is said by some to be only a mountain variety of the above, but it is sufficiently distinct under cultivation to merit a separate name. It is a much dwarfer growing plant than L. viscaria, being rarely more than 6 inches in height. It has upright jointed stems on which the flowers are collected into corymbs or small heads, and furnished with very short foot-stalks. They are bright purple, the petals being cloven nearly halfway, a feature by which it is easily distinguished from L. viscaria. It is a native of the Alps and Siberia. The best way to establish this species is sowing seed of it on old walls or elsewhere where it is intended to grow.

L. GRANDIFLORA, although not exactly an alpine species, belongs to a group many of which make good plants for rockwork. With the exception of L. fulgens, they are entirely confined to Japan and China, where they are said to be cultivated with the greatest care principally for cut flowers. In this climate, however, unless under the most favourable circumstances, they seldom flower well after the first year if left to themselves. It is therefore advisable to take cuttings of them in the autumn, just before the stems begin to fade; they will then strike freely if kept close under a bell-glass in a cool frame, or the roots may be divided as is practised with herbaceous Lobelias, potting them singly in small pots and wintering them in frames where sufficient space can be spared, or they may be plunged to the rim in ashes in the open, simply protecting them from very severe frosts or heavy rains. L. grandiflora grows from 1 ft. to 2 ft. in height; its flowers are orange-red, beautifully serrated at the margins, and seldom less than 2 in. in diameter.

L. Haageana, L. Sieboldi, and L. Senno are all worthy of cultivation, the latter especially, on account of its rare chocolate-coloured flowers. L. fulgens is a lovely dwarf species about a foot in height; its flowers, which are large, resemble in colour those of the beautiful L. chalcedonica, so common in cottage gardens. They are very useful in a cut state, lasting a long time in water after being cut. All these Catchflies are partial to peaty soil and positions where they can be shaded from the midday sun.

ALPINE CINQUEFOILS.

Cinquefoils, or Potentillas, although well represented in gardens, are not, generally speaking, very ornamental, many of them, such as P. recta, &c., being only fitted for botanical collections. Some of the varieties of P. argyrophylla, P. atrosanguinea, P. McNabiana, and the handsome Himalayan P. formosa are, however, showy border plants, and very attractive when in full bloom. That period is, however, unfortunately of but short duration, and although they produce flowers more or less all through the summer, they are apt in dry seasons to become straggly and unsightly through losing their lower leaves. The stronger growing sorts represented by those just named are useful for many purposes besides the ornamentation of flower borders, such, for instance, as covering bare exposed places in woods, &c., where a dash of colour is desired; they easily become naturalised and grow well in any ordinary soil. Some of the double-flowered varieties are also very useful in a cut state owing to the brilliancy of their colours. The few really alpine species belonging to this genus are very handsome dwarf plants, eminently suited for either large or small rockeries.

P. SUBACAULIS is an extremely pretty miniature species, having large yellow flowers and toothed trifoliate leaves, woolly or silky on both sides. It is a very free flowerer and easily cultivated. The variety albicans is a fairly distinct plant, with broader leaflets than subacaulis and two, sometimes three, flowers to each stem, large, and invariably bright in colour. They are natives of the Maritime Alps, &c., and require rather exposed situations free from stagnant moisture. Clusius's Cinquefoil (P. Clusiana) is a very elegant species, and one, although long since introduced, still rare in gardens. It is allied to the pretty little P. caulescens, from which, however, it is easily distinguished by its larger flowers and three-toothed leaflets, while in the other there are several. The stems, which are numerous, are rarely more than 3 inches in height, somewhat rough to the touch, and having a trailing habit. The flowers, which are large in proportion to the size of the plant, are pure white with reddish purple styles. It is found on the high mountains of Austria growing in rocky clefts and increasing with wonderful rapidity wherever it can get a hold. The effect of its pretty white flowers against the dark Moss and Lichen-covered rocks is quite charming. It succeeds best on a piece of nearly vertical rockery or old wall where sufficient soil can be found to give it a hold.

SHINING CINQUEFOIL (P. nitida) is a charming dwarf species, which seldom attains more than 2 inches in height, and, although generally upright, it sometimes assumes a trailing habit. It has one or two flowers on each stem about half-an-inch in diameter of a pretty rose colour. The leaves are generally trifoliate, although specimens have been collected on which there have been four leaflets. They are covered on both sides with silvery hairs, which sparkle in the sun like diamonds. Owing to our dull foggy winters, it grows but indifferently in the neighbourhood of London; it seems to succeed best firmly wedged in crevices between flat stones or on large pieces of old brick wall, where it may be easily established. The annexed plate is a good representation of it. It is a native of the Alps, Tyrol, &c., and flowers early in June and July.

P. TRIDENTATA is a well-marked species with a fine compact habit; it is a very prolonged flowerer, commencing in early summer. It has thick leathery toothed, trifoliate leaves, and bears a profusion of pure white flowers. It makes a good edging plant.

Among others may be mentioned P. calabra, a pretty species, a native of Italy, &c., with small much-divided silvery leaves, and bearing a profusion of charming yellow flowers. It has a graceful appearance hanging over ledges, and is perfectly hardy. P. arguta, P. alpestris, and P. frigida may also be introduced into gardens with advantage. D. K.

Flowering plants in rooms.—The question "Are plants in rooms unhealthy or not?" has been frequently put, and as frequently answered in directly contradictory terms. The fact is, that such experiments as have been made have been directed rather to the discovery of the amount of carbonic acid given off by plants at night than to the general composition of the air of the rooms in which they were located. As a matter of fact, no sufficient reason has ever been assigned for excluding plants from rooms, though it is well understood that some plants—those which exhale certain powerful odours, for instance—should not be kept in bed or other rooms unless the apartments are well ventilated. The question, so far as the production of carbonic acid is concerned, is of little moment, for the quantity of that gas given off during a night by any conceivable number of plants likely to be placed in a room is so small as to be practically harmless. On the contrary, it has been proved that flowering plants are health-producers, owing to the amount of ozone generated by them, and it has been asserted that, however produced, there seems no difference of opinion as to the value of ozone in our atmosphere, for the majority of chemists are agreed that it is the "great purifier," and not one can attribute any deleterious influence to it.

SEASONABLE WORK.

INDOOR PLANTS.

STATICES.—Blue flowers are comparatively scarce amongst greenhouse plants, particularly such as are of a lasting character. The different species of Statice supply various shades of this colour; the flowers are most enduring, and the plants, when healthy, keep on producing a succession so long as they are in active growth, added to which the plants last for a number of years when well treated; but there are several matters connected with their cultivation in which they differ somewhat from the generality of other subjects. To keep the leaves in a healthy condition they must not be exposed to the full force of the sun from the time it gains considerable power until it wanes in autumn; otherwise they assume an unhealthy, bleached appearance, and do not attain nearly their full size. The plants should not be kept lower than from 40° to 45° during winter, or the growth becomes stunted. They are free rooters, and require more pot room than many things which attain larger size. Good yellow loam is the best soil in which to grow them, and when in full growth during spring and summer they are much assisted by frequent applications of manure water. They require no training for ordinary uses. S. profusa, S. Butcheri, S. imbricata, S. brassicæfolia, and Holfordi are all deserving of cultivation. Anyone who will keep up a stock of these need not be without their flowers for any length of time. If cut whilst fresh and dried quickly, they will retain their colour and form for a length of time. Cuttings made of moderate-sized shoots kept in a medium heat and confined under a bell-glass strike freely. The present is a good time to put them in.

PLEROMA ELEGANS.—This bears lovely, large, violet-coloured blossoms, unapproached by any flower of a like colour. It is easily managed, requiring only to be turned out-of-doors from about the middle of July to the end of August, so as to ripen its wood. It attains a considerable size, but is best for general use when in a small or medium state; it blooms freely, and will flower in 8-inch or 9-inch pots. It succeeds in peat or loam, but I prefer the latter. All that is required is to see that the shoots are frequently stopped from the time the cuttings are well rooted until the plants have attained a bushy condition; by this means half-a-dozen sticks will give all the support which a good-sized plant requires. Cuttings made from the young shoots as soon after this time as the wood has attained a little solidity will strike in three weeks. It blooms from the young growth in July, August, or September, according to the way in which it is treated as regards warmth in spring. Half-a-dozen of its half open flowers well placed in a bouquet give an effect that nothing else I have ever seen used does. It likes a little shade in summer, or its leaves turn red, and do not last their full time.

CASSIA CORYMBOSA. Although this is seen to the best advantage when planted out and covering a wall, such as the back of a greenhouse or conservatory, yet, as generally grown in a pot, it looks well and yields a succession of its bright yellow flowers which come in during the summer and autumn. If kept repeatedly stopped, so as to induce the formation of plenty of shoots near the base, it will need no sticks. Cuttings of it should be put in about this time if they can be had 3 inches or 4 inches long; they ought to be taken off with a heel and treated in the usual way

GENERAL STOVE STOCK.—More air should now be given to the general collection of stove plants than hitherto, but in doing this care ought to be taken never even at this season, whilst the growth of most plants is yet soft and tender, to carry this so far as to over-dry the atmosphere, otherwise the foliage gets stunted, and the attacks of red spider are almost certain to follow. Keep all but the exceptionally few things that do not like too light a position as well up to the glass as circumstances will permit. Where this is done, the syringe may be used freely without danger of the soil within the pots getting too wet; mere sprinklings on the top of the leaves are useless, as far as keeping down insects is concerned. Instinct teaches most of them to keep to the underside of the foliage; consequently, unless the water reaches well the spots were they congregate, they are not affected by it. Close early whilst there is plenty of sun warmth; this is much preferable to fire-heat. Now that the stock of bedding plants will be cleared out from pits, where if necessary a little fire-heat can be given, it will be well to thin out such of the plants from stoves as can be accommodated in the pits during summer. This will be of immense benefit to the whole, as wherever crowding exists good cultivation is out of the question. Attend to the timely stopping of all young stock required to assume a bushy form, not that it is desirable to give plants in general a too formal, dumpy appearance, but the absence of early and sufficient pinching back of the leading shoots necessitates the after use of more sticks and ties to support many plants than should be employed.

CORONILLAS AND VERONICAS.—C. glauca is a pretty summer-blooming floriferous plant. It is not a large grower, and on that account may be used plentifully. Small examples of it in 6-inch or 7-inch pots bloom freely. It requires ordinary greenhouse treatment. When done flowering it should be cut back freely. Whichever way the autumn and winter-flowering supplies of Veronicas are managed—in pots or planted out for subsequent lifting—they must be encouraged to make bushy, stout growth. To keep them compact it is well to again pinch out the points of the leading shoots, but with the autumn-blooming kinds, such as Andersoni, the next stopping is the last they should receive.

STOVE TWINING AND CLIMBING PLANTS grown as specimens for removal to conservatories or greenhouses when in flower later on will require frequent attention as to keeping the shoots trained to the sticks and wire supports, but for home decoration, where the plants will not necessarily be subjected to any knocking about such as in conveyance to an exhibition, there is no necessity for their being tied so as to have any approach to formality. Where to be so used all that is required is a few sticks with the shoots loosely wound round them. Stove plants that can with advantage be so used in cooler houses during July and August may include Allamandas, Bougainvillea glabra, Dipladenias, Clerodendrons, Ixoras, Rondeletias, Vincas, Tabernæmontanas, and others of like character which are often kept wholly in stoves at a time when they would be most useful in conservatories to help to maintain a display of bloom, but to enable such subjects as above named to preserve their flowers in fair condition, and not to receive injury by being thus submitted to cooler treatment they must have been so treated previously as will ensure their bearing this. It is not enough that for two or three weeks before being taken out of the stove they should have more air and less shade, which will effect the necessary conditions of keeping the atmosphere drier, but they should all along, whilst the growth was progressing, have been kept with their heads close up to the glass in a light house; without this no amount of after hardening that they can have will enable them to stand the lower temperature and preserve their flowers so as to have a good appearance. It is the want of this gradual preparation this exposure to light through the early stages of the season's growth—that prevents the possibility of many stove plants being used in the way here indicated, thereby reducing much of their usefulness. We have found that the check thus given for a time during the warmest part of the summer was the best means of giving many things a rest, and much to be preferred to the severe root-drying process often practised.

BEGONIA FUCHSIOIDES.—This plant, not now so much grown as it used to be, is, nevertheless, one of the best of all the Begonias, and where well managed gives a profusion of flowers for a lengthened period either when grown in pots or planted out. Where trained to a pillar or rafter, and it can be accommodated with intermediate warmth, it is one of the most effective plants in cultivation, with the still further recommendation that its flowers are well adapted for cutting. Examples required for flowering in autumn should now be exposed to all the light possible, giving no more shade than is necessary for such other things as may happen to be grown in the same house. If treated in a way to give solidity to its succulent shoots, it will bloom in either a large or small state; moderate sized plants, such as may be grown in 9-inch or 10-inch pots, are generally the most useful. Small ones that have been hitherto kept in 6-inch or 7-inch pots if now moved into others two or three sizes larger will make nice specimens before autumn.

FLOWER GARDEN.

HUMEA ELEGANS.—When well grown, this greenhouse biennial ranks amongst the foremost of plants noted for handsome foliage and elegant feathery inflorescence. It is invaluable for the centres of large vases in summer, and also for the sub-tropical garden, either for putting out in beds or for plunging in the pots in the turf, or near the margins of walks in order that its rich fragrance may the more frequently be enjoyed. It should be raised from seeds sown on a hotbed in May, and the seedlings should be pricked off as soon as they can be handled and potted on before the roots get matted together. They should be grown in the open air, where they should be treated like Chrysanthemums, and be housed about the beginning of October and afforded ordinary greenhouse cultivation. By the new year they will be ready for their final shift into large pots, and about the middle of May they may either be placed in position in the open air or be planted out in beds. They flower best when plunged in the beds in the pots, but need more attention as to watering than they do when turned out.

GENERAL WORK.—Notwithstanding the absence of rain, the advancing season bespeaks how important it is that planting should be finished as quickly as possible. This done, the next most important item is the well-doing of the plants; to this end, and also to the earlier effectiveness of the same, mulch or keep the ground loosened with a small hoe, or, where the plants are very close together, with a pointed stick. Carpet beds we prefer to mulch with Cocoa-nut fibre; Violas, Calceolarias, and the like with manure. Sub-tropical plants are indirectly mulched by pegging down the groundwork plants as soon as practicable. Trivial and unnecessary as these operations may appear, they are important factors to real and speedy success. Staking, tying, and keeping the flowers picked off Cannas, Castor-oils, &c., to aid their more rapid growth are the only other immediate requirements needed by sub-tropical plants. Ordinary kinds of bedding plants should be frequently gone over in order to remove bad foliage and flowers. Pansies, Violas, and Calceolarias are quickly exhausted, and cut a sorry figure in dry weather if the old flowers and seed vessels are not removed frequently. Peg down or pinch as may be requisite all groundwork plants; high keeping and the working out of every line or panel true to pattern is of the utmost importance in carpet bedding, and those who do not intend to take this pains ought not to attempt it. Now is a good time to make another sowing of biennials and perennials, such as Brompton Stocks, Sweet Williams, Wallflowers, Delphiniums, Foxgloves, Aquilegias, Canterbury Bells; in fact, seeds of these may be sown now in the open borders with a fair prospect of success, the only real danger of any mishap occurring to the seedlings being from attacks of slugs, which should be prevented by using soot or lime liberally about the seed beds. Keep all herbaceous plants well up to supports; our rule is to place sticks to each plant—in size as may be required—at the beginning of the season, and look over the plants once a week afterwards, in order to tie or remove suckers, weeds, &c. Finish the clipping of Box edgings and evergreen hedges, also the cutting back of flowering shrubs and the new growths of those that are encroaching on walks. Other pressing routine duties may be summed up in three words—mowing, sweeping, and weeding.

ORCHIDS.

EAST INDIA HOUSE.—There are certain varieties and species of Cypripedium that succeed best in this house; indeed, some that do well in a cooler house succeed quite as well here and grow more freely. Now is a good time to attend to repotting them. Some succeed best in small pots, and amongst these may be named C. barbatum and its varieties, C. Veitchi, C. Lawrenceanum, and others of that type. C. Lowi, C. Stonei, C. Dominii, and others of that class succeed perfectly well in large pots in the form of good specimens. These should also be potted if they have done flowering, taking care to remove any decayed, useless compost from the roots. We find at this season that it is a good plan to syringe these plants overhead twice daily in hot weather, an operation which does them good and has also the effect of keeping them free from red spider and thrips. The different species of Angræcum should now be pushed on in a high temperature, with plenty of moisture, they are now pushing out fresh roots and are growing freely. A very small species of thrips does much damage to the plants by preying on the young leaves just pushing out from the centre of the plants. It is not observed until the effects of its presence is seen on the leaves. Tobacco water kills it. Grammatophyllum Ellisi, another Madagascar plant, well worthy of culture, does best in the warmest house. It generally flowers in August, and should now be pushing its flower-spikes from the base of the last growth. It does best near the glass in a pan or basket. The temperature of the house should now be 70° as a minimum.

CATTLEYA HOUSE.—Many of the Cattleyas are now starting into growth, and some have even made considerable progress. Where plants of C. Mossiæ or C. Mendelli have flowered freely, they are not likely to produce more than one growth from each lead, and that is quite sufficient in the case of old-established plants. Plants done flowering and starting to grow ought to have a rather higher temperature, say 65° at night, and a moist atmosphere. We keep our house rather dry at present, with a temperature of about 60°, as we want to keep some Cattleyas and Oncidiums in bloom as long as possible. O. crispum, a good and distinct species, is now in flower in this house. It seems to do well potted and treated similar to Cattleyas, but we allow the roots to grow over the sides of the pots. Odontoglossum citrosmum is over, and the bulbs, by their slightly shrivelled condition, show the strain to which they have been subjected during the flowering period; they will soon plump up in a higher and moister atmosphere, aided by a good supply of water to the roots. The young growths are now pushing on rapidly. Oncidium Marshallianum, certainly one of the most beautiful of the yellow-flowered species, is also starting into growth, and the young roots are pushing over and down the sides of the pots. Look over them every night for slugs and snails, and also trap these pests with bran or Cabbage leaves. Allow the plants to have all the light it is possible to give them, but do not expose them to the direct rays of the sun.

COOL HOUSE.—Those who have a number of plants of Oncidium macranthum need not be

without its flowers for the next two months at least. This is one of the most distinct and best of Oncidiums, and valuable because it succeeds well in the cool house. It has one fault, a serious one, viz, the flowers take so many months to develop, that the plants are well-nigh exhausted before they open. Two seasons' flowering sometimes gives the plants a serious check; our best plant flowered two years in succession, and looked all the worse for it. This year it has not produced any flower-spikes, but is taking a rest, we hope, to produce better spikes next year. This species requires treatment similar to that needed by most other cool house species. If any plants require re-potting, this can be done when they start into growth after the flowering period is over. The weather has not been very warm as yet, but if it should set in close and very hot, this house will require extra attention, in order to prevent the plants from being injured by the heat. Give plenty of ventilation night and day, and use thick shading, raised a foot or so above the glass, so that a circulation of air may be kept up between the glass and the shading.

FRUIT.

Pines.—Plants now swelling off fruit will require more water of a stimulating nature than has hitherto been given to them; they will also derive great benefit from diluted liquid carefully syringed over the surface of the bed and into the axils of the lower leaves after the house is closed for the day. Keep the atmosphere moist by damping the walls and all available spaces, and by filling the evaporating pans with liquid from the manure tank, but avoid heavy overhead syringing, as it increases the size of the crowns and encourages the growth of gills and suckers. Let the temperature range from 70° at night to 85° by day. Give a little air at 76°, gradually increase it as the sun gains power, and close in time for the house to run up to 90° with solar heat. Remove ripe fruit to a cool vinery in which the Grapes are ripe and withhold water, or cut and suspend them in the Grape room until wanted for use.

Successions. — The best plants that were shifted into fruiting pots early in March should now be filling the soil with roots, and the bottom-heat being satisfactory, liberal supplies of liquid or guano water will be needful at every watering. Keep them well supplied with atmospheric moisture by syringing the paths, walls, and surface of the bed, and slightly dew them overhead after closing on fine days. If the plants are plunged in Oak leaves and there is a sign of the heat declining, this is a favourable time for re-arranging and giving them more room if required, but it will not be well to disturb or do more than level the surface of the bed, and place a few fresh fermenting leaves on the top and between the pots as the work proceeds, as the slightest disturbance at this season sometimes starts fresh fermentation, and a violent heat just now might throw many of them into fruit. Avoid strong fire heat and dispense with it altogether when 60° to 65° can be maintained at night without it. Give air early, gradually raise the temperature to 80°, and run up a few degrees after closing.

Figs.—Trees in the second house now ripening or swelling off the first crop of fruit will require an abundant supply of stimulating liquid, and good syringing where water can be applied without wetting the fruit. Turn the foliage aside where the ripening fruit is too much shaded from sun and light, and maintain a gentle circulation in the hot-water pipes to keep the house up to 60° or 65° at night, and to admit of a plentiful circulation of air by day, without which Figs of high quality cannot be expected. If spider or scale attack the leaves, and a flush of ripening fruit puts a stop to syringing, sponge the parts affected with soap water to keep these pests in check until syringing can be resumed.

Early houses from which all the fruit has been gathered will be the better for a good washing with the garden engine, and the mulching may be replenished with fresh manure, to be washed down to the roots with liberal supplies of tepid liquid or guano water. As the second crop of fruit does not always come so fine as the first, thinning with a liberal hand will be advisable, but instead of taking off all the smallest, it will be well to take off and leave some of all sizes, to prolong the supply when the trees again begin to produce ripe fruit. Although fire-heat will still be necessary at times, it must be used in moderation, particularly at night, when comparative rest will benefit the trees, and early closing with solar heat and moisture will redeem the time lost without distressing them. When young trees in pots intended for forcing have made their second growth, stopping must be discontinued and stimulating food must be withheld, in order to secure firm, short-jointed wood, which will be thoroughly ripe by the autumn.

Melons.—About this time a number of pits and frames will be set at liberty by the clearance of forced vegetables and the more tender bedding plants. To make the best use of these, a good stock of the leading kinds of free-setting Melons, including Golden Gem and Victory of Bath, should be ready for turning out in strong, but not over rich, loam, placed in ridges some 18 inches from the glass. As many of the preceding occupants leave a colony of insects behind, the frames and lights should be well cleansed with boiling water, and in order to give the plants a start, a trench may be taken out along the centre of the old bed, and filled in with fermenting leaves or stable manure, which should be made very firm before the soil is introduced. A good external lining along the front will also assist the plants through the early stages of growth. Early crops now swelling or ripening off will well repay steady attention to linings and covering up with mats at night. Reduce the supply of water and atmospheric moisture when the fruit begins to change colour. Ventilate more freely on bright days, and insure flavour by full exposure to sun and air. The cultivation of Melons in houses after this time is a very simple matter, the main points being a bottom-heat of 84° to 90°, plenty of air on fine days to secure dark green, sturdy foliage, an abundance of water to the roots, and a good syringing to keep them free from insects.

Peaches.—When all the Peaches have been gathered from the early houses the trees must be well washed with the syringe to free them from all kinds of insects, and the borders must be well mulched and watered with diluted liquid or clear water, according to the strength of the young growths and the quantity of fruit the trees have brought to maturity. As next year's crop depends upon a clean, healthy, well-ripened growth, all shoots rendered useless by the removal of the fruit should now be cut away to admit of the free admission of light and air, gross shoots should be stopped or removed, and ventilation should be of the most liberal character.

Succession houses, in which fruit is now taking the last swelling, will require copious supplies of water, good syringing twice a day, with a temperature ranging from 60° at night to 80° by day. Elevate all pendent fruit, and keep the foliage turned aside where colour is an object. Pinch the points out of the shoots intended for removal after the fruit is gathered, and secure flavour by giving an abundance of air. Where the brilliant weather we had in May has hastened late houses, the ventilators may be kept constantly open; frequent damping with cold water will keep the atmosphere cool, and an unrestricted growth of the young wood will help to retard the stoning and swelling of the fruit.

Hardy fruit.—Notwithstanding the late frosts Apples promise to be a fairly good crop, but in places sadly blighted. Pears are not so badly affected in that way, and in many places the fruit is pretty plentiful. Peaches and Nectarines have set well, and the trees being clean, healthy, and vigorous, good crops of these may now be considered safe. Apricots are also good in some places. If any of the trees remain unmulched, no time should be lost in getting some kind of covering placed on the borders. Where they are heavily cropped, good stable manure is undoubtedly the best material that can be used; but, lacking this, anything capable of checking evaporation will have a beneficial effect. On all light non-calcareous soils stone fruit trees derive great benefit from liberal dressings of old lime rubble, which, if laid on the borders in the spring, forms no mean mulching in itself, as it keeps in moisture better than many imagine, while the properties it contains supply an important want often severely felt by the trees at the time of stoning. Before the laying-in of the shoots of Peaches is commenced, a thoroughly experienced person should go over the trees to complete the disbudding and thinning, and at the same time to pinch the points out of young shoots which are likely to become too strong, to the detriment of weaker growths, or where they are likely to detract from the size of the fruit, and on no account should a single shoot be laid in unless it is wanted to carry fruit next year, or to complete the furnishing of the tree. Pears, Plums, and Cherries may now have all the strongest breast-wood cut away to the third or fourth eye, but the system of leaving all the growth to be cut away at once is not a good one. It is much better to commence earlier and carry on a regular system of pinching. In wooded districts the early kinds of sweet Cherries must be netted as soon as they begin to ripen to protect them from birds. Strawberries, too, apparently an abundant crop, will require attention. There are numerous modes of treatment recommended for the production and protection of this valuable fruit. The most important points at the present time are copious supplies of water, a ground covering of straw or litter to keep in the moisture, and protection from birds and slugs. Where the latter are numerous, or, indeed, where they do not exist—quantity and quality being the first consideration—the most economical plan is to place four short sticks to every old stool and two to younger plants, and form a support for the fruit by running a piece of matting or twine round them some 9 inches from the ground. All the trusses can then be turned outwards to the influence of sun and air. Slugs are isolated, and the fruit dries quickly in showery weather. Black Currants are badly blighted, but enough may yet be left for a crop.

KITCHEN GARDEN.

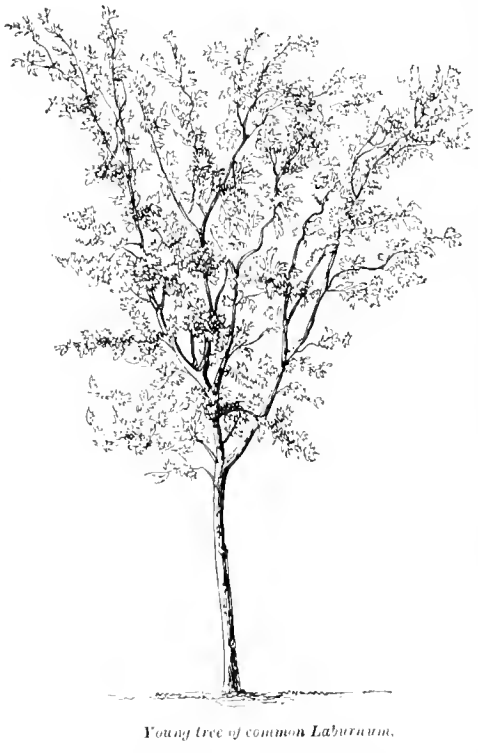
We are just now planting in their permanent places Brussels Sprouts, the previous crop being spring Cabbage and Lettuce. Brussels Sprouts being strong feeders, we treat them to a good manuring and a deep digging. Few things are so profitable, scarcely any so hardy, as Brussels Sprouts; therefore they deserve all we can do for them. Our first lot of Celery is already out and in the trenches, and the bulk of our crop will be out in a few days. Our favourite varieties are Carter's Incomparable Dwarf and another dwarf white called Hastings' White Celery. We also have a few rows of Major Clarke's, which grows to a large size, and is most useful on special occasions. Among the best varieties of Peas to sow at this season is William I. and Unique, both of the green marrow type, and not so subject to that fatal disease, mildew, as many of the strong growing varieties. Parsnips, Carrots, Beet, and Onions will now require thinning, hoeing, and cleaning. We find the smaller Onions keep better than giants, and are better liked. Late Potatoes should be cleaned and moulded up at once. Sow at once a good bed of Parsley for spring use. We intend next week to begin planting in the quarters Veitch's Giant Autumn Protecting and Walcheren Broccoli. Speaking of Broccoli, we may add that Cattell's Eclipse met within a week the hand-light Cauliflowers. Slugs this season are plentiful, therefore soot and lime must be freely used. We sow them broadcast over any kind of seeds appearing above ground. Soil dried to dust is also useful for sowing on small plants; these miniature vermin do not at all relish anything gritty. Sow now Coleworts, Early York Cabbages, and a few Lettuces, but defer sowing

Endive until the first week in next month; if sown earlier than that it generally runs to seed. Scarlet Runner Beans and late Peas must at once be staked.

TREES AND SHRUBS.

THE LABURNUMS.

Two of the three species which, according to the "Genera Plantarum," now constitute the genus Laburnum are amongst the most common of all ornamental trees; the third is yet comparatively unknown in this country. In Loudon's "Arboretum," and, indeed, in some recently published works, the Laburnums are only regarded as forming a section of the genus Cytisus; but in the above-mentioned work, which for a long time to come is bound to remain the standard authority on generic rank, the difference in structure between the seeds of Cytisus and those of the plants treated in this paper are considered sufficient to separate the latter from Cytisus, and to cause them to be treated as a distinct genus. From a merely garden point of view such a course seems desirable, as all the species of Cytisus are mere shrubs, whilst Laburnums form good-sized trees. The hard wood is a handsome olive-green, and is well adapted for the purposes of the turner. It is somewhat singular that in an order of plants usually wholesome the seeds of Laburnum should be decidedly poisonous, owing to the presence of a deleterious alkaloid called cytisin. The fondness of hares and rabbits for the bark is well known, and the suggestion contained in Martyn's edition of Miller's "Gardener's Dictionary" has been acted upon with marked success in some parts of the country: "Hence it is suggested by Mr. Boutcher that the Laburnum is very proper to sow in plantations infested with hares and



Young tree of common Laburnum.

rabbits, who will touch no other plant so long as a twig of Laburnum remains. Though eaten to the ground in winter, it will spring again the next season, and thus continually supply these noxious animals; so that by expending five shillings in Laburnum seed, a whole plantation may be secured.' In spite, however, of the Laburnum being a favourite food of hares and rabbits, it is now and then highly poisonous to cattle, as the following statement made by Dr. Stark, Bridge of Allan, will show:—

"During the high gale of October 14, 1881, a large Laburnum tree, about 60 years old and richly clothed with foliage, was overturned at Huntfield, Lanarkshire, and fell across the fence into a Grass park in which nine heifers were feeding. The cattle, who seemed as fond of the Laburnum as the hares, immediately began to devour the leaves, pods, and tender branches, and when discovered shortly afterwards were all found to be more or less violently affected with those poisonous symptoms caused by Laburnum. Two were so seriously ill that they could not walk, and had to be carted to the farm, and died before the veterinary surgeon could be sent for. Three others were with difficulty got to the farm, and, notwithstanding active medical treatment, several days elapsed before they were pronounced out of danger, and all the rest shared in a less violent degree the peculiar symptoms caused by Laburnum poisoning. That the Laburnum is not always poisonous to cattle is proved by what I have myself seen, viz., cattle in a wood, where Laburnum was freely grown to keep hares and rabbits from attacking the other trees, browsing on the Laburnum, yet never receiving damage therefrom. And, besides, a marked example of this occurred the other day here. A large quantity of Laburnum branches, covered with leaves and pods, were thrown into an old quarry on the roadside, and half-a-dozen cows, discovering the tempting morsels, cleared the whole of the leaves, pods, and tender shoots, yet never exhibited the slightest symptoms of poisoning."

During the month of May and in the earlier part of June there are no more beautiful objects in an English shrubbery than good, well-flowered specimens of Laburnum. Perhaps the position in which the flowers, "rich in streaming gold," tell to the best advantage is when the trees are planted by the woodland walk, or in the park where tall green trees may form a pleasing background to the bright colour of the long racemes.

A large number of varieties are in cultivation, differing in habit, in foliage characters, and to a less extent in colour and size of flower, length of raceme, &c. Without fully-formed pods it would be difficult, in some cases, to refer these forms to their respective species. No attempt is made here to give a complete list of all the different varieties of Laburnum which have been mentioned in books or catalogues; only the most distinct and desirable are selected. Some of the names in books are names simply, and do not represent plants; an instance of this may be seen in Koch's "Dendrologie," where, at p. 18 of part i., he tells us that a form with white flowers is described in *Flora* (xiii., p. 241). A reference to this work will show that the plant there mentioned does not belong to any Laburnum at all, but to a species of Cytisus. Probably Koch's blunder has been copied by Lavallée, who, in the list of varieties of L. vulgare, gives var. leucantha. Has anyone ever seen a white Laburnum

Flowers, pods, and seed of the common Laburnum (Laburnum vulgare).

LABURNUM VULGARE* (Grisebach) (the common Laburnum).—Whether it was this or the next species, the so-called Scotch Laburnum, which was first introduced to this country, it would probably be now impossible to ascertain. One or the other, however, was cultivated in 1597 by Gerard, who appears to have had it in his garden under the names of Anagyris, Laburnum, and Bean Trefoil. The principal differences which distinguish L. vulgare from its near ally L. alpinum are the generally shorter racemes, larger individual flowers, the leaves being hairy and paler beneath, the pod being clothed with hairs, the upper suture thickened and keeled, but not winged. Native of Southern and Eastern France, Southern Switzerland, Italy, Southern Austria, Servia, Hungary, &c.

VAR. AUREUM.—The golden-leaved Laburnum is a desirable foliage tree where it does well. It affords an excellent illustration of the influence of the scion on the stock, as in most worked stems golden shoots will develop far below the graft or bud, and perpetuate the variety just as well as legitimate shoots.

VAR. CARLIERI.—This is a showy variety with very narrow leaflets and long racemes; it is, moreover, a very abundant flowerer.

VAR. FRAGRANS.—Flowers fragrant, otherwise not differing from the type.

VAR. INVOLUTUM. The leaflets of this are curled up into "rings," somewhat after the manner of that peculiar variety of the Weeping Willow (Salix babylonica var. annularis). It is a vigorous grower enough, but is more curious than handsome. The names bullatum and monstrosum are also applied to this form.

VAR. PENDULUM. Except for its slender twigs and weeping habit this possesses no very marked character.

VAR. PARKESI. This is a seedling form raised by Mr. J. D. Parkes, of Dartford, about 1840. The racemes are very long, as much as 15 inches, and the flowers deeper in colour than the majority of Laburnum forms.

VAR. QUERCIFOLIUM.—The leaflets of this are sinuated and lobed, so as to resemble to a consider-

* Laburnum vulgare, Grisebach, "Spicilegium Floræ Rumelicæ et Bithynicæ," i., 7 (1843); Koch, "Dendrologie," erster theil, p. 16. Cytisus Laburnum, Linnæus; London, "Arboretum et Fruticetum Britannicum," ii., p. 590; "Encyclopædia of Trees and Shrubs," p. 214.

able extent a miniature Oak leaf. It is a free-flowering and very distinct variety.

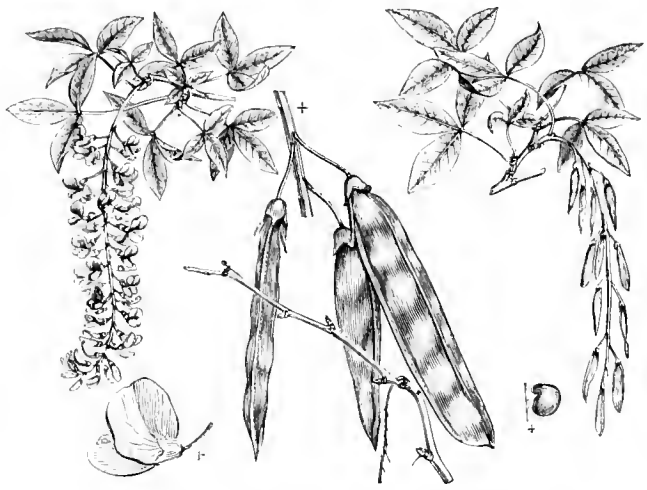
VAR. SESSILIFOLIUM.—This variety, which must not be confounded with Cytisus sessilifolius—a very different plant—is simply a common Laburnum with the leaves so shortly stalked as to appear quite sessile. It has short racemes, and has a bunchy look owing to the clusters of very shortly-stalked leaves. Except in arboreta and with lovers of the curious and grotesque, this is hardly likely to find favour.

VAR. WATERERI.—Perhaps the finest of all the Laburnums. It was raised in the nurseries of Messrs. Anthony Waterer, at Knap Hill, near Woking. For length of raceme, depth of colour, and free flowering character, it is almost without equal.

LABURNUM ALPINUM * (Griesbach) (the Scotch or alpine Laburnum).—This is found wild over nearly the same area as the common Laburnum, from which Miller in his "Gardeners' Dictionary" was the first to separate it as a species. Probably on account of its common English name, the mistaken idea originated that it was a truly native Scotch plant. On the whole, this species is a more widely known one and is more generally cultivated than typical L. vulgare; although it has individually smaller flowers, their colour is, as a rule, a deeper yellow, and the racemes are longer. The principal characters, however, by which it may readily be distinguished from the common Laburnum, reside in the pod, which is shorter, smooth, with a distinctly winged upper suture; the leaves, too, are green on both surfaces, and are either quite glabrous or bordered with short spreading hairs; the flowering season, too, seems to be more prolonged than is the case with its ally. There are several names in books which are supposed to represent varieties referable to this species, but without specimens it is impossible to decide with any degree of certainty. A weeping form (var. pendulum) undoubtedly belongs here, as also one named fragrans and another hirsutum. The Laburnum Alschingeri, a very long-racemed form frequently met with in gardens, seems to be nothing more than a mere variety of the Scotch Laburnum; at any rate, it differs very widely from the plant (of which I have not seen any authentic specimen) described by Visiani in his "Flora Dalmatica," iii., p. 262, tab. 54. In all probability, however, the true plant should be placed as a variety under L. alpinum.

LABURNUM CARAMANICUM † is a handsome shrub, 3 feet or 4 feet in height, from Asia Minor. If it proves perfectly hardy, it will doubtless become a general favourite. It has very small, shortly stalked leaves and erect racemes of large handsome flowers arranged in panicles. As yet this species is rare in cultivation.

LABURNUM WELDENI (Grisebach) (Cytisus ramentaceus, Siebold), &c., a native of Dalmatia, is now placed in a genus by itself—viz., Petteria—and will be described and figured shortly in these pages.

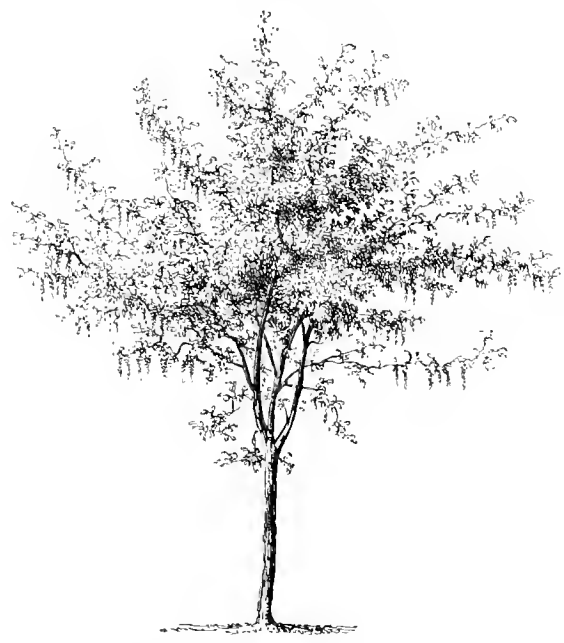


Flowers, pods and seed of the Scotch Laburnum (L. alpinum).

LABURNUM ADAMI (Cytisus Adami, Poiteau; Lindley, *Botanical Register*, 1965) is a hybrid between the Laburnum and Cytisus purpureus, and is remarkable from its tendency to revert in certain of its branches to the parent species, the characteristic flowers of which may be seen upon the tree at the same time with those of the intermediate hybrid. This extraordinary plant has furnished a theme for numerous writers, and merely to give a *résumé* of what has been written about it would occupy more space than is available in the pages of THE GARDEN. It is stated that L. Adami originated as a graft hybrid in the nursery of M. Adam, in Paris, in 1828. Mons. Casimir de Candolle, from recent observations and investigation of the leaf anatomy, has come to the conclusion that the purple Laburnum is not, as it is usually considered, a graft hybrid, but a degenerate form of the common Laburnum. It seems hard to accept M. de Candolle's conclusion; the hybrid theory appears to present no difficulty; and unless Cytisus purpureus be proved to be a mere form of Laburnum (a rather improbable suggestion), the development of specimens which cannot be distinguished from the alpine purple-flowered Cytisus purpureus cannot be satisfactorily accounted for if M. de Candolle's view is adopted. L. Adami is easily multiplied by budding or grafting on the common Laburnum.

No definite data as to the relative age and dimensions of L. vulgare and L. alpinum have, as far as I have been able to ascertain, been published. This could no doubt be done if correspondents possessing noteworthy trees would send fresh specimens of twigs with foliage and fully formed pods to the editor of this journal. Of course it would be additionally desirable to add to the measurements of trunk, &c., any information as to soil, position, elevation, &c.

Royal Gardens, Kew. GEORGE NICHOLSON.



Flowering tree of Scotch Laburnum (Laburnum alpinum).

Magnolia Thurberi.—This has flowered near Philadelphia this season. It proves to be a dwarf and compact variety of the Chinese Magnolia, M. conspicua. The flowers have but two whorls, each consisting of three petals, while the usual large form has three, the series of three outer ones being reduced to mere scales, but there are often only six well formed petals on the old form. The habit is, however, very pretty, and it will be a popular variety.—*Gardeners' Monthly.*

Bamboos perishing.—About ten years ago most of the larger examples of Arundinaria falcata (sickle-shaped Bamboo) in the country bloomed, seeded, and perished simultaneously. I was amongst the many sufferers, having lost several large specimens. Now I perceive two fine plants of Bambusa nigra here are covered with flower to the exclusion of a single leaf-bud. I am fearful these will so exhaust themselves as to result in a similar fate. I am desirous of knowing if the same thing is occurring in other gardens. Perhaps

* Laburnum alpinum, Grisebach; Koch, "Dendrologie," erster Theil, p. 19. Cytisus alpinus, Miller, "Gardeners' Dictionary;" Loudon, "Arboretum et Fruticetum Britannicum," ii., p. 369; "Encyclopædia of Trees and Shrubs," p. 249.

† Laburnum caramanicum, Bentham and Hooker, "Genera Plantarum," i., p. 481. Podocytisus caramanicus, Boissier, "Diagnoses Plantarum Orientalium Novarum," ix., 7.

some of your correspondents will kindly say.—J. M., *Charmouth, Dorset.*

GARDEN DESTROYERS.

SLUGS.

IN the THE GARDEN of April 19 (p. 326) there are some interesting remarks by "J. C. C." on this subject. I have had large experience in the matter, being interested in a garden of about an acre and a quarter as joint tenant, with a colony of innumerable slugs, with whom I have to wage incessant war in order to secure some portion of the produce of the land. I am quite sure that the severest winters do not at all diminish the supply of slugs; they merely burrow deeper into the ground, and lie still till the frost abates; nevertheless I believe they commit more depredations in mild winters because they set to work earlier. For instance, in this present year they were feeding energetically in January and February, whereas in colder seasons they do not usually come to the surface till March or April.

I do not believe in any of the ordinary preventive measures so confidently recommended by many, such as soot, ashes, cocoa-nut fibre, &c.; they are of some use while fresh and dry, but they lose all their virtue when beaten down by rain; and, moreover, slugs have an awkward way of burrowing and coming up just under the plant; nor do I attach much importance to keeping the garden free from leaves and other haunts, for they take refuge under little bits of clod or in lawns, whence they sally out in the evening to feed. Nor have I much faith in dustings of lime, for unless a fair quantity reaches the slug he manages to purge himself of the incumbrance.

After many years' trials I have come to the conclusion that the only effectual remedy is the one suggested by your correspondent to catch the offenders and kill them, and that the most, if not only, effectual trap is grains. But I am more economical than "J. C. C.," for I make a quart of grains serve for a good many traps. My plan is to take up a loose handful of grains and spread them on the ground, covering them over with a bit of slate or wood, and on the following morning the gardener goes his round with a bit of stick and a pan of salt and water, which kills them instantly, and captures the plunderers. They appear to gorge themselves at night, and are found huddled together in the morning. I suppose they must travel some distance to partake of the tempting food, for I have repeatedly found thirty, forty, or fifty slugs under one bit of of slate. The victims may be killed on the spot by a light sprinkle of salt, but that spoils the traps for farther use, whereas the traps will retain their attractive power for several days, if the covering of slate is replaced after capturing the slugs. I have certainly diminished the stock considerably, and am now able to grow many flowers and plants which were invariably eaten up in former years.

St. Mary's Church, Devon. G. H. W.

Sparrows and insects.—That the common sparrow is not an unmitigated evil was proved to my satisfaction the other day. Last week during the prevalence of showery weather numbers of the common white butterfly, that a day or two before had been all life and gaiety, were lying about or flying in a listless manner from place to place often pursued by a couple of sparrows, by which numbers of them were caught and speedily devoured, *i.e.*, their bodies were, the wings being rejected. In the case of one of the birds some of the captured butterflies were taken away, presumably to feed its young, as it quickly returned to the hunting ground. Though sparrows doubtless eat the larvæ of these white butterflies, I never before observed them preying on the perfect insects.—H. P.

Flowers, pod, and seed of Oak-leaved Laburnum (L. vulgare quercifolium).

Weevils (*E. R. Waite*).—The beetles you send are the black Vine weevil (Otiorhynchus sulcatus), one of the most destructive pests in greenhouses; its grubs are also very troublesome, attacking the roots of Primulas, Cyclamens, and other soft-rooted plants. During the day the weevils hide under any shelter they can find. You cannot do better than search for them at night. During daylight spread white sheets under the plants, and after dark take in suddenly as bright a light as you can, when many of the weevils will fall; a sharp tap or shake to the plants will probably bring others down.—G. S. S.

Shelton Abbey is the country seat of Lord Wicklow, and you approach it from Arklow town along a level road between two narrow canals that remind one of Holland. The road is fringed with Reed Grass and with lines of purple Rhododendrons, and on either side are stretches of marshy land, where bog plants and Cotton Grass reign supreme. Shelton Abbey itself is a homely mansion, and it can boast of the finest Sweet Bay Laurels I ever saw—great spreading bushes 30 feet high and leafy to the turf beneath them. A giant Silver Fir and an enormous old Sweet Chestnut add quite a character to the drive approaching the house. There is also a fine weeping Horse Chestnut tree in a glade near the kitchen gardens, its lower branches sweeping the sod in quite a noble manner. Every wall is beautifully clothed with Ivy, Clematis, and Roses, and the way the white Azaleas (A. indica alba) grow and blossom here in the open air is very suggestive of shelter, and of a genial climate to boot. There is no formality, no pretence, about Shelton Abbey. A beautiful bit of turf untortured sweeps around a cosy mansion, and there are fine trees there. Hardy flowers seem quite happy there and quite in harmony with its quaint gables and old chimneys. But it is in Ireland, beside the silvery Avoca River, in Wicklow, where all things are beautiful.—F. W. B.

PROPAGATING.

ALLOWING CUTTINGS TO FLAG.

A WIDE-SPREAD, but erroneous, idea prevails that by allowing cuttings of many kinds of plants to flag before they are inserted in the soil rooting activity is hastened, or at all events it is imagined that there will be fewer deaths from decay than if they were inserted as soon as removed from the parent plant. In most cases, however, the reverse holds good; from long-continued experiments I am fully persuaded that by far the better plan, except in a few isolated instances, is to put in cuttings as soon as possible after they are taken off without allowing them to flag if that can be prevented. Some subjects suffer so much even if exposed for only a short time that it is almost impossible to revive them, while on the other hand some remain a considerable time before showing signs of distress; even in their case, however, more harm than good is done by needlessly exposing them. Plants generally propagated during spring in heat, such as Fuchsias, Heliotropes, Verbenas, Petunias, Bouvardias, and similar subjects, the cuttings of which consist only of young shoots delicate in texture, will often root in a few days if put in at once, but should they flag severely before insertion the chances are that besides taking longer to strike some will be lost altogether. A very particular plant in this respect is the variegated form of Coprosma Baueriana, by no means one of the easiest of subjects to increase. A ready way by which it may be struck is to put the stock plant in heat and thus cause young shoots to grow quickly, when if taken off, inserted without delay, and kept close till rooted no fear need be entertained as to the result; should they once flag, however, very few will ever freshen up again. It has been urged on

Flowering tree of Oak-leaved Laburnum.

behalf of the system of drying cuttings that the sap discharged from the cut portion tends to prevent striking, and therefore should be allowed to escape; in practice, however, the reverse is the case. The descending sap heals over the cut portion of the stem and commences to form a callus, whence roots are produced in a much quicker time than if the sap is allowed to escape beforehand. My experiments have been carried out on all classes of plants with in nearly every case the same result. A few, however, are more or less benefited by a certain amount of drying before insertion. Pelargoniums if in any way succulent are better laid out a little time before insertion, but they must not be allowed to flag too much, especially slender growing kinds. Such as have received a certain amount of ripening before being cut down will not need so much drying as when cut from a vigorous plant in full growth. The various succulent plants, such as Echeverias, Crassulas, Epiphyllums, and the different Cacti resist drought so long that branches separated from the parent plants may remain for weeks or longer without sustaining injury, even though kept without moisture. Cuttings of such plants put in after being separated so long must not then, however, be surfeited with moisture; the soil in which they are potted will in most cases furnish sufficient moisture to last a considerable time. Much in all cases depends upon the subsequent treatment of the cuttings; if kept too wet, many will be lost, whether dried beforehand or not, while, on the other hand, by a judicious yet sparing use of the watering-pot, cuttings of a very succulent character may be struck without any preliminary treatment. In the case of most subjects, a thorough watering should be given at first, and after that only when necessary, but with many succulent plants this first watering can well be dispensed with. T.

FILMY FERNS FOR UNHEATED FERNERIES.

BESIDES our native Hymenophyllum tunbridgense and unilaterale, or, as it is sometimes called, Wilsoni, both of which are found in very cold parts of Scotland, where they annually experience very severe weather, all the New Zealand species of Hymenophyllum, Todea, and Trichomanes will not only bear, but really delight, in cold treatment; such a place as that described by "Filices" (p. 415) will be found to suit them exactly. The same opinion may also be safely advanced as regards the Killarney Fern, Trichomanes radicans, and its several lovely varieties, all of which withstood with us 14° of frost without the slightest injury. Most, if not all, the Chilian species will also do very well under the same treatment. It is, indeed, an acknowledged fact that more Filmies are killed annually by excessive coddling, or at least by unnecessary heat to which they are often subjected, than by exposure to cold. This has been proved beyond doubt by the numerous experiments successfully carried out by Mr. J. Cooper Forster, in whose unique collection at 29, Upper Grosvenor Street, they are all grown without a particle of artificial heat, and even under such circumstances West Indian species thrive apace. Where their most important requirement —constant moisture—is properly attended to, the following species and varieties will be sure to give satisfaction, viz.:—

Hymenophyllum aeruginosum	Hymenophyllum tunbridgense
asplenioides	unilaterale
caudiculatum	valvatum
chiloense	Trichomanes angustatum
crispatum	exsectum
cruentum	humile
demissum	pyxidiferum
d. nitens	radicans
dilatatum	r. Andrewsi
flabellatum	r. concinnum
flexuosum	r. dilatatum
fuciforme	r. dissectum
javanicum	reniforme
pectinatum	Todea Fraseri
polyanthos	pellucida
pulcherrimum	plumosa
scabrum	superba
tamariscifolia	Wilkesiana

In order to ensure success, it is indispensable that the plants should be made to adhere firmly to the material on which they may be placed, as if there is any vacuum left it is extremely doubtful if they can be induced to keep in good health. Avoid hard water as much as possible; use rain water only wherever it is procurable. S.

ORCHIDS.

ORCHIDS AT THE ROYAL EXOTIC NURSERY, CHELSEA.

THE most interesting feature just now belonging to Messrs. Veitch's nursery is the large, recently-built hot-house to be devoted exclusively to the cultivation of Cattleyas and Lælias. The exigencies of the large trade now carried on in Orchids by this firm demanded this extension of that department, and even this addition does not satisfy the requirements seemingly, as we were told that houses of similar capacity, as well as the enlargement of others, were in contemplation. This new house, as may be supposed, is the most perfect of its kind that could be built. No expense has been spared, and all the experience in Orchid cultivation which the resources of this firm can command has been brought to bear upon its construction. It is the largest house in the establishment, its dimensions being 132 feet in length, 22 feet in width, and about 14 feet in height. It is span-roofed, with a lantern elevated above the ridge, and in which is placed the top ventilation. The ventilators at the bottom are so arranged that the influx of air passes over the hot-water pipes beneath the side stages. Both the top and bottom ventilators are so connected that they may be opened all at once by means of levers. The heating is effected by a Trentham boiler 8 feet in length, being the favourite kind of boiler employed at this nursery. This boiler efficiently heats six rows of 4-inch pipes on each side of the house beneath the stages and four rows beneath the central stage. In the centre provision is made for turning the heat off and on by means of valves, so that if necessary the house may be divided by a partition when painting or other repairs are necessary. The roof admits abundance of light, notwithstanding the substantial and somewhat heavy appearance of the rafters. Ample provision is made for a water supply, so indispensable to all Orchid houses. Beneath the central stage are capacious cemented tanks for collecting the rain water from the roof, and which is always used for watering the plants, and there are also small ones for holding the ordinary water supply used for flushing down the paths and similar purposes. The paths are fitted with perforated iron plates, so that visitors may walk dry-footed, although there is abundance of moisture collected in the gravel beds beneath them. The side stages are broad and well elevated, so as to bring the plants as near as possible to the roof. The central stage is constructed in tiers for the same reason. At one end of the house a portion is partitioned off, so as to afford a roomy potting department, thereby avoiding the necessity of taking the plants through the outside air for that purpose. There is only one row of supporting pillars, and these run along beneath the ridge plate, so that the house has an extremely light appearance.

CATTLEYAS.—At the present time this house is indescribably gay with bloom, the greatest show being made by the old C. Mossiæ, which may be seen here in endless variety, no two individual plants bearing flowers exactly alike. There are of course some of superlative merit, and these instead of being named are denoted by crosses. A six-crossed variety is exceptionally good, there being comparitively few so distinguished. In this immense gathering of C. Mossiæ may be seen every gradation of shade, from almost pure white to the deepest magenta-crimson, and some exhibit peculiar markings. One variety named aurantiaca may be singled out from all the rest by the large amount of golden yellow in the throat of the labellum. Another Cattleya that contributes to the display in this house is Warneri, the summer flowering variety of C. labiata. Of this superb Cattleya, which is scarcely inferior in beauty to its autumn flowering congener, there are some extremely fine forms with large flowers and splendid colouring. C. Mendeli again makes a beautiful display, though the bulk of the collection is getting past its best. There is one variety that we took special note of, as it seems to be the counterpart of the much-prized superbissima, the variety that fetched such a fabulous price a short time ago. The flowers in this case are, however, inferior in size at present, the plant being small. The greatest display is that made by C. gigas and its allies, Sanderiana and imperialis; these are represented by wondrously fine plants; for example, of C. Sanderiana there is a huge mass, one *bona fide* specimen carrying no fewer than thirty-four flowers from twelve sheaths—a glorious sight. The plant, moreover, represents the finest form of Sander's Cattleya, the flowers being very large with wide spreading lips of an extremely rich violet-crimson intensified by the white and citron-yellow centres. There are some other grand masses of C. gigas in flower, but this one eclipses them all.

LÆLIAS.—Amongst these the most showy, of course, is L. purpurata and its varieties, the white one being particularly fine; so also is the rare Brysiana, a kind remarkable for the dark colour of its flowers. Peculiarly conspicuous among this vast array of uniformly tinted flowers was L. cinnabarina, whose bright orange-red flowers stood out in bold relief. There was likewise a charming gathering of Odontoglossum vexillarium, all finely flowered plants. The only other plants in the house were tall growing Vandas placed along the top of the central stage in order to break the skyline as it were, and Sobralia macrantha, of which there has recently flowered a variety with enormous flowers larger even than have ever been seen in this nursery. The striking appearance of the contents of this new house is considerably heightened by the visitor having to pass through a delightful cool fernery before it is reached, the quiet greenery of the Ferns enhancing the gay tints of the Orceids.

The other Orchid houses, numbering about thirty, do not seem a bit the less crowded than they did previous to the erection of the new house, but, of course, more room is secured for displaying the grand specimen plants, and houses are devoted to particular genera more strictly than heretofore. For instance, one capacious span-roofed house is devoted to Cypripediums alone, others to Dendrobiums, East Indian plants, and a supplementary collection of Cattleyas and Lælias. Each of these houses is gay with flowers and contains not a few of exceptional interest. There are several of the finest hybrid Cypripediums in flower, such as C. albo-purpureum, cardinale, the brightest coloured of all, and selligerum majus, an exaggerated form of the original selligerum itself, one of the handsomest of hybrid Lady's Slippers. C. vernixium, Petri, besides a host of the common species, may be seen in bloom. Among Dendrobes none captivated us so much as D. Falconeri, small plants of which growing in tiny shallow pans suspended beneath the roof, were producing numerous flowers of large size, and very finely coloured midst a thicket of slender stems. When grown and flowered well this is unquestionably among the loveliest of all Dendrobes, and has few peers amongst the whole tribe of Orchids. D. Bensoniæ, too, may be seen to perfection; on one stem we counted no fewer than twenty-two flowers, and this stem was one of several produced on a plant grown in a shallow pan only 4 inches across. Benson's Dendrobe is one that should be in the choicest selections of Orchids. A curious, but not showy, Dendrobium is sanguinolentum, interesting on account of its being one of the parents of the hybrid D. Rhodostoma, an extremely attractive variety now in great perfection here. D. thyrsiflorum, which some time since rendered the Dendrobe house so gay, will shortly yield a fine display, as numbers of large plants are thickly set with incipient spikes.

THE EAST INDIAN Orchids, such as Vandas, Aerides, Saccolabiums, and the like, afford a deal of interest, as many are in flower, though

the display is nothing compared with what it will be in a few weeks, when the fine collection of Aerides odoratum, virens, and others have unfolded the numerous spikes with which the plants are furnished. Among the Vandas there is a variety of V. cærulescens, the finest we have yet seen, the flowers being a third larger than usual and the colour considerably brighter. The old Aerides crispum and its fine variety Lindleyanum are still among the cream of the East Indian group, the delicious fragrance of the flowers, combined with their bright colours, rendering them much admired. The Fox-brush Orchid (A. Fieldiogi) is represented by some grandly-flowered plants, and in the same house is a specimen of Coelogyne Massangeana suspended from the roof, and producing from its base a long, loose spike of white and tawny brown flowers. It is an uncommon Orchid, besides being so elegant.

THE ODONTOGLOSSUM HOUSES, always so gay with bloom, are particularly so just at this the full flower-tide of Orchids. The display contains old and popular kinds, together with rarer ones, and the whole intermixed with Masdevallias and other kinds renders the houses very beautiful. In the Phalænopsis house further on there are crowds of spikes of P. grandiflora and amabilis besides a few of the charming P. Sanderiana, whose lovely mauve-tinted flowers fascinate everyone. It is undoubtedly a rich addition to this section of Orchids. Other Orchids of interest we noted were Oncidium nigratum, with long branching spikes carrying myriads of tiny flowers, white and covered with black blotches; a pale rose variety of Mesospinidium vulcanicum; Angræcum falcatum (one plant with eleven spikes), Epidendrum Wallisi, and Masdevallia Chimeræ, with flowers measuring a foot from tip to tip of the sepals.

Masdevallias.—Probably the finest grown plants of these in the country are to be seen at Mr. F. Yates's, Fenniscowles, near Blackburn. The flowers are matchless as regards size, and the foliage spotless. Many of them have been grown from very small plants to what might be regarded as specimen size. For instance, M. rosea consisted of one leaf four years ago, while now it is a bush in an 8-inch pot, furnished with sixty-two flowers, forming a rosy belt. M. Harryana Yatesi is a richly coloured variety, in which the claws overlap each other, thus giving the flowers an orbicular appearance. The variety of Harryana called Bull's Blood bore twenty-six flowers, Chelsoni fourteen, Backhousiana fulgens thirty, sanguinea superba twenty-two, and another known here as magnifica twenty-eight. The above, with many others at the time of my visit, were growing in a hip span house with its ends facing the east and west, but they were shortly to be moved to a lean-to with a northern aspect. In company with the Masdevallias were Anguloa Clowesi, well flowered, two blooms being on one stem; some plants of Odontoglossum Alexandræ were also carrying spikes of from eight to thirteen flowers and leaves 18 inches long. In one of the vineries which is tolerably well furnished with Dendrobes was a specimen of D. Bensoniæ on a raft with 111 flowers on it, and D. suavissimum with nine. Ferns are also a feature at Fenniscowles, especially Adiantums and Filmy Ferns. A. Williamsi, for instance, was 4 feet 6 inches in diameter.—W. P. R.

Flowering and fruiting twigs of the Weeping Laburnum (L. vulgare pendulum).

The Weeping Laburnum.

Dendrobium Bensoniæ (*R. L.*)—One of the three flowers you sent represents an unusually fine variety, but the numbers of all the flowers had become detached before they reached us. The finest variety had a very large blotch on the labellum; the other flowers represented ordinary varieties. From twenty to thirty flowers on a stem is an exceptionally large number for this Dendrobe. As regards its winter treatment, it requires to be kept rather dry in a warm house. The plants should be kept moist until they have quite finished their season's growth.—ED.

Lælia purpurata Bryaiana.—Among specimens of choice Orchid flowers sent to us by Mr. T. Perry, from Penpole House gardens, Shorehampton, is a fine spike of this superb Orchid, one of the most distinct and beautiful of the several varieties of Lælia purpurata. The flowers are about the ordinary size, but the colour is different. The lip is of the intensest crimson, almost black, in fact, while the sepals are very much darker than in the type. It is a very fine variety, and one not at all common. Mr. Perry also sends flowers of Cattleya Warneri, the summer-flowering variety of C. labiata. Among these there are some uncommonly fine varieties, notably one with an extraordinarily large and highly coloured lip. A spike also of Dendrobium Dalhonsianum, carrying twelve flowers, indicates good growth. Our correspondent states that he has fourteen spikes of flower on one specimen of this Dendrobe.

Phalænopsis grandiflora (*F. Clibborn*).—The flower sent is the variety named aurea. It differs from the ordinary form in having half of the labellum and antennæ of a bright yellow. It is a scarce and valuable variety.

Native Orchises.—Herewith I send you a posy of wild Orchids, so pretty as to induce one to ask why go to the tropics for Orchids when we have such wealth of beauty at home.—W. WATSON, *Eaglehurst, Fawley, Hants.*

*** Truly a charming gathering of Orchis maculata, showing almost every variation in tint from nearly pure white to deep violet-purple.—ED.

Orchids from Rosefield, Sevenoaks.—From Mr. De B. Crawshay's choice collection of Orchids we have received a gathering of some uncommonly fine varieties. Among them is a pure white Odontoglossum Alexandræ, named virginale, a lovely variety, wholly without colour, except a yellow crest. Another variety, of the guttatum section, has heavily spotted sepals and spotless white petals. A flower of Cattleya Warneri is remarkable for its unusually large size and brilliancy of colouring, and is among the finest forms we have seen, the labellum being particularly beautiful. A very fine form of Vanda suavis is also sent; it is a twelve-flowered spike, the flowers being much larger than usual and the colours richer and more pronounced. Mr. Crawshay calls it the Rosefield variety of V. suavis.

Cypripedium caudatum.—A three-flowered spike of this remarkable Lady's Slipper Orchid has been sent to us by Messrs. Thomson & Son, Tweedside Vineyard, Clovenfords, which is by far the finest example of it we have yet seen. Each of the three flowers have their peculiar attenuated sepals prolonged to fully 33 inches, the longest we have ever measured. Such an example as this either indicates a finer variety or superior cultivation, but we are inclined to think that the excessive length of the sepals is due chiefly to culture. The other parts of the flowers, too, are finer than usual, notably the pouch, which is as high coloured as in the variety roseum, which indeed it may be. There is not a more singular Orchid in cultivation than this, particularly when seen grown to such perfection.

Mr. Percival's Cattleyas.—We have not seen Mr. Percival's celebrated Orchid collection at Birkdale, Southport, but we can imagine what it is like just now by a large gathering of flowers of various Cattleyas which he has sent us. The specimens include some exceptionally fine varieties of C. Mossiæ, C. Mendeli, C. gigas and its ally, C. Sanderiana. Some of the latter are marvellous flowers, measuring just upon 9 inches across the outspread flowers. One flower represents by far the deepest in colour we have as yet seen, it being of an intense crimson-magenta in the lip. Some of the flowers of Mendeli have snow-white sepals and richly coloured and exquisitely frilled lips. Others, again, are remarkable for the depth of colour in both sepals and lips. There is a great variety of C. Mossiæ representing a wide diversity of colouring. A few of the flowers are identical with the variety usually named aurantiaca.

Odontoglossum Alexandræ mirabile. This is the name of the marvellous Orchid exhibited on Wednesday last at the Regent's Park show by Messrs. Veitch, and which formed the centre of attraction on account of its great beauty and extreme rarity; indeed, it is absolutely unique in cultivation up to the present time at least. It is quite as remarkable as a variety of O. Alexandræ as the wonderful variety of O. Pescatorei named Veitchianum. The flowers are fully 2½ inches across; the sepals are so broad as to quite overlap and leave no intervening space. The colour is the most astonishing. It consists of heavy bar-like blotches of purplish brown disposed transversely on the sepals and petals; so heavy, indeed, as to nearly cover them. The sepals, too, are coloured on their exterior surfaces, and this intensifies the colour of the whole flower considerably. It has, we understand, gone to enrich Baron Schroeder's collection at The Dell, Egham, who also possesses the Veitchian variety of O. Pescatorei, to which the new rarity will form an appropriate companion.

The red Banana.—We have obtained from Mr. Dempsey, of Covent Garden, an interesting specimen of a red Banana, which he informs us comes from Panama. It is larger than usual, handsome, bold in form, rich and good in flavour—at least so far as several specimens which we tried may be said to test it. Slowly but surely the fruits of other countries are gradually coming to our market, and the more the better if they are so good as these red Bananas, none of which we saw in Madeira, where other kinds are grown so well.

SOCIETIES.

ROYAL BOTANIC.

JUNE 18.

THOUGH scarcely so gay and attractive as that held a month ago, the show on Wednesday last was, nevertheless, a very fine one, and, moreover, more representative than the first, inasmuch as it included fruit, cut flowers, and other classes. The miscellaneous groups, too, which usually form such an attractive feature in the centre of the tent were more interesting and finer in every respect. The show derived its brilliancy from the groups of show and fancy Pelargoniums, the crowded bank of Orchids, which were finer even than on the last occasion, the Begonias from the Forest Hill Nurseries, and the gay collections of hardy flowers.

ORCHIDS.—Though the collections were not so numerous as usual, the bank set apart for Orchids was well filled, and formed the chief attraction; of the three amateurs' collections, that from Mr. Southgate's garden, Streatham, was the finest. The dozen shown by Mr. Salter were a credit to his cultural skill; his best plants were Dendrobium Bensoniæ, a mass nearly 2 feet through; D. suavissimum, a yard across, and covered with spikes; Oncidium macranthum magnificum, a fine variety remarkable for the broad margin of clear yellow to the lateral sepals; Cattleya Warneri, with ten flowers; C. Mossiæ Southgatei, a magnificent variety, with a dozen flowers; C. Gaskelliana, the new variety, in the way of a pale Mendelli; fine plants of Odontoglossum vexillarium and the picturatum variety; Cypripedium Dominii, with seven spikes; Masdevallia ignea and Harryana, both fine plants. The best plants in the second collection, from Mr. Cobb, Sydenham, were Odontoglossum vexillarium, a grand plant, with nine long drooping spikes; Lælia purpurata, with four spikes; a very fine form of Cattleya Mendeli, and a good mass of Dendrobium Bensoniæ. Mr. Little showed the other dozen, the most prominent specimens being a large panful of Odontoglossum vexillarium, Oncidium Marshallianum, and various species of Cattleyas, the whole making a good group. The best of the three nurserymen's collections was that from Mr. James, who had a fine group, which included a huge mass of plants of Cattleya Mossiæ, arranged in a pot of the largest size, and other plants similarly treated, though there were a few *bona-fide* specimens, such as Odontoglossum Pescatorei, with an extraordinary branching spike carrying scores of flowers. Dendrobium Dearei was shown well, as also the new Odontoglossum candatum aureum.

In the second group from Mr. Cypher was the most remarkable Orchid of the show. There was the rarely-seen Brassavola Digbyana with large greenish white flowers with a fringed lip. The collections of six plants contained none very remarkable except a specimen of Aerides Lobbi with three spikes, two of which had three and four branches. This plant was shown from Garbrand Hall, whence came also a fine example of A. Fieldingi, also with branching spikes. Mr. Cypher showed the new Dendrobium Dearei admirably, one spike bearing about a dozen pure white flowers. It will undoubtedly rank high as an exhibition Orchid. A great attraction among the Orchids was an exceedingly fine collection of Masdevallias from Sir Trevor Lawrence's celebrated collection at Burford Lodge, Dorking. The species represented were numerous, and the varieties of M. Harryana were marvellously fine. The most remarkable of these were named versicolor, magnifica, Bull's Blood, and sanguinea. This last is an extraordinary variety with a very large flower, and as bright in colour as a soldier's scarlet coat. All the plants of Harryana carried perfect sheaths of flower-spikes, and had a very fine effect. The other species were M. Backhonsiana, a huge plant with a score of flowers; M. bella with six flowers; M. rosea, a plant in a 3-inch pot with about two dozen flowers; M. platyglossa with sulphur flowers; M. tridactylites, quite the gem of the genus; M. Wagneri, and others.

STOVE AND GREENHOUSE PLANTS.—The specimen trained plants were quite up to the average merit. Mr. Cypher furnished the first collection of a dozen plants. The most remarkable of these were a huge Ixora Williamsi, Stephanotis floribunda, with some gigantic Azaleas and Heaths. In the second dozen from the Kingston Nurseries were some perfect specimens of Epacrises and Heaths, which are always grown and shown so well by Messrs. Jackson, together with Pimelea decussata, Statice profusa, and Dracophyllum gracile, all fine plants. The third collection from Mr. James contained some finely-flowered and fresh-looking specimens of Erica ventricosa magnifica, E. depressa, and an uncommonly fine plant of the new Anthurium Andreanum, which makes a finer exhibition plant than was anticipated. The groups of six plants were better than the dozens both from nurserymen and amateurs. Mr. Cypher again showed the best six, which were all very fine, particularly Ixora Fraseri, Bougainvillea glabra, Dipladenia amabilis, and Clerodendron Balfouri. A small but profusely-flowered specimen of the rarely seen Ixora Colei, with dense clusters of white flowers, was the most interesting plant in Mr. Mould's second collection, who also had an uncommonly fine specimen of Erica Cavendishi with massive erect branches of flowers. The amateurs' groups of six did not contain anything very remarkable, and some of the exhibitors had evidently strained a point to muster even half-a-dozen plants.

Pelargoniums were shown by Messrs. Turner, Little, and Wiggins in the same perfect style as they usually do at these summer shows, and we need scarcely add how much the brightness of the exhibition was owing to these Pelargoniums. Mr. Turner also occupied one of the central mounds with a grand collection, and some capital specimens of zonal varieties were shown by Mr. Eason. Begonias were somewhat numerous, but none were remarkable except the fine collection of a dozen plants from Messrs. Laing, who took the first prize. This collection was composed chiefly of the finest new varieties, and, as may be supposed, were superb in every respect.

FERNS were exceedingly fine; indeed, we do not remember to have seen such marvellous specimens as were shown both by Mr. Rann and Mr. Child, who were placed first and second respectively, though there was but little difference between the groups. Mr. Rann's consisted of huge specimens of Todea africana, Cyathea dealbata, Davallia Mooreana, Adiantum farleyense, Gleichenia rupestris and Mendeli. Mr. Child's plants were Davallia Mooreana, 7 feet through; Microlepia hirta cristata, Phlebodium aureum, a huge mass of weeping silvery fronds; Adiantum farleyense, Todea superba, a grand specimen; and Dicksonia squarrosa. A very fine plant of the elegant Nephrolepis tuberosa was shown from Lady Louisa Goldsmid's garden. The Palms and fine-foliaged plants consisted of the usual huge specimens, though there were none very remarkable among them.

NEW PLANTS were unusually abundant, and though the greater bulk of them were of not much importance, there were a few very striking plants among them; indeed there never has been exhibited such a wonderful variety of Odontoglossum crispum as that which Messrs. Veitch showed under the name of mirabile; the other certificated plants also included some of real merit. Messrs. Veitch were awarded a large number of certificates. The following plants shown by them were awarded botanical certificates: Philodendron grandidens, Lomariopsis buxifolia, Phyllanthus submarginatus, Dracæna latifolia splendens, Adiantum Weigandi, Drosera auriculata, Oncidium nigratum, Cypripedium albo-purpureum, C. Schroederæ, C. cardinale, C. selligerum majus, Gymnogramma chrysophylla Alstoni, Odontoglossum Alexandræ mirabile, Leucothoe Davisiæ, Kalmia latifolia major splendens, Andromeda japonica albo-margi-

nata, Abies Douglasi glauca, Osmanthus myrtifolius, Cornus brachypoda variegata.

Messrs. Laing were awarded botanical certificates for Croton superbus and C. gracillimus; Mr. Cypher for Dendrobium Bensoniæ album and D. crassinode album; Mr. Southgate, Streatham, for Oncidium macranthum magnificum; and Mr. Little, Hillington, for Cattleya Mendeli magnifica.

Floricultural certificates were awarded to Mr. E. B. Foster, Clewer Manor, Slough, for Pelargonium Man-at-Arms and Magnate to Messrs. Veitch, for Gloxinia Brunette and Carnation Mary Morris; to Messrs. Laing, for Begonia Rosy Laing, William Spinks, Hercules, alba plena, and Lord Crewe; to Mr. B. S. Williams, for Amaryllis Mrs. W. Lee; and to Mr. Turner, for Pelargonium (fancy) Phyllis.

MISCELLANEOUS CLASS.—A great portion of the show was comprised of non-competitive exhibits. The most important of these were the large groups of miscellaneous plants which formed such a fine feature in the large tent. In the centre was a large and most interesting one from Messrs. Veitch, which contained the large number of new plants certificated. Adjoining was a group from Mr. B. S. Williams, consisting of fine-foliaged and flowering plants, the latter chiefly consisting of Orchids, particularly Cattleyas and Lælias. Opposite to these Messrs. Laing displayed a grand array of their unsurpassable Begonias; and near it Mr. Turner, of Slough, showed a collection of Pelargoniums, both show and fancy sorts, for which his nursery is now so noted. A gay and interesting group from Messrs. Cutbush occupied one of the sloping banks, and opposite was an uncommonly fine exhibition of hardy plants from Messrs. Paul, of Cheshunt, who have within the past few years begun to cultivate the finest hardy perennials largely. This was a most interesting group, as it contained so many really fine plants and the visitors crowded round it. The cut flowers formed quite a large exhibition in themselves in the long tent; besides the competitive exhibits, there were large groups of German, English, and Spanish Irises from Messrs. Barr, some grand displays of Pæonies from Messrs. Hooper and Messrs. Kelway, who also showed Pyrethrums finely. In the competitive classes the cut Roses from the Cheshunt Nurseries were fine and greatly admired, as was also a huge basketful of cut blooms, prettily arranged with a climbing Rose entwined round the handle, likewise shown by Messrs. Paul. The cut Orchids were uncommonly fine, and of cut stove and greenhouse flowers none could approach the display made by Mr. Balchin, of Hassock's Gate, who had in his collection the splendid blue Leschenaultia which he sent to us a short time since, and of which he showed finely-bloomed plants on this occasion. All the examples of cut flowers on Mr. Balchin's stand were above average merit, and the selection was excellent. The wild flowers were interesting to many visitors, and the most successful exhibitor of them—Mr. Dixon—managed to get together a very large collection.

FRUIT.—There is generally a good exhibition of fruit at the second summer show here, but with the exception of a good display of Grapes it was below the average. The good competition which took place in the classes for Grapes was probably owing to the Veitch Memorial prize and medal being offered for three bunches of Grapes, a prize much coveted among gardeners, and which generally brings out a strong competition. The best three bunches of Grapes among thirteen exhibits was those from Viscount Eversley's garden at Heckfield Place; such fine examples certainly reflected great credit on the skill of his gardener, Mr. Wildsmith, whom we are pleased to see is again well enough to exhibit and to grow such high-class productions. These Black Hamburgh Grapes were superb in every respect, large and well finished, as fine as any mid-season bunches. The second set was also fine, and so were the two two following, which the judges placed equal thirds. Lord Carington's gardener, Mr. Miles, showed the best three bunches of any other black Grape, but Hamburghs and some very fine Black Princes were shown in the same class. Of six sets of Muscat of Alexandria, Mr. Louden, gardener at The Quinta, Chirk, won the leading prize with creditable bunches, though the season is much too early for Muscats. The white Grapes of other kinds were better, Buckland Sweetwater, from Mr. Adams, being first, and some fine Foster's Seedling, from Lord Stanhope's gardener, second. The baskets of Grapes of not less than 12 lbs. in weight were, as usual, shown well—the best black sorts being some extremely fine Black Hamburghs from Mr. Wildsmith, and the best basket of a white kind from Mr. Feist. Peaches were poorly shown, there being but one exhibitor of two dishes, and Nectarines were also scarce, there being but two exhibitors. Figs and Cherries were represented by only one or two exhibitors; and the show of Strawberries, though fine, was not plentiful. The sorts in the best dishes of Strawberries were Margnerite and Alice Maud, from Mr Sharp; President and British Queen, from Mr. Chuck; and Sir Joseph Paxton was shown by Mr. Mundell. Pine-apples are rarely ever plentifully shown, but on this occasion they were fewer than ever. The best among five fruits of Queens was a fine weighty example from Mr. Coomber, The Hendre, Monmouth; and the best fruit of any other sort but Queen was a fine example of Charlotte Rothschild from Mr. Talbot's gardener (Mr. Muir), Margam Park, South Wales. Braces of Melons were shown by six. The best were from Mr. Chuck, the sorts being High Cross Hybrid and Royal Ascot; the second, Trentham Hybrid and Hero of Lockinge; and third, Victory of Chalfont and Blenheim Orange. In the miscellaneous, Mr. Woodbridge showed from Syon House about a score of pods of the Vanilla plant, which perfumed the whole tent, and some excellent Pines, Peaches, and Nectarines where shown by others.

THE VEITCH MEMORIAL PRIZE of £5 and medal was taken by Mr. Wildsmith, gardener to Lord Eversley, for his three fine bunches of Black Hamburgh Grapes, which won the first prize in the class for black Grapes. Mr. Wildsmith also won the first prize offered by the Fruiterers' Company for the best collection of English-grown fruit arranged as a dessert. There was no other competitor, but if there had been Mr. Wildsmith would no doubt have still taken the first prize, as it was difficult to see how a finer collection could be shown. It consisted of two dishes of black Grapes, two of white, four dishes of Peaches, two of Nectarines, three of Figs, four of Strawberries, two of Cherries, four Melons, and three Pines, all in the highest state of perfection.

NOTES OF THE WEEK.

Fruit prospects in Mid-Kent.—Cherries are very short hereabouts, but from some of the sales in East Kent it would appear that there are more there. Old Black Currants are thin; Green Buds pretty good generally. The latter will drive the old sort out of cultivation. Plums will be a short crop, particularly early sorts, the scarcity of which is owing to the frost; vermin is to be credited with the mischief in the case of the others. I never remember such a severe attack on Plums before; many of the Black Currants, too, are in the same blighted state, and the leaves are beginning to drop off.—J. F., *Ryarsh, Maidstone.*

Rhododendrons at Regent's Park.—Those who desire to make a selection of the varieties of Rhododendrons without going from London could not possibly see a finer collection to select from than that which comprises the exhibition in the Regent's Park Botanic Gardens from Mr. Anthony Waterer's noted nursery at Woking. This exhibition is finer this year than we have seen it on any previous occasion. As usual, it occupies the capacious tent provided expressly for the purpose, and it is arranged in bold irregular groups raised and undulated in a most picturesque manner. The display is just now most lovely, the whole collection being in full flower. An admirable innovation this season is the interspersing of a few choice Conifers and other Evergreens among the Rhododendrons. These tone down as it were the gay colours and enhance the effect. The collection comprises the choicest of the older varieties and a number of new kinds, including not a few unnamed seedlings. Some are huge plants, which stand out prominently from all the rest. Those interested in these beautiful hardy shrubs should lose no time in visiting this exhibition.

Mr. Peacock's Orchid exhibition.—The exhibition of Orchids and succulent plants at Sudbury House, Hammersmith, which Mr. Peacock opened to the public the other day by payment in aid of the West London Hospital, has we understand, been a successful experiment. Now that Mr. Peacock has set the initiative, let us hope that others will follow so good an example. For instance, the Gardener's Royal Benevolent Institution stands in need of help, and there are many other charities which the proceeds of such improvised exhibitions would materially assist.

Adiantum farleyense.—I send a fragment of a frond of this Adiantum, which is, I think, somewhat more brightly coloured than usual. It is a fair average of the plant; some of the fronds, though not large, are decidedly more brilliant than the bit sent. The plants are grown comparatively cool, the temperature often falling under 50° in winter. They start late into growth, and get plenty of light. Other Adiantums, such as A. tenerum and A. amabile, do well under similar treatment, and A. cuneatum and A. gracillimum acquire some rosiness also.—GREENWOOD PIM.

*** Rich and beautiful in colour. The young fronds of this Fern are generally reddish brown, but we have never seen the roseate hue so bright as in the specimen sent.—ED.

The Flore des Serres.—We regret to hear that this fine work has ceased publication.

Double Apple blossom (*Messrs. Cheal, Crawley*).—Apple trees now and then produce double blossoms, but we have not hitherto seen any so large and double as that which you have sent.

Scotch Pansies.—I send you herewith for your table a gathering of Pansies from my named collection.—JOHN FORBES, *Bucclench Nurseries, Hawick.*

*** Very good Pansies, indeed; large and well formed and extremely rich and varied in colouring.—ED.

Narcissus poeticus recurvus.—In answer to "J. S. W." (p. 473), allow me to say that there are many members in the family of N. poeticus, some early, some late; recurvus is distinguished by flowering in May and by having somewhat broad, much drooping foliage. If "J. S. W." wishes to know all about this family he will find the information he seeks in the descriptive catalogue of Daffodils the result of the Daffodil conference, the first part of which appeared in the "Florist and Pomologist" for June.—P. BARR.

Names of plants.—*A. Elder.*—1, Arenaria graminifolia; 2 and 3, Centaurea montana; 4, Saxifraga hypnoides variety.——*Joseph Hall.*—Variety of Mesembryanthemum æqualiforme.——*J. Mansell.*—Appears to be Ulmus montana.——*R. R. Whitehead.*—Anemone alpina.——*E. F. C.*—1, Habenaria chlorantha; 2, Veronica Beccabunga; 3, Ranunculus Flammula.——*W. Breeze.*—Thujopsis dolobrata variegata; other next week.——*W. D.*—2, Streptocarpus biflorus; other next week.——*J. C. O.*—1, next week; 2, Echites venosa; 3, Dracæna Goldieana; 4, Peperomia ariifolia.——*De B. C.*—1, Bellium rotundifolium cærulescens; 2, Gnaphalium arenarium; 3, Erigeron strigosum; 4, Maianthemum bifolium.——*G. J.*—Phyllocactus multiflorus (red); P. crenatus (white).—*Subscriber* (*Cork*).—1, Heuchera americana; 2, Lychnis dioica fl.-pl.; 3, Limnanthes Douglasi; 4, Geranium sanguineum.——*E. M. G.*—Next week.——*F. J. C.*—1, Doryopteris palmata; 2, Lastrea decomposita.——*A. H. F.*—Athyrium Filix-fœmina Victoriæ.——*K. A. S.*—Spiræa (Hoteia) japonica; Philadelphus coronarius (white); Silene alpestris (small white); Muscari monstrosum (purple); please number the specimens next time.——*G.C. Headingley.*—1, Saxifraga rotundifolia; 2, Symphytum asperimum; 3, Thalictrum aquilegifolium; 4, Pyrus Aria (White Beam Tree).—*E. M. G.*—1, Griselinia littoralis; 2, Crataegus punctata; 3, Pinus, perhaps halepensis (specimen too poor to be certain); 4, Juniperus chinensis aurea.——*Barr.*—3, Ornithogalum pyrenaicum.——*W. H. M.*—Apparently Rubus flexuosus, not rugosus.——*E C.*—We cannot name sorts of Rhododendron; this can only be done in a large collection of varieties, which afford ready comparison.——*R. R. Whitehead.*—Linaria marocana.——*G. B.*—Limnanthes Douglasi.——*Wivelson.*—Polemonium cæruleum (Jacob's Ladder).——*G. Nisbet.*—Thalictrum aquilegifolium.——*S. K.*—1, flowers withered; 2, Iris sibirica; 3, Iris graminea; Saxifraga cæspitosa; Myosotis palustris; other next week.——*O. R.*—Orchid is Cattleya Mossiæ; 1, Woodwardia radicans; 2, Nephrolepis exaltata.——*W. Allan* and *J. T. M.*—Next week.

No. 658. SATURDAY, June 28, 1884. Vol. XXV

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT AND FLOWER PACKING.

ABOVE all things it is necessary now-a-days that a gardener should be an adept in the art of properly packing flowers and fruit, so that they may be safely transmitted long distances and be none the worse on arrival at their destination from the rough treatment to which they may have been subjected. Important as this matter is, however, it is a fact that the generality of gardeners are by no means experts in the art, evidence of which we have every day in the case of flowers. It was, doubtless, the prevalence of bad packing that induced Messrs. Webber, fruit salesmen in Covent Garden, to offer valuable prizes for the most approved style of fruit packing. This competition, which originated a few years ago, has brought to light a variety of methods of packing—some good, but others decidedly bad. On each occasion the judges have been consistent in awarding the first prizes to one mode of packing, and this was the method practised by each of the three gardeners who took part in the competition on Tuesday last at South Kensington. It therefore only remained for the judges to decide which competitor's frui arrived in the best condition, the quality of the fruit not being taken into consideration. The fruit of all three of the competitors was well packed, especially that from Mr. Turton, to whom the first prize was awarded. Twenty-four pounds of black Grapes, which by the way were very fine, were placed in a flattish box, the bunches being placed on each side, with their points towards the middle. Next to them was a layer of tissue paper, and between the paper and the sides of the box was a firmly packed layer of dry Moss, which, on account of its softness and elasticity, is found to be the very best material for packing such soft fruits as Peaches and Grapes. The great point is to firmly wedge the bunches together so that the berries interlock as it were, and so keep themselves firm in position. Mr. Turton's Grapes were so firm, that unless the box was turned upside down the bunches could not move in the least. There was, of conrse, a good layer of Moss placed at the bottom of the box to serve as a bed. In the case of Peaches (two dozen), they were first wrapped in tissue paper, then placed on a thick and firm layer of Moss at the bottom of the box, and then firmly wedged by dry Moss, so that they could not move. The chief point in packing Peaches is to so firmly pack them that the packing material, be it Moss, wadding, or bran, will not decrease in bulk in the course of transit, and so let the fruits become loose, and therehy bruise themselves against each other. Some use bran and wadding, but Moss is most approved of by the Covent Garden fruiterers. Strawberry packing is a simple affair. A good elastic, yet firm, bed to the box is required, and then each fruit is laid in a Vine, Mulberry, or Strawberry leaf, and placed against each other in one layer, thus filling the box, which should he shallow, long, and broad, just large enough to hold two, three, or four dozen fruits, as the case may be. Seeing that each of the competitors adopted the method of packing just described, it seems as if it would become the popular one—at least, until someone can devise a better. There ought to he a similar competition with regard to flower packing, which is even less understood than fruit packing.

NOTES FROM DUNEEVAN.

RHODODENDRONS.—I had an opportunity on the 19th inst. of inspecting the very complete collection of Rhododendrons formed by Mr. McIntosh at Duneevan. The early varieties were over, and what might be termed mid-season sorts were past their best, but some of the late kinds were in fairly good condition. According to my experience, this season is the worst we have had during the last ten years for the perfect development of the flowers of this fine hardy shrub. From the time the earliest varieties showed colour nntil the main bloom was over we had no rain. Drying east winds, accompanied with cold nights, seriously checked the blossoms. The earliest-flowering kinds were frozen in the bud, while those not so far advanced suffered severely. We did not water ours at all, as the ground was not really dry, and even if it had been water would have done more harm than good when the nights were cold and, perhaps, frosty. We have not yet had much rain; nevertheless, our bushes are making vigorous growth, a sure sign that they are not suffering from want of water.

SOIL.—Some people are deterred from planting Rhododendrons because of the difficulty they experience in obtaining peat in which to plant them. Perhaps there is no better material in which to grow Rhododendrons than good peaty soil with a moist deep subsoil, but it is not absolutely essential. In Mr. Anthony Waterer's nursery at Knaphill these plants are grown in loam, where they do well, although the foliage is not so dark green as that of plants grown in peat. Rhododendrons are also grown remarkably well in loam in Messrs. Veitch's nursery at Coombe Wood. If the loam is heavy, sand or leaf-mould should be added, or, what is better, sand and leaf-monld together. They like a deep moist soil. When the soil is light, shallow, and gravelly, beds ought to be made for them, and if a choice of soils can be had, a compost consisting of one part yellow loam to two parts of peat is the best. Our Rhododendron beds at Loxford Hall were made on a very dry gravelly subsoil, and consisted of the materials just named. The plants grew with great vigour every year, and flowered well, with the aid of a thin mulching of short manure. With the exception of this mulching, they required no other attention for nearly 20 years. The soil in Mr. McIntosh's garden is light and sandy, but of considerable depth, and Rhododendrons have certainly taken firm hold of it, as they exhibit great vigour and flower remarkably well.

VARIETIES.—Those in flower at the date above mentioned were Mrs. William Agnew, a light rose-coloured kind, with a yellow centre; Duke of Portland; Mrs. Mendell, a distinct and beautiful light-coloured variety; Duchess of Mecklenburg-Strelitz; Countess Clancarty; James McIntosh, rosy red; Apology, rose, with a dark blotch; Maculatum nigrum, a dark flower, thickly spotted; Fred. Waterer, reddish crimson; Garibaldi, a very distinct and good light-coloured sort; Sir T. Seabright, very distinct, the colouring being purple, with a bronzy blotch; Countess Tankerville, Wm. Gladstone, rose; Lady Falmouth, rose, with dark spots; Sunrise, a very late kind; Louisa, Countess of Ashburton; Sir A. Guinness; Mrs. Thomas Wain, rose, with a distinct-looking blotch; Fair Helen, white, nicely spotted; Iron Duke; Francis Dickson, a richly coloured kind, with large trusses; James Marshall Brookes, a fine scarlet, with a bronze blotch; John Spencer, a fine late rosy-tinted kind; Ingrami, Pelopidas, Hermit, and Old Port. Other fine varieties that Mr. McIntosh very strongly recommended were Michael Waterer, very distinct in foliage and fine as regards flowers; Alarm, Concessum, Madame Cavalho, the best of the white kinds; Minnie, Mrs. John Clutton, Mrs John Walter, Sappho, Sigismund Rucker, The Queen, and Joseph Whitworth.

LILIES.—There are many out-of-door attractions at Duneevan besides the Rhododendrons, not the least of them being a circular bed containing a quantity of strong plants of Lilium giganteum, many of which were throwing up flower-spikes, with, in the case of some, the flowers nearly open. The bed was not sheltered altogether from cold winds, but sufficiently so to prevent the plants from being injured by them, while they were fairly well exposed to the sun. I have tried this Lily planted out many times, but with very little success; indeed, failure would be the better word, and this I attribute to our shallow, light, stony soil. I find that it does better in a deep clay. The character of the soil at Duneevan and its depth may be ganged by an Oak tree a few paces from the Lily bed, which girths 24 feet. It is an old pollard tree, which seems to have long passed the meridian of life. If further proof were wanting of the depth and character of the soil, we have it in a specimen of Prince Albert's Fir (Abies Albertiana) planted eighteen years ago. At that time the tree was under 5 feet in height; it is now 70 feet high, and other coniferous trees have made equally satisfactory growth. I noticed also a house set apart for the culture of Lilies in pots. Some were doing well, others were not flowering satisfactorily. Indeed, I have proved to my own satisfaction at least that most of the hardy Lilies succeed better planted out-of-doors than in pots, and they do not require a tithe of the attention. Watering, potting, and moving the plants from one place to another is thus entirely avoided, and where the soil is suitable they make by far the best growth, and are much more effective.

AS TO FRUIT, I have seldom seen a better crop of Melons than there is in one of the forcing houses here, and Grapes, Peaches, and other choice fruits are equally good. J. DOUGLAS.

Great Gearies, Ilford.

DOUBLE ROCKETS.

I SEND you spikes of three kinds of double Rocket which I grow, and which rank among the best of hardy herbaceous plants. The smaller (pure white variety) is what I long knew as the Paper White, and is now sometimes called the Scotch Rocket. It was once in abundance here; in fact, it was the only white kind I had, but it appeared to suddenly die out in Ireland, and ceased to exist in many places where it was once plentiful. I am again in possession of it through the kindness of Mr. Gray, of Eglinton Castle gardens, who sent me plants of it last autumn. The other white, with the large, bold spike, is known as the French white; and though the colour is not absolutely pure, it is, nevertheless, a most valuable kind, being a stately and abundant bloomer, and having the most robust constitution of them all. The double lilac Rocket, the third kind, is exceedingly rare. I leave you to judge as to its merit. It was unknown to Mr. Wolley Dod, to Miss Jekyll, to Miss Owen, to the Rev. Denis Knox, to Mr. Gray, and, in short, to everyone who has seen it. I sent a plant to Mr. Gray last year, and hope much it has thriven with that successful cultivator. Though it is rare, I cannot say it is new, as it has been here as long as I remember anything. The Rev. Denis Knox sent me spikes this season of a very beautiful delicate mauve-coloured variety, which he grows well. He tells me he found it in an old neglected garden in the north of Ireland. The double purple is fine in colour, but the spike is very small, hardly a spike—more of a truss, and its constitution is feeble—at least so I have found it. These are all the varieties of double Rocket with which I am acquainted. If others are known, it would be a gain to lovers of this handsome and sweet-scented plant if spikes were sent to THE GARDEN for notice and description.

I find that constant propagation is the one most important point to observe in the cultivation of

double Rockets. If this be not attended to, a year comes when the old plants make little or no growth after flowering, and dwindle away in winter. My advice is this: After blooming I cut off the flower-spikes to within a couple of inches of the bottom. When fresh growth has set in, I pull off that short bit of stem with the young growth attached, and, without any cutting or paring, place them under a cap glass in a shady place. I find they like a good dash of sea sand mixed with the soil, which is the ordinary soil of the garden, and is heavy rather than light. Every cutting makes a plant, and in the course of the autumn I plant them out with a spadeful of well rotted manure under each. They are moisture-loving plants, and in such seasons as this they will repay attention in watering and an occasional dose of cow manure water.

Clyghran, Co. Dublin. FREDERICK TYMONS.

*** With this came charming, many-branched spikes of a lovely double purple Rocket, and also beautiful examples of the two kinds of white Rocket alluded to above.—ED.

Christmas Roses not seeding.—With reference to "J. C. B.'s" inquiry (p. 509), allow me to say that, from observation, I have no doubt the want of seed usually noticed is due to the low state of insect life when these plants bloom. Last November our Hellebores were covered with sash-lights to protect the blooms, and I saw large numbers of my bees continually on them, the weather tempting them out, it being very mild, and, to my surprise, a large number of the blooms filled with seed, which ripened, and in some degree shed, before I noticed it, as I was away from home. For many years not one head of seed have I been able to trace, although the plants were in good health and in the same place which they now occupy.—J. H. POË (Capt.), *Riverston, Nenagh.*

Saponaria ocymoides.—One of the handsomest amongst dwarf trailing or creeping plants in flower at this season is Saponaria ocymoides, or the Basil Soapwort, when seen draping narrow slabs of stone. It may also be used with advantage in suspended pots or baskets in porches or verandahs. The leaves are small and dark green, but hardly ever seen, so profusely does it produce its delicate bright pink flowers. It is a true perennial, but hard to raise from seed if not sown as soon as gathered. It seems to lose its power of germination in a very short time. It may, however, be propagated with the greatest ease from cuttings, which are freely produced near the roots in the form of suckers or young shoots. These should be inserted in pots and placed in the shade in a cool frame. They root readily, and as they grow quickly in rich sandy soil, a large stock may be raised in one season without much trouble. It flowers nearly all summer.—D. K.

Linaria triornithophora.—A very beautiful plant, and one seldom met with except in old gardens, is this charming Toadflax. It is not perfectly hardy, being injured in severe winters, but it stands lifting well, and it may be propagated with ease from cuttings, thus obviating the risk of losing it. It grows from 1 foot to 18 inches in height; it has sometimes slightly decumbent stems, and from three to four dark shining lanceolate leaves borne in whorls at short distances apart on the stem. The flowers, which are purplish and very large, are handsome, and furnished with long spurs. They are borne in threes, full 6 inches to 9 inches down the stem from the top, and are very showy. It adapts itself well to culture on rockwork, where it may be grown successfully in light rich soil; but with a little management in early spring it might be made a very interesting and pretty mixed border plant, as it continues in flower all through the summer and autumn. It is a native of Southern Europe.—D. K.

Gladioli sporting.—Two years ago I planted out in the open border in my garden here some bulbs of Gladiolus Colvillei alous, which I had previously grown in pots. Last year they did not flower, but now they have sent up spikes of crimson, striped with white, blooms, which look as if they had reverted to the original type. Is this often the case?—W. J. T., *Brixton.*

PLANTS IN FLOWER.

Calceolaria violacea.—I saw at Ravensdale Park the other day the first instance in my experience of this plant coming safely through the winter. It is growing at the foot of a wall, climbs up, and spreads out over the border. It is a dense specimen fully 4 feet through—a profuse mass of pretty flowers. In order to have this plant so fine it would be quite worth while to make an arrangement for protecting it during hard weather.—T. SMITH, *Newry.*

Habrothamnus in the open air.—I send you some flowers of Habrothamnus Newelli and H. corymbosus from Lord Annesley's garden at Castlewellan, Co. Down. They are cut from plants grown in the open air against a south wall. They were planted out about six years ago, and have had no protection given them since that time.—T. RYAN.

*** Excellent flower-sprays, the colour of H. Newelli being particularly deep and rich. It is the darkest coloured variety of all the Habrothamnuses, and is the best in every respect. We have rarely seen better sprays, too, of H. corymbosus.—ED.

Montbretia crocosmæflora.—This new hybrid bulbous plant, produced by M. Lemoine between the old Tritonia aurea and M. Pottsi, promises to become a most valuable summer flowering greenhouse plant. It resembles the Tritonia, but the flowers are higher coloured, more numerous on the spikes, and more graceful in growth. It may now be seen in full flower in Mr. B. S. Williams' nursery, at Upper Holloway.

Celsia cretica.—I send you flowers of this Celsia. They are from a side spike from a plant that has been full of bloom since the end of March in the conservatory here. We have a dozen plants of it in bloom in the open border, and very good they are too. I owe these plants to the liberality of Mr. J. T. Poë, who kindly sent me seed of this Celsia about the time when it was so well figured in THE GARDEN. I quite agree with all that "Veronica" said a short time ago in its favour.—J. CROOK, *Farnborough Grange.*

The Ramanas Rose.—This Japanese Rose (Rosa rugosa) and its pure white variety is now an object of great beauty in Mr. Whitbourne's garden at Great Gearies, Ilford. Here there are fine large bushes of both kinds on the lawn several feet through, now copiously furnished with flowers, which, associated with the handsome foliage, produce a fine effect. Mr. Douglas sends us from these plants cut blooms, the perfume from which quite pervades the room in which they are placed. The white variety is particularly beautiful in the bud stage.

Hymenocallis macrostephana.—Much has been written in praise of this new Hymenocallis, but not a word more has been said than it deserves, as it is among the loveliest of all bulbous plants. The other day we saw in Mr. B. S. Williams' nursery, at Upper Holloway, a plant of it carrying no fewer than ten of its large snow-white flowers in one cluster, and we thought as we looked at them that we had never seen so much delicate beauty in flowers before. A plant so easily grown in a stove and so continually in flower is, indeed, one that should enjoy a wide popularity.

Dipladenia bolivlana.—If this stove climber were better known, we feel sure that it would not be so seldom met with as it now is. It possesses a beauty peculiar to itself, and distinct from that of the rest of the varieties in cultivation. It has shining evergreen leaves, and bears white flowers some 2 inches across, with golden yellow centres. It has a pretty effect trained to the roof of a stove, as it is in Mr. B. S. Williams' nursery—one of the few places where we meet with it. Here also other Dipladenias, the lovely varieties with rose-pink flowers, may be seen, and some, such as D. regina and profusa, have just begun to unfold their lovely blossoms, and the tender green foliage with which they are associated seems to enhance their beauty.

Sagittaria montevidensis.—This beautiful tropical Arrowhead is now in fine condition in the Water Lily house at Kew, where it has been in flower since last March. Like the common Arrowhead of our ditches and ponds, this new addition to cultivated indoor aquatic plants delights in a rich muddy soil, and is apparently indifferent as to the state of the water about its roots, whether it is stagnant or clear. If planted in a large pot of loose soil and set up to its rim in a tub of water or in a tank in a warm, light house, S. montevidensis would grow like a weed and yield in abundance its tall stout spikes of white, purple, and golden yellow flowers during the whole summer. Like all the Alisma family, the Sagittarias bear their female flowers on one spike and the males on another, but owing to the dust-like nature of the pollen, fertilisation is brought about without any interference on the part of the cultivator. We observed a large number of ripe seed-pods on the Kew plant, so that the distribution of this beautiful Sagittaria amongst gardens in this country may soon be expected.

Clianthus puniceus out-of-doors.—The Glory Pea and Parrot-beak, as the above plant and C. Dampieri are called, are generally known as greenhouse climbers, but we do not think they are known to succeed equally well when grown against a south wall out-of-doors. Planted in a little border against the front of a house on which the hardy blue Passion Flower annually makes a beautiful picture, a strong healthy plant of C. puniceus may now be seen in flower at Kew. It stood out all last winter and spring without any protection other than that afforded by the house itself, and during the short time it has been out of doors it has made astonishing progress. A severe winter would no doubt prove fatal to the plant if left unprotected, but it seems reasonable to infer, both from its native habitat—New Zealand—and its conduct when planted out-of-doors, that on a sheltered wall, such, for instance, as is suitable for the Passion Flower, the Glory Pea would prove a useful wall plant. The finest C. Dampieri we have seen in the neighbourhood of London was grown by the late Mr. Howard, of Cinchona repute, and this plant was growing out-of-doors against a south wall where Peaches were its near neighbours. Mr. Howard sowed his seeds of C. Dampieri in pots in the spring, and when summer set in the young plants were planted in the position just mentioned, a spadeful of peat and sand being put about the roots of each plant. Under this treatment they grew vigorously and flowered freely without the least trouble. To those who know what the management of this plant in pots under glass generally ends in, this hint may be useful.

Medinillas.—The whole of the half-dozen or so species of Medinilla at present in cultivation are exceedingly beautiful stove-flowering plants, which grow and bloom freely under ordinary stove treatment. The best known and perhaps the handsomest of them is M. magnifica, which forms a large compact shrub, and bears every summer large drooping racemes of rosy pink flowers, each raceme bearing near its base several large handsome bracts of the same colour. A second species of somewhat similar character to this is M. amabilis, the flowers of which are borne in erect instead of pendent racemes, upon which there are no bracts, and they are larger than those of M. magnifica. In the Victoria house at Kew there is a large specimen of M. magnifica bearing a large number of beautiful racemes of flowers, and also a smaller flowering specimen of M. amabilis. When without their blossoms these two species might be mistaken for each other. M. speciosa is similar to M. magnifica, the only difference being in the absence of the large conspicuous bracts from its flower-stalks. The pretty and graceful-habited species recently introduced by Messrs. Veitch, and named after their collector, Mr. Curtis, gives every promise of becoming an extremely useful stove plant, capable of being grown where

space is too limited to admit of the cultivation of the larger growing kinds. This distinct species bears bractless pendent racemes of ivory-white flowers with purple anthers, the main and secondary flower-stalks being coral-red. M. erythrophylla has the singular habit of bearing its Peach-like flowers on short racemes, which are clustered round the lower and leafless portion of the stems. These plants are all natives of the tropical East Indies, and therefore thrive best in a warm, moist temperature.

A new Streptocarpus.—With the exception of S. caulescens, a species with a distinct stem, the species of Streptocarpus are characterised by a short creeping root-stock, directly from which the large, rugose, Primrose-like foliage springs. These may be again divided by their leaf characters into two groups—namely, those with but one large leaf, from whose mid-rib the many-flowered scapes are developed, and those with a tuft of leaves and flower-scapes arising from the bases of the foliage To the first division belong S. polyanthus, with flowers almost uniformly pale blue, and S. Saundersi, whose leaf is about a foot long and 9 inches wide, and of a deep purple colour on the under side, the flowers being pale blue, with two large purple blotches in the throat. The species belonging to the polyphylla section are the old greenhouse favourite, S. Rexi—sometimes called S. floribunda; S. Gardeni, which approaches very closely the biflora variety of S. Rexi; and the white-flowered S. parviflora—often written pauciflora. S. Rexi true bears single-flowered scapes, but as already mentioned a variety called biflora produces a pair of flowers on each stalk. S. parviflora has a scape with as many as a score of flowers upon it, and when several plants are placed together in a pan and well grown they make a very pretty display. By crossing these two species, a hybrid with flowers of the colour and size of S. Rexi, and a numerous-flowered scape similar to S. parviflora, has been raised at Kew. It is remarkable that, beyond a slight shortening in the length of the tube, the flowers of this hybrid in no way differ from those of S. Rexi either in colour or in form, the only character of the other parent plant observable in the hybrid being the many-flowered scape. As a useful greenhouse plant this Kew hybrid, which may be called S. Rexi var. multiflora, is a great improvement on the old kinds of Streptocarpus, as might have been observed a short time ago, when pans of both the hybrid and its two parents were to be seen in flower in the temperate house at Kew, in which a few pans of the first-mentioned are still in bloom.

Nymphæa candidissima.—This is the largest-flowered variety of N. alba, which is found in abundance in English lakes and rivers, and is also distributed over the whole of Europe and Northern and Central Asia. The effect of the varied conditions with which it has thus been brought in contact has been a considerable modification in the size of the flowers, as well as in other of its characters. This is shown in the smallness of the flowers of several minor varieties and in the large size of those of the above-named kind, which when well managed produces beautiful pure white flowers almost a foot in diameter, or nearly as large as those of the queen of Water Lilies, Victoria regia. The origin of N. candidissima does not appear to be known, for beyond the fact that it has been cultivated at Chatsworth for some years, and at Kew during the last two summers, we are unable to learn anything of its history. In the Water Lily house at Kew a plant of it is now in flower, and close beside it a second variety of N. alba, which both in size and general appearance is apparently the same or a very nearly allied form. This last-mentioned kind has been introduced from Northern China, and for several years has been cultivated in several gardens in England, notably in that of Sir George Staunton, who is supposed to have procured the plant direct from China. The only perceptible difference between N. candidissima and this Chinese variety is a tinge of rose on the outermost whorl of petals in the flowers of the former, those of the Chinese form being wholly white. In the form of the petals and every other floral character, as well as in the size and shape of the foliage, these two plants appear to be identical. Although grown in a warm house along with the distinctly tropical Water Lilies, these northern varieties are perfectly hardy in this country. It is an interesting fact in connection with the cultivation of Water Lilies that the whole of the natives of the colder regions are apparently happy enough when treated along with the tropical species; indeed, they are as a rule much more satisfactory than when grown outdoors, the flowers being larger and purer, and, as might be expected, produced in much greater abundance when grown in warm water. N. stellata and several of its varieties and the beautiful rose-flowered variety of N. odorata are also now in flower in the Water Lily house at Kew.

FLOWER GARDEN.

WINDFLOWERS.

THE genus Anemone has a great future. Even at present its popularity is only a little less than that of Roses and Daffodils but when we trust to seeds as a means of reproducing the best of Wind-

Flowers of Anemone decapetala (natural size).

flowers instead of buying dried roots from the shops, then, and then only, will "coy Anemone" become a garden queen. A. coronaria, if treated as an annual, furnishes glowing blossoms from October until June, after which A dichotoma and A. japonica in all its forms—white and rosy—carry on the supply and complete the cycle of a year's blossoming. By sowing good, newly-saved seed in succession from February until May in prepared beds out-of-doors the common Crown

Anemone may in many sunny, sheltered gardens be had in bloom all the year round. This is saying a great deal, but it is true; indeed, it is questionable if we have any other popular garden flower which is at once so showy, so hardy, and so continuous in its blossoming. A friend beside me says: "Ah! but what of Violas?" To which I reply: "Grow both in quantity, since both are as variable as they are beautiful." But when Viola shrinks in foggy November from the frost demon, Anemone rises Phœnix-like responsive to the first ray of sunshine. Besides fair Viola, richly as she dresses in velvet purple or in golden sheen, has not yet donned that vivid scarlet robe which Queen Anemone weareth, nor are her wrappers of celestial azure so pure; and blue is, as we all know, the highest note of colouring in floral music. But comparisons are not required. Anemones are variable and beautiful enough to be grown for themselves alone. No matter whether we look at a waving mass of sparkling Windflowers in a vineyard or cornfield by the Mediterranean, or walk kneedeep among the silvery stars of A. nemorosa in an English wood—"silvery stars in a sea of Bluebells"—they are alike satisfying. I believe that there is any amount of raw material in the genus Anemone—hardihood, good form and habit, and colouring alike delicate and brilliant, and what we now want is that amateurs should grow them with the attention and care that have been lavished upon Roses and Lilies and Daffodils. But, alas! we have some capricious beauties in this group. A. coronaria and some other species succeed well treated as seedling hardy annuals, and others, as A. apennina, A. Robinsoni, A. Pulsatilla, A. dichotoma, and A. japonica, may be multiplied *ad infinitum* by cuttings of the root. It is when we come to the aristocratic alpine forms, to A. alpina, A. sulphurea, A. narcissiflora, &c., that difficulties alike of propagation and of culture test our skill to the uttermost. Tourists fond of gardens walk over these plants in bloom every year; they dig up roots and send them home; but they are as yet very rare in even the best of gardens. Nor is it easy to rear them from seeds. A year ago I sowed seed by the ounce each of A. alpina and of A. sulphurea, but as yet not a single plantlet has rewarded me for my trouble. Even freshly gathered seeds of A. narcissiflora will not germinate with me, but I live in hopes of surmounting little difficulties of this kind, and in the meantime, perhaps, others more fortunate will tell us how to amend our unsuccessful ways. One of the prettiest species which is now in flower in our gardens is the pure white A. dichotoma, which carries on the succession after the Snowdrop Anemone (A. sylvestris) has passed away. Then we have dreams and lend willing ears to the oral traditions of Anemone alba. Is this species in cultivation, or where may a figure of it be seen? It is said to be of neat habit, 12 inches high, with erect, saucer-shaped, white blossoms 3 inches in diameter. The species we now figure is well worth a place, being easily raised from seeds. It is called Anemone decapetala, and if not by any means a showy species, tufts of it three years from seed have this season been very pretty. It grows less than a foot in height, and bears pale creamy yellow flowers the size of a shilling on branched flowering stems; each blossom has eight or nine sepals around a yellowish green centre. Some of our clumps had from a dozen to twenty flowers open at the same time, and the general effect in the early morning sunshine is a very pretty one. We have another species similar in habit which is just now a mass of rosy buds, and if you blow open its sepals, they are of a bright magenta colour inside, but I never yet saw a flower open naturally on this plant. Just as the sepals open at the tips, and you think they are about to expand, they shrivel and fall away, leaving a tuft of greenish yellow stamens in the centre. Is it A. Hudsoni? Another species not often seen, but well worth culture, is A. cærulea, a kind with finely-cut leaves and purplish blue flowers. Then A. coronaria The Bride, a pure creamy white kind, with flowers 3 inches across, raised by Van Velsen, of Haarlem, is really a good addition to these dainty blossoms, and affords a vivid contrast to the fiery A. fulgens. I have this year received some roots of Anemones, Iris, and other hardy flowers from the site of ancient Troy, and trust that some of these, if not new, will be beautiful additions to our gardens. The true A. vitifolia from Northern India does well in mild localities; but best of all of this perennial large-leaved race is A. japonica alba, the queen of all autumnal kinds, rivalling the best of all hardy border flowers in purity and freedom of blossoming. Taken as a class, Windflowers are so beautiful that we cannot grow them too plentifully, and but few other genera will so well repay cultural attention at all seasons.

F. W. B.

MASSING V. BEDDING OUT.

THE danger to which the Rev. F. Tymons alludes (p. 505) is more imaginary than real. No one would ever advocate allowing a garden to run wild or the growing of all plants indiscriminately in Grass. What those who object to the formal systems of gardening advocate is a very different thing from allowing a garden to run wild, or attempting to imitate Nature indiscriminately. It amounts in effect to the hiding of the artificial necessities of a garden instead of the obtrusion of them as prominent features. The necessities of cultivation require us to have borders, raised beds, and rockwork, but these necessities do not require borders to be straight and edged with trimmed Box or ornamental tiles; neither do they require our beds and quarters to be of some formal shape, with the plants arranged in regular order or in patterns. Those plants which we grow in our gardens as they are found wild do not require, and in many cases resent, artificial cultivation; the best way to grow them is to imitate the conditions of their natural habitat as nearly as possible. Take woodland plants, for instance; what a struggle it is to grow them in a bare border, exposed to sunshine in summer! We have to feed them with leafmould, water them, and also to find artificial shade for them. How much more sensible to form a little clump of shrubs and trees for them, and allow the necessary leaf-mould and shade to be produced in a natural manner. I am afraid that when imitation of Nature in gardens is mentioned there immediately rises to most people's imagination some hedgeback or nettle-haunted scrap of waste ground. That is not Nature at her best, but Nature struggling against man's interference. Find some spot where plants and trees have grown and leaf-mould has accumulated for centuries, and there we will find something which we could willingly import bodily into our gardens. Take, for instance, the trees and shrubs in ninety-nine gardens out of a hundred; what is there growing beneath them? Nothing but a few scraps of Ivy where there might be Primroses, Anemones, Scillas, Honeysuckle, Solomon's Seal, Columbines, and Orchids in a carpet of green Moss. A quiet garden, in which all the plants are at home and growing in their natural manner, is not an impossibility even in the smallest space. If properly arranged and planted it is the easiest of all to manage, as the plants pretty well take care of themselves. Plants allowed to develop themselves freely are little troubled with insects. A trimmed hedge is smothered with green fly and grubs of many kinds—is, indeed, a perfect nursery for the plagues of a garden, while an untrimmed hedge rarely shows an injured leaf. Then as to massing the plants, that is just what Nature does in time if left to herself. A stray seed carried by the wind or by birds falls in a congenial spot, and there the plant propagates itself and forms a colony. The spotty or mixed border style of arrangement occurs in this country at least mainly in fields and by the roadsides. Even along the cuttings and embankments of the older railway lines wild flowers have arranged themselves in masses. So far, therefore, is a natural style of garden from being antagonistic to massing the plants, that it is the best way of carrying that out.

THE MIXED BORDER is really the worst and most troublesome way in which hardy plants can be grown. What is necessary to bear in mind is that all plants, except florists' flowers, are wild somewhere, and that the true cultivation in every case is that which they receive in a state of nature—a top-dressing of decaying vegetation in most instances, and no interference with their roots, except from the roots of other plants. Nature's digging consists of a boring of the soil by strong-rooting plants which fasten on new soil and by earthworms. How different is artificial cultivation of the stereotyped kind! No carpet of vegetation to shelter the roots, no periodical dressing of decaying leaves, and an everlasting chopping of the growing roots with the spade and tearing by rake and hoe. No wonder that, under these conditions, gardening is often a dismal failure. What is advocated by the opponents of bedding out is not an indiscriminate wild garden, but a garden of quiet lawn and healthy trees and shrubberies arranged in a picturesque and rational manner, with ample space for hardy flowers in informal beds and borders so arranged as to give colour and brightness, and yet harmonise with the general effect. The arrangement of these spaces for flowers should depend upon the nature and size of the garden, but the flowers should be in harmonious and informal masses and colonies, not in stiff patterns, or in formal lines or edgings. About such a garden there need be nothing wild in the sense of weedy or uncultivated. The art displayed in such a garden should be the highest of all. Even in such an artificial thing as a plant stage the highest art is that which succeeds in hiding itself. It should be the same in gardening. The only real necessities in a garden are to have the plants thrive and look well.

A PICTURESQUE ARRANGEMENT of plants requires no more space than a formal one—witness many a cottage garden. Suppose we require a raised bed, a rockery, a pond for water plants, and a rich level bed for florists' flowers. One way would be to make them all of a formal shape and separated by turf or gravel. Another and better way would be to throw them into a natural group, making the raised bed end at the rockery, while that dipped with a little cliff to the deepest part of a natural-looking pond, the pond being fringed at one side by a sandy slope and at another by a bog bed, separated from a patch of rich earth for florists' flowers by an edging of boulders. Such an arrangement would suit many plants which could not be grown in a formal arrangement at all, and would occupy far less space in the garden as well. What is wanted is not the kind of imitation of Nature a photographer makes, but the kind of imitation an artist makes, in which all the beauties are selected and the rest left aside. We cannot imitate Nature exactly, because we want to grow those plants which have conspicuous flowers or striking foliage only, but we can arrange those plants which we select so as to make them contrast with each other and show their beauty to the greatest advantage after the manner of Nature. —J. D.

—— Gardening in Ireland, especially florists' flower culture, is much indebted to your correspondent, the Rev. Mr. Tymons; he grows and shows everything well. When in Cork last autumn I was invited to come to the then flower show in Dublin to see his Begonias, Gladioli, &c., and I was glad I did so. In his article on massing in last week's GARDEN he deals with a very practical matter, with which, to my own knowledge, many gardeners have found some difficulty. Fashion is inexorable, and Fashion now has turned her face almost completely against sheets of gaudy and glaring colours, endless ribbon borders, and paltry imitations outdoors of the carpets and rugs indoors. Still, the beds must be filled—showily, if possible—but there is no longer the understood Sybelline rule that even the mistress cannot touch a flower from fear of spoiling the design. Flowers, handsome and showy, must now be had, but they must be flowers that can be admired. Formerly it was the design. What a fine field this opens up! Then you stood at the end of a ribbon border, say a quarter of a mile long, and after looking at what was at your toes

you knew all about it; neither the size, colour, nor foliage the whole way differed. Now you need not turn away from the same border; you move with a slow and circumspective gaze from one beauty to another. If you really love flowers and are charmed with that something peculiar and ever-varying such as you find in seedlings, you could carry on massing in borders if necessary. Put a score of Pansies, Anemones, Picotees, Carnations, or the too-much-neglected Pink here, and as many Begonias in another place; or you could plant the whole border with single Dahlias, and reasonably expect all to be different; or if your tastes are for zonals, try, as I did, a hoe of 150 seedlings full in the glare of the sun, and see if you can get them to flower the first year, and just imagine the zest of expecting the 150 to be each more or less different! This is nothing impossible. I made two beds (massed) of Pansies, all seedlings from Charlie Stannell, about 200, and positively no two were alike; so of other florists' flowers. What an infinite source of real pleasure this would awaken every time you went into your garden! Those who love flowers for their own sake and grow them for their own amusement, as I do, will appreciate this system of treatment.—W. J. MURPHY, *Clonmel*.

PINK MRS. SINKINS.

I OBTAINED several pipings of this Pink early last September and made them into cuttings about 4 inches long, cutting them at a joint, as in layering, and leaving a heel to each 1 inch or 2 inches in length. These I put in 4½-inch pots in light sandy soil. I filled the pots to within 1½ inches of the rim and placed the pipings round the sides with the portions of the stems left lying towards the centre, using a small peg to keep them firmly in their places; I then covered them with sand and put a small portion of soil over the sand, and if propagated in this way scarcely one will fail to root. The pots should be placed under a hand-light or frame, which should be kept close until the plants are rooted, but whether in a frame or under a hand-light the glass should be painted with some whitewash to break the strong rays of the sun. Thus protected, they may be placed in any position. I prefer a warm, sunny spot, where they soon form roots and are ready to pot singly in 3-inch pots; but when set in a shady situation they often damp off and will be found much longer in forming roots. In my case every cutting rooted in six weeks; I then potted them off singly in 3-inch pots, using good rich loamy soil with a portion of rotten Mushroom manure mixed with it, and a good sprinkling of sharp silver sand to keep the whole compost open. I placed the pots in a cold frame plunged up to their rims in sifted ashes, which kept the roots cool and prevented the pots from cracking during frosty weather. I potted several of the strongest plants when rooted in 4½-inch pots, and placed them in a cold pit during the winter. Early in February I transferred them to 6-inch pots, potting firmly in good rich soil; they were then placed in a warm greenhouse along with young tree Carnations, where they grew freely and soon produced flower-stems. As soon as flower-buds made their appearance I gave each plant one teaspoonful of Clay's fertiliser, stirring it into the surface of the soil and watering at the same time. Thus treated I had some fine large blooms, and the plants had a healthy appearance. I have six plants of Andalusia which have been growing in 6-inch pots for over two years; about twelve months ago I placed them upon the stage of a span-roofed greenhouse. I trained the shoots to the centre pillars of the house, and by feeding them with Clay's manure once a month they grew most vigorously, and produced abundance of fine large flowers. In fact, we have scarcely ever been without plenty of flowers for button-holes since they were trained to the pillars, which I attribute to the feeding. Mrs. Sinkins grown in pots gave us a good supply of white flowers long before we had any white Pinks ready to cut from outdoor plants, and the remainder planted in a border are yielding a good crop of flowers. Mrs. Sinkins is much better than the old white Pink. It produces finer flowers which have a rich Clove smell. They last a long time when cut, either in flower-vases or as button-hole bouquets. This Pink grows, too, just as freely as our old favourite, the white Pink.

WM. CHRISTISON.

SCOTTISH PANSIES.

THE wonderful degree of excellence to which Pansy culture has attained in Scotland was well shown at the 40th annual Edinburgh Pansy Show on June 20. It was held at one end of the large Waverley Market, that most convenient site for flower shows, large or small, giving as it does unlimited room for the different tables, so that flowers can be examined without a crush. No paper collars are allowed round the Pansy blossoms, the result being that the flowers, on their background of green boxes, look like resting on their usual cushion of healthy leaves. The pleasure, however, of those who wish to learn which are the best Pansies to grow (surely one of the special uses of a Pansy show) must have been much lessened by the many boxes without any list of names attached. This was especially the case at the table limited to amateurs, which contained many of the finest Pansies at the show. Not a little interest would be added were there a rule making such a list obligatory. An occasional roughness in flowers otherwise excellent showed the effect of the long-continued dry weather, so trying to Pansies. But in general the way in which this difficulty was conquered must have surprised most Pansy growers. Violas, tied in bunches of about nine each, were shown to greater advantage than if the blossoms had been exhibited separately, as their beauty is rather of colour than of form; and their soft tints in masses for bedding could be the better judged of, especially as regards the lilacs and greys, some of which added brightness of hue to their peculiarly soft colouring. Groups from Pilrig Park and Messrs. Laird's nurseries were a good proof of their effectiveness.

OF SHOW PANSIES there were some excellent examples as to distinctness of colour and roundness of outline; but the increasing popularity of fancy Pansies was shown by their incomparably greater number, and to most eyes there is almost equally little comparison between the two kinds as to richness and variety of colouring, as well as much finer size, and at least equal beauty of form The great difference between blending and blurring in the mixture of colours is easily seen in the finest of the fancy Pansies, and even where the outlines are distinct they are soft. Two of the most generally shown Pansies were Mrs. Jamieson and May Tate. The former seems to have well nigh reached perfection in the brilliancy of its golden colour, relieved by large dark blotches. The three lower petals of May Tate are first rate, but there still seems something to be desired in the colouring of the two upper petals. It is, however, a very variable Pansy, though one easily distinguished, and by no means undeserving of its marked popularity. Various new Pansies were exhibited of great beauty, including amongst others Miss Kate Grieve, dark prune and black, and Mr. Fleming, crimson, both raised by Messrs. Forbes, of Hawick; others were Mr. Ploughman, purple with yellow edge and very clear outline; Miss Balfour, lilac and white upper petals, the three under petals being deep velvety purple, edged with white (this seedling was raised by Mr. Fleming, of Berwick); Mrs. P. Lutz, James Grieve, and Mary Fergusson.

FANCY PANSIES.—Amongst these the following may be mentioned—*Pansies with a yellow ground:* Lord Beaconsfield, George Murray, George McClelland, Mrs. J. E. Ward, A. E. Outram, Prince of Wales, Hon. Mrs. B. Hamilton, with dark blotches on all five petals. *Purple and white of different shades:* Prince Silverwings. Mrs. D. Steward, Catherine Agnes, Donald Sinclair, Mrs. McIntosh, Floral Gem, C. Brodie, Mrs. Findlay, very good in shape; William Windle. *Crimson shades:* Sir P. K. Murray; General Grant, still better than the former; Danger, light crimson and black; Wm. Bennett, Trevelyan, President Kirkman, James Gardiner, prune rather than crimson; Peter Nicol, which belongs more to the brighter Wallflower tints; Rev. J. Graham, George Bowie, Evelyn Bruce. *Purples:* James McIntosh and W. Blackwood; and of Wallflower shades, Mrs. Scott Plummer, Campbell Bannerman, Mrs. M. H. Miller, Louie. Prince Charlie is a good white with very dark blotches. There are various Pansies more or less like the Countess of Home, the latter being, perhaps, the best of the group. Some of the finest kinds of Pansies from collections in the east of Scotland were not well represented on account of the dry weather, the climate in the west having been more in their favour.

SEVERAL PRIZES were given to lady members for the arrangement of Pansy and Viola blossoms and though these flowers are not amongst the easiest to arrange well, various vases and baskets of them showed that, even for that purpose, they are capable of good effect. The possibilities of culture were strikingly shown by comparing a few coloured prints of "named Pansies fifty years ago" (taken from an old periodical called the "Floricultural Cabinet," 1833) with Pansies in 1884. These prints were a good proof not only of the improvement in the illustrations of present-day gardening periodicals, but of the value of the gardener's art in carrying out with patience and intelligence what may perhaps be called the work of "garden evolution." Happily, there was not one example at the Pansy show of any attempt at doubling this beautiful single flower.

C. M. OWEN.

NOTES ON HARDY PLANTS.

VIOLA FRUTICOSA.—Who that has grown this charming plant would suffer their garden to be without it? The cerulean and richly veined flowers as they appear in quantities on erect Willow-like stems are, indeed, lovely. Its leafy character, too, adds vastly to its beauty, the numerous flowers nestling on a verdant column some 18 inches or 2 feet in height. The habit of the plant is, indeed, its main feature, but the two or three months' duration of bloom, always fresh looking, cannot be overlooked. What a grand companion to Gilleuia trifoliata, Muhlenbeckia complexa and varians, the Cistuses and Linums; amongst these it looks like the Lombardy Poplar among trees in the landscape.

DIANTHUS ALPINUS, NEGLECTUS, AND GLACIALIS are seen, when grown near together, to be a trio of distinct and most attractive Pinks. In their more dormant stages they may easily get mixed; as a matter of fact, one is often supplied for the other, and sometimes it is difficult to be sure which is which, but now, when all are in flower and side by side, they not only enhance each other's beauty, but assert their distinctions clearly. D. alpinus has the largest flowers, and its deep green foliage is most freely produced, being also recurved. The petals are dotted about the throat of the corolla, almost forming a ring. The flowers of D. neglectus are smaller, its petals are more lozenge-shaped, and the hairs are shorter, but more extended on the petals than in D. alpinus or D. glacialis; the colour about the throat is of a leaden-purple hue; foliage grassy, longer, and more erect than that of D. alpinus. D. glacialis has almost stalkless flowers, paler than either; their peals are very hairy. With me this Pink does not grow more than a third the height of D. neglectus; every crown produces a flower, and it seems as if it would flower itself to death. My plants bear no seed.

SAXIFRAGA WALLACEI.—Comparing certain flowers to the "milky way" in THE GARDEN was a good idea, and I know no other flower more capable of sustaining such a comparison than this Saxifrage, which is constant, bright, and very full of blossoms of snowy whiteness. The flowers appear in March, and being lasting, those succeeding rapidly augment the floral effect, until in June the plant is completely covered with a packed and telling mass of Hawthorn-scented blossoms. It is a capital border subject, and one that will

stand for several years; in fact, the plants are not in their prime until three years established, at the end of which time they form broad bands 2 feet wide. Such an edging in a north aspect may now be seen here, and a first glance at it forcibly reminds one of a snowdrift after the thinner fall has disappeared. Anybody may grow it, but it likes manure, and if this is applied in January, when, from absence of foliage, the plant has a somewhat sprawling habit, the stems will be saved from being turned by high winds, and new roots will be encouraged. So grown, it not only preceded by a long time most other Saxifrages as well as Iberises and Arabis, but whilst they are fading it blooms with increased vigour.

RAMONDIA PYRENAICA.—How beautifully this plant grows in Cocoa-nut fibre that has become black and mould-like with age! It seems to hold the right quantity of moisture, and afford that cool, soft bed which its roots enjoy. This is a plant which one rarely sees happy, and if such a cheap mode of cultivation will answer for it year after year, it will prove a great gain. It requires shade, and the flowers are spoiled by even a very short exposure to powerful sunshine.

HUTCHINSIA PETRÆA.—I did not expect this to prove perennial, but it is so on the top of a wall, where now, at the age of three years, it is a fine, dense, healthy cushion. Hooker gives it as annual, Gray as biennial, and I feel pretty confident that I have the right plant. The distinct bluish or glaucous hue of the Rue-like foliage, combined with its very dwarf and neat habit, renders it valuable for walls and the dry parts of rockwork. Though many hundreds of alpines are grown here, nothing strikes me as having a similar effect to that of this plant; possibly something may be said for the dry wall top, which has only an inch or two of calcareous loam on it, and is fully exposed to the sun. Whatever its duration may be in other gardens, even if only annual, it is worth growing, especially on walls, on which we get so few things to take care of themselves and look well.

HABERLEA RHODOPENSIS.—What a fortunate thing it is that we are likely soon to have this charming shade-loving alpine in quantity, for it is not only easily accommodated where the rule of giving plants their needful soil and position is observed, but it naturally increases fast, and if the offsets are taken at the fore end of summer, or even in spring, they make good plants in one growing season. If I mistake not, this must become one of the most popular subjects in the alpine garden. It is an all-the-year-round plant of unusual beauty. It may, however, be useful to state that it dislikes even the mitigated sunshine of our climate. It wants shade—shade, but no drip.

ASARUM CAUDATUM propagates itself as freely by self-sown seed as the common Asarabacca, and though not so verdant in winter, it is likely to prove otherwise more interesting. There is certainly something to see in the form of the flowers, which is almost more than can be said for the native kind.

ARNEBIA ECHIOIDES.—May I direct the attention of those who grow this plant to the fine, almost bulb-like, seeds which it is producing this season? Surely these English-grown seeds, so ripe and nut-like and ripened so early, ought to give better results than imported seed. At any rate, a plant at once so rare and beautiful ought not to be neglected.

GENTIANA VERNA always ripens a good crop of seeds, but nevertheless they are not readily raised under ordinary treatment, though self-sown ones come up in the plunging material (sand) and in neighbouring pots in a plentiful manner. This has occurred where old pot plants were plunged three years without being disturbed, and where a discreditable amount of Spergula has grown.

G. ORNATA is more easily propagated than most Gentians. Seeds of it germinate fairly well, making nice little plants in a year's time, and the smallest bits taken late in summer by root division may be established and had in flower the following season.

G. BURSERI.—This large-leaved and handsome yellow-flowered Gentian is seldom met with, and though it has produced seeds, they have hitherto failed to grow. The out-of-ground sort of base sprouts, too, puzzle the propagator, but as these get a year or more old they have a fruticose appearance, and afford the right material for cuttings. The somewhat woody parts should be taken with the new growths before they have either become too long or the natural growing season of the plant too far advanced: from this tough part roots are emitted. Shade, moisture, and sandy peat are essential to success, and the large leaves should be kept from flagging. Without explaining why, I have taken a fancy to violet-coloured glass, which seems to afford that kind of subdued light which is so life-giving to seeds and cuttings. We have all heard something about this glass some years ago, and a steady practice with it proves it to be useful in horticulture, more especially for vegetation in a young state; it beats white glass, and with such hard seeds as those of some of the Primulas, Hellebores, Dictamnus, &c., I have had quicker results with it than I ever had under any other glass. The old plan practised in years gone by of rooting or for a while keeping slips in water is not altogether useless, for many large-leaved cuttings are greatly helped by being so treated for a day or more.

CALCEOLARIA VIOLACEA.—This curious and interesting shrubby species, which bears numbers of helmet-shaped, violet-spotted flowers, has proved hardy for the past two winters, fully exposed, in Yorkshire. True, they have not been severe, and whilst it should be said that in colder seasons it has either been killed or stripped of its leaves, it may also be stated that it has not been tested here in the colder seasons with specimens so well established as latterly. It is worth growing, if but for the chance of its going on all right, and under the worst circumstances it may be kept over winter in a cold frame rather dry. J. WOOD.

Woodville, Kirkstall.

A FEAST OF RANUNCULUSES.

I AM indebted to Messrs. Ant. Roozen, of Overveen, near Haarlem, for this rich treat. A quarter of a hundred of choice Persian and Scotch Ranunculuses done up in a dozen and a-half bunches, arriving as fresh as when gathered, are indeed a sight to see but seldom in a lifetime, and one which makes anyone for a time forget the droughts and the frosts that are holding the Roses back and spoiling the form of those that have ventured into bloom. Considering that the Ranunculuses come after most other bulbs and bridge over the gulf that is apt to intervene between the feasts of Daffodils and Gladioli, or Tiger Lilies, it is surprising that they are so seldom grown. Exquisitely beautiful in bed and border, they are equally or more so in vase or bouquet, and from their staying properties are among the most beautiful and useful of all flowers for decorative purposes. Now when Daisy and globe-shaped flowers are in fashion, we shall doubtless have a revival of the Ranunculus to something like its ancient popularity. At one time few gardens could be found without one or many Ranunculuses; now they are comparatively rare. Those who have never seen such Ranunculuses as those I received a few days since—and these were but samples of many others—can have no idea of the richness of colouring and the size and perfection of form that characterise this beautiful section of Crowfoots. The following were the varieties sent in large bundles of each: Belladonna, white and violet variegated; Capucine, deep orange; Commodore Napier, lemon edged with purple, extra fine; Crown of Amsterdam, rich rosy lake-violet; Cramoisi à Cœur Vert, crimson-scarlet, green centre; Dr. Masters, chrome-yellow, very rich; Dollard, white tipped with crimson; Erfstodhounden, rich gold and brown; Fiancée Royale, rich golden yellow; Dr. Young, rosy white; Fireball, bright vermilion; Couronne de Celle, light claret; Grand Tartar, dark olive, extra fine; Jaune Suprême, large, yellow with dark centre; Kiskoy, large, dark purple; Merveilleuse, orange-red; Miss Burdett Coutts, pale lemon, slightly tipped with purple; Mont Blanc, pure white; Nigritienne, showy black; Ophir d'Or, fine yellow, black spotted, very fragrant; Orange Brilliant, yellow, shaded orange, black centre; Princess Victoria, pale lemon, tipped with pink; Queen Victoria, bright rose with green centre; Reine Vasty, white and rose, very fine; and Aigle Noir, dark purple. D. T. FISH.

THE STONECROPS.

OF the great number of Stonecrops now in cultivation, and the still greater number that have from time to time been described in botanical works or in the gardening journals, few can be called handsome or showy plants; at least two-thirds of the whole are only fit for botanical collections, or places in which specialities are to be found, and where a small house or pit can be devoted to them. Under such conditions they are full of interest to all who are fond of succulents. In the case of those that can be grown in the open air in our climate, cultural attentions are often of secondary consideration. Our common Stonecrop (S. acre), for example, also S. rupestre, S. Lydium, and many others, cling so tenaciously to the tiles on old roofs, or attach themselves to the surfaces of soft stones, as to bring their cultivation within the reach of most people. Amongst the taller growing sorts, variation in the form and colouring of the foliage leaves nothing more to be desired. For rockeries and mixed borders, where variety of foliage is desirable, such species as S. spectabile, S. maximum, S. atropurpureum, &c., with their pretty, though unobtrusive, and invariably glaucous succulent leaves, are not easily surpassed as regards effect, and they will be found to harmonise well with flowering plants; when grown in rich soil to which a good sixth of cow manure has been added they put on a fine, robust, healthy appearance, and soon form good stools. They are propagated by division of the roots, an operation which may be done in autumn after the stems die down. The following are a few of the best either for large or small gardens:—

S. ACRE (common Stonecrop).—This, although a native plant, and abundant in many parts of the country on walls and dry banks, is far too useful to be passed over unnoticed. It covers the ground like a carpet with dense masses of trailing stems, covered with bright green or slightly glaucous, almost round, succulent leaves. The flower-stems, which seldom rise more than 2 inches above the plant, are bright yellow and very pretty; for covering unsightly dry banks or for clothing old crumbling walls no plant is more useful or easier to establish or propagate. It answers very well, too, for edging narrow borders, walks, &c., as it will stand any amount of cutting or trimming.

THE HOUSELEEK STONECROP (S. sempervivoides).—In form, and as its name implies, this is remarkably near the Sempervivums, and until recently was hardly known in gardens at all, although its handsome flowers ought to have secured for it a place therein. It is perfectly hardy, but should be planted on rockeries in dry, sunny positions, as when too damp it is apt to go off at the neck. It forms rosettes of numerous oval or wedge-shaped succulent leaves, extending up the flowering stem, which grows 3 inches or 4 inches high, and terminates in clusters of beautiful red flowers, that expand during July and August.

S. FARINOSUM is a pretty dwarf species, entirely covered with a white mealy substance, which makes it conspicuous even at a distance. It forms small tufts of much-branched stems, densely covered with pretty oblong leaves. It grows about 3 inches high, and the flowers, which are borne on two to three-branched spikes in July, are pure white, small, and inconspicuous. It is very susceptible of damp, and, except in dry, sheltered situations, will not stand our winters. It is a handsome plant for margins of greenhouse stages, and is easily propagated by division. It is a native of Madeira.

THE POPLAR-LEAVED STONECROP (S. populifolium) is a shrubby species of considerable merit as a rockwork plant. It is evergreen, grows about

a foot high, and is well clothed with irregularly-toothed, oval-shaped leaves. The flowers, though small, are pretty; they are a dull white, with bright purplish pistils, and are produced in July and August. It may be propagated by means of cuttings or side shoots in autumn. It is a native of Siberia.

THE SPOON-LEAVED STONECROP (S. spathulæfolium) is a very distinct and beautiful species suitable alike for rockwork and pot cultivation. It forms rosettes of thick, fleshy, oval, spathulate leaves, which late in summer and autumn assume a bright reddish crimson tint. The flower-stalks, which are much branched, are covered with club-shaped leaves of much the same colour as the rosettes. The flowers, which are numerous, are yellow and very pretty. It is a native of America, and flowers in June and July. There is a small-leaved dwarf-growing plant in cultivation under the same name, but much inferior to the above as a garden plant.

S. KAMTSCHATICUM, of which the annexed figure is a good representation, is much in the way of our common S. hybridum, except as regards its

Sedum kamtschaticum

upright and generally more robust habit. It makes a very handsome border plant, and it is also useful for small rockeries. It grows from 6 inches to a foot in height, and is furnished with alternate, sometimes opposite, dark shining green leaves which are coarsely toothed. The flowers, which are bright yellow, are nearly an inch in diameter, and are borne in showy dense umbels. It flowers late in autumn, and is a native of Kamtschatka, &c.

Among the Himalayan species, S. trifidum stands first as a plant for rockwork. It grows about a foot high, and has oblong, slightly pinnated leaves which sparsely clothe the stem, but become aggregated on the top, forming a dense head of dark green compact foliage; the flowers, which are small, are reddish in colour and are produced throughout the summer. In winter it is deciduous.

D. K.

Violas and Pansies—Mr. Douglas asks (p. 490) the very pertinent question, "What is the difference between a Viola and a Pansy?"—a question which I, in common doubtless with many other lovers of this tribe of plants, would like to have cleared up. The botanical distinctions may be plain enough to all who possess a knowledge of the two classes of plants, but as these every year appear to approach closer to each other, would it not be well to lay down some rule for future guidance? The principal distinctions to which I allude are the following, which I confess are in some cases rather vague, viz.: Violas have stout root-stems, increasing with the age of the plants; the seed capsules seek the soil; the stems become prostrate, lying on the grounnd with mouth of seed capsule downwards, but rising again when it ripens and the capsules open; capsule rounder in Violas than in Pansies, and the valves more elongated; leaves proceeding from the root, or if from a stem opposite and simple, while in Pansies the leaves are alternate, simple, and furnished with permanent leaflets at their base, of which latter Violas are destitute. The calyx in Violas is imbricate, in Pansies valvate. The flowers of Violas are drooping more or less, of Pansies oblique; the stems of the latter are annual, and are replaced by suckers from the root; those of Violas are perennial. Now all this reads very well in a botanical sense, but as we have, notwithstanding, some of these characteristics present in what are commonly known as Pansies, would it not be better if, in addition, we were to adopt a suggestion made some years ago by Mr. William Sutherland, to distinguish the Violas by their more or less rayed eye, not so clearly defined as in what we call the Pansy? Still, in some of the hybrid varieties of V. cornuta the eye of the Pansy is apparent, but it is generally accompanied by the rays, more or less, of the Viola. As some varieties of both sections present the general distinguishing features of the other, perhaps the best plan would be to put aside these features and discard one of the names, but by all means let us retain that of the Pansy, which has more of an English ring in it than that of Viola. They could then be distinguished under the classes of show, fancy, and bedding Pansies, the fancy class of Violas being known as such from the general class of the latter.—R. STEVENS, *Paston*.

FRUIT GARDEN.

FRUIT TREES IN POTS.

ORCHARD house culture is usually associated with the practice of growing fruit trees in pots, but this method of culture is not a necessary part of the system, nor is it an advisable practice, except under a few exceptional circumstances. Orchard houses are structures designed to protect fruit trees from the vicissitudes of the weather, and so insure crops where otherwise they cannot well be had. The management of the trees is quite another matter, and some of the methods adopted are open to question. I put aside entirely the interest and recreation which the orchard house is supposed to afford amateurs and others, apart from the crops of fruit desired as the object of culture, because I have never met with any possessor of an orchard house who did not desire crops of fruit, and good ones, above everything else, setting the pleasure he derived from potting, pinching, training, watering, &c., down as a very poor equivalent indeed for disappointment and barren trees. I refer to this, because whenever the success of the orchard house system is called in question, this platonic plea is almost invariably set up by its advocates. There never was a time in the history of gardening when private gardens were so closely measured by a debtor-and-creditor account as now. The market men will tell you so, and orchard houses are just as much expected to pay as any other department of the garden whether the produce be consumed at home or sold. And on this point hinges the question of the method of culture. To begin with, I unhesitatingly condemn

THE POT SYSTEM OF CULTURE, because it is very uncertain, troublesome, and quite unnecessary. It has never been my fortune to see a houseful of pot fruit trees at one time carrying a good or even a mediocre crop all over, except in certain instances, where a great stock of pot plants was kept for sale outdoors, and when any of these set a good crop they were moved into the orchard house, and the orchard house was credited with their production. This the amateur who has a small house and few trees cannot, as a rule, do, and usually his crop is a partial failure. It has long been recognised that the best way in which to grow Grapes is to plant the Vines out in a border and train them permanently, and it is the same with Peaches, Figs, and other things. Very well, then; if I want certain crops of Apples, or Pears, or Plums, or any other orchard fruit, why should I not adopt the same sensible plan, and go in for them in a methodical manner, discarding pots and all the paraphernalia belonging to them? I believe this view is coming to be recognised now as the right one, and only a week or two back I read of a large extent of glass being erected for such purposes. I have seen orchard houses 100 feet or 200 feet long, mostly filled with trees in pots, that did not pay for the labour of watering done during the summer—fine lofty houses they were, with every facility for planting the trees out as standards and bushes or as trained trees, and yet the proprietor, following the example of some one else, chose to grow a lot of miserable pigmy pot specimens, that required the whole of his spare time, as well as his gardener's, to manage, and with the poorest results. I ask any practical man if this is anything but a suicidal system of culture, and can anyone prove by results that it is not? The pot system is a paltry one, and no more justifiable under glass than out-of-doors, and I do not suppose any sane person would think of planting an orchard in flower-pots. Vines, Peaches, Plums, and Cherries do splendidly planted out and make good trees, and no doubt so would Apples and Pears; and why not, then, adopt the best plan?

WHAT ARE THE SUPERIOR ADVANTAGES OF POTS? and if they have an advantage, why do not those who say so grow all their fruit trees out-doors in pots also and be consistent? A few skilled gardeners after much experience produce good crops occasionally in pots, but even in their case I am told they are not often remarkable, but it is far different with the man for whom orchard houses were originally designed—that is, the amateur or small gardener, who have been pictured sitting under their own Vine and Fig trees and enjoying the fruit thereof. The reality is very different from this, however, and grumblings, not loud, but deep, under blighted prospects are far more frequent than anything else. The truth is none but experienced gardeners are equal to the task of looking after a house of fruit trees in pots from one year's end to the other, and what we read from the pens of accomplished gardeners who are experienced orchard house managers shows this as plain as anything could be shown. The multiplicity of operations described as necessary are sufficient to deter anyone who does not employ a skilled gardener from ever attempting pot culture at all. The system needs to be simplified in every way, and made easier and surer. There is a right and a wrong way of doing everything, and the wrong way to cultivate orchard house trees is to grow them in pots in the form of fancy-shaped, but barren and useless specimens.—S. W.

—— The cultural details for fruit trees in pots given by Mr. Douglas in THE GARDEN (p. 491) are interesting, but I fear he has not made the amount of labour involved in the undertaking sufficiently plain. In many respects fruit trees in pots give more trouble than those planted out, and not the least is the quantity of water they require. Mr. Douglas admits this to a certain extent, but he leaves the reader to find out the exact quantity. If he had stated that in very bright weather, when the fruit is swelling and ripening, the trees require water twice and three times a day, the intending cultivator would have been able to decide whether he was prepared for such an outlay. The hopes of so many have been wrecked through an insufficient water supply, that this point cannot be put too prominently before the reader. There are many points about fruit growing in pots which are very enticing, especially to those not practically acquainted with the labour which it involves, but those who embark in the business must be prepared to provide every needful care, or disappointment will be the result. I am far from saying that pot cultivation cannot be made a success. With the requisite degree of skill and care and suitable appliances it is equally as certain as the planting-out system, but so many have failed, and apparently without being able to divine the reason why, that we may well stop to consider the advisability of recommending a system that had brought nothing but disap-

pointment to so many. If people start right—that is to say with a full knowledge of what they have undertaken—they cannot have a better teacher than Mr. Douglas. No reference is made about plunging the pots in the border of the house, so I presume Mr. Douglas prefers having them on the surface. In one respect the advantage of this is manifest, as the warm air of the house acting on the pots places the roots and branches in a somewhat equable temperature, but on the other hand, when the pots are let down to their rims in the border, they do not require so much water by one-third compared with those standing on the surface. If I were to start again to grow fruit trees in pots I should use perforated pots, and plunge them in the border, lifting them out of the border once a year, when the leaves had fallen. I would then cut away close to the pot any roots that had come through the holes. If this were done annually, the trees would not mind the loss of such roots. If one felt disposed they might compromise the matter, and plunge one-half of the pots, and let the others remain standing on the surface. In that case I would plunge the late sorts that ripened in the months of August and September, as undoubtedly the earliest fruit is obtained from those not plunged. Some people have an idea that fruit trees cannot be grown in pots in a successful manner, and I grant that there is some truth in what they say, but it is not the system that is at fault, but want of sufficient provision to fulfil its requirements. When I first began growing fruit trees in pots under the teaching of the late Mr. Rivers, my then employer entered heartily into the work, and built specially two substantial houses for the purpose, but, like many more, we found that the system increased the labour of watering so much at the busiest time of the year, that we were glad to plant the trees out in the borders where they were better able to take care of themselves as regards root moisture. We, however, gave the plan a sufficient trial to prove that it had its advantages, for we were able to grow a greater number of varieties than in any other way. Our greatest success was with Peaches and Nectarines. Having a number of trees of both early and late varieties, we were able, by placing a few pots in a slightly increased temperature about the middle of February, to get ripe fruits quite three weeks in advance of those from the orchard house. This plan is more practicable than at first sight it may appear, because by the end of April the trees were brought back to the orchard house, and by being placed at the warmest end they had all they required. The later varieties, such as Salway and Barrington, were treated to a little warmth after the middle of September; this was done with a view to improve their flavour, and I think on the whole we were successful.

J. C. C.

FORCING STRAWBERRIES IN FRAMES.

"J. S. W." thinks the day will come when Strawberries will no longer be forced in pots, but will be planted out for that purpose in frames. If your correspondent has in mind a simple bed of earth with hot-water pipes round the frame to maintain the requisite temperature, I can state from experience that Strawberries cannot be forced successfully with any degree of certainty by that method. Very fine crops may be had in this way by the last week in May, but not much before in ordinary seasons. A peculiarity connected with the Strawberry is that when subjected to artificial pressure at a dull season of the year the roots must enjoy an equally high temperature with the foliage; unless they do, they are sure to become much drawn and weakened. In a properly constructed Strawberry house the pipes should be so disposed that the whole body of air in the structure is warmed, and the more pipes in moderation the better, as then none of them need be so strongly heated at any time as to engender a parched atmosphere. Strawberry growers are fully aware of this, and I know of one market garden where Strawberries are better grown in houses and frames than in most places, and where the houses being heated with flues the same are conducted to and fro underneath the stages, so that the heat from them passes upwards through the plants. The frames are all filled with tan, so as to give gentle bottom heat, the pots being plunged therein to the rims.

We grow here a considerable quantity of Strawberries in the manner suggested by "J. S. W.," and I can safely say that I never saw finer fruit than some which has been thus grown, as will be proved by the fact that we have obtained 10s. per lb. for Napiers in the first week in June. Not only was the fruit fine, but the crops were heavy in proportion—much heavier than could ever be obtained by pot culture. But we found, after repeated trials, that it was quite useless to attempt to get them in before the last week in May, for if fire heat was persistently applied in order to push them along, in spite of wind or weather, no great progress was made in a dull time, and the plants drew up so lanky, that keeping up the temperature would have so weakened them as to render them totally unfit to bear a good crop of fruit. All that can be done when the roots are in a cold body of soil is to take advantage of bursts of fine weather, keeping up a night temperature corresponding with the amount of sun heat experienced during the daytime. Then the plants come along sturdily, and gather strength as the season advances. It is just the same if the plants are in pots and stand on a cold bed of earth; they will not move along kindly in dull weather. But it would be very different if the earth in which the plants are set out was heated from below, if only very slightly. Then I feel convinced the plants could be pushed along, and good crops might be had in April at but half the labour usually incurred.

The watering of any number of pot Strawberries is, indeed, a heavy item, and I do not wonder that it should have occurred to some that this labour could be avoided by setting the plants out in frames. And so it may for late crops, but I would repeat that it will never do for early ones unless bottom-heat can in some way be applied. Strawberry growers do really need to hit upon some way of reducing the working expenses, for the returns are anything but encouraging of late. I never in my life knew good Strawberries to be sold so cheaply in May as this year. Good samples were actually selling at 3s. per lb., when they ought to have realised 8s. at least, and a large fruit salesman told me that he had some excellent fruit quite left on his hands; he could not sell it at all. This is a fact unparalleled in my experience. The worst of it is that there seems to be no prospect of an immediate change for the better.

J. C. B.

WATERING VINE BORDERS.

THE records of rainfall for the five months that have passed of the present year show a decrease from a great number of stations extending over a large area of the country; this should be sufficient to warn those who have Vines with roots in outside borders, that they may possibly be suffering from want of moisture. When we consider that the drought has extended from the middle of March up to this time, a period of three months during which the rainfall has in most cases been insufficient to thoroughly moisten the soil except for a few inches in depth, it will not be difficult to understand that deep-rooted subjects like the Vine should require some assistance from the watering-pot, and this question may be seriously entertained by those who have the care of Vines that have not been more than three or four years planted. In such cases the roots have not had time to get away from the newly-formed border, and they are probably near the surface in greater numbers than is the case with those of older plants. In every case where there is any doubt about the borders being dry provision should be made at once for giving them a sufficient supply of water to reach the roots down to a depth of from 9 inches to 12 inches, and the application should be repeated in a fortnight's time unless sufficient rain should fall in the meantime to serve the same purpose. Our outside borders have already been well watered, and we shall continue to keep them well supplied with moisture up to the time when the Grapes are ripe, *i. e.*, if the rain does not save us the trouble. It is rare for us to go through a season without having to water our borders twice at least. Ours are just now ready for a second watering, and if the present dry weather continues, we shall water every fortnight up to the middle of August. I may warn the inexperienced that mere driblets of water are useless. On a border moderately well drained, 30 feet long and 10 feet wide, from 350 gallons to 400 gallons would not be a drop too much. In the moist climate of Somerset we give considerably more than that, but then the condition of the drainage is known to be right, and from many years' experience we know what quantity our Vines are capable of bearing. In a general way I am satisfied that Vines do not get all the moisture at the roots which they could use up with advantage. No one need hesitate to use sewage water properly diluted if too strong, and if that cannot be had, guano water may be used at the rate of half an ounce of guano to every gallon of water, provided not more than 50 gallons are put on the border at one time. How often and what quantity of water should be given will depend also on position. If the border is narrow and raised, as some are, above the surrounding level, such a border will require twice the quantity of water that a wide border on a level with the surrounding soil would do. It is also desirable that Vine borders should be at once heavily mulched with some half-rotten manure put on 3 inches thick; it is a simple matter to draw the mulching to one side when the border needs water. I do not regard mulchings as a substitute for water, but they lessen the need of it if put on when the ground is moist.

J. C. C.

VINES AT LAMBTON CASTLE.

SINCE the time when Mr. Hunter exhibited his sensational big bunch of Black Hamburgh Grapes at Belfast the reputation of the Lambton gardens has been fully sustained by the fine fruit annually exhibited from them, especially Grapes, interest in the cultivation of which never seems to flag. Though these Vines have now attained an age such as usually sees their ability to produce big bunches passed, they still keep on yearly yielding grand crops, much of which is composed of bunches still larger than the generality of exceptionally strong Vines ever produce, even whilst in the flush of youthful vigour. The Vines in question in the wide lean-to range, and which have all on principally produced the Grapes which Mr. Hunter exhibits, have been planted fourteen years. They are planted inside close to the front wall, with full liberty for the roots going outside. The outside and inside borders for part of the range are equal in width—12 feet each—the remainder being a little wider inside. Outside and inside were made at the same time; for several seasons after the Vines came into bearing the extremities of the inside roots were annually lifted and new soil given them. From the first of their getting well hold of the soil, an amount of water was given such as Grape growers of the dry school would have thought might be expected to rot their roots; to most of the water applied a good deal of guano or other potent manure was added. How this treatment has agreed with the Vines the crops they have borne give evidence that cannot be mistaken. Early during the past winter the Vines in this range, in the houses containing a mixed lot of sorts, had all their inside roots lifted and new borders given them; in the house devoted to Muscats half the border was re made, the other half to be done next winter; when lifted these borders were found to be a complete mass of roots, much fuller than the outside borders, which they have always had the same chance of going into. When I saw them some weeks back Mr. Hunter allowed me to see for myself what condition they were in, and I found the roots in such quantities, running in all directions in the new soil, as one would scarce have expected to see in so short a time after the borders had been remade. It would be hard to find better evidence of the preference which

roots show for inside borders where they get all they want. Although these outside borders contain fewer roots, still the advantages of having them are equally manifest, as in their absence the liberties that have been taken with the inside roots in making the new borders would have told on the season's crop. As to the prospect of the crop this year, it is in every way equal throughout the entire range to what it has been on the different occasions on which I have now for a good many years had an opportunity of seeing these Vines; in size the bunches promise to be quite as big as they have been all along. The long-shoot system, originally begun in this range, is still followed, and the rest of the Vines at Lambton are now treated in the same way. T. BAINES.

SHADING PINES.

OPINIONS differ as to whether Pines should have little or much shading, but I think most cultivators will agree that over-much shading is hurtful; it is contrary to the conditions under which Pines are found naturally. Pine growing in this country is, however, necessarily artificial, a circumstance which renders it needful to resort to measures that would not be required under natural conditions, and the cultivator who aims at securing a full measure of success will shape his course accordingly. Many condemn shading as altogether unnecessary (except for a few days after the plants have been repotted), but this I consider an extreme view, because as good Pines have been grown under a judicious system of shading as without it. According to my experience a good deal depends on the position of the house or pits whether little or no shading is required; for instance, if the angle of the roof is so sharp that the sun strikes it with all its force, Pines grown in such a structure will require more shading than would be the case where there is a flatter roof. Again, the position of different houses vary; some are much more exposed than others. A house standing on an elevated situation and little sheltered by other structures would not require shading so early in the day or for so long a time as one more sheltered. When the temperature can be maintained without serious fluctuations very little shading is needed during the three hottest months of the year June, July, and August—and then it should be used only in the brightest weather. When I grew Pines I never used a bit of shading, except for newly-potted plants, but the pits were so situated that with careful ventilation I experienced no difficulty in managing the temperature. There was, however, nothing between the back of the pits and a paddock several acres in extent, so that if there was any movement in the external air, these pits had all the benefit of it: but if the same pits had been between or surrounded by houses the case would have been different, and I should most likely have been glad to resort to shading to keep down the temperature in bright weather. The Pines exhibited so frequently by Mr. Wilson when gardener at Castle Hill were grown under a moderate system of shading, and I think it will be acknowledged that the fruit which he placed upon the exhibition table demonstrated in a positive manner that his treatment was right. Those, therefore, who may be hesitating what course to follow need not fear to tread in his footsteps, provided they use the shading material in a rational manner. J. C. C.

Fruit crops in South Hants.—The prospect of abundant fruit crops enjoyed up to a late period in spring will not be fulfilled, except in a few cases. Up to the last week in April I never remember to have seen a finer show of blossom, every tree and bush being laden, but a long, protracted spell of cold winds and a drought of long duration have slowly, but surely, stripped off the young fruits that were apparently safe, and now we find more trees fruitless than the reverse. Plums, Pears, and Cherries that gave promise of extraordinary fertility are now the least fruitful of all, while Apples that flowered more sparingly have generally set well. Figs are abundant, and Walnuts promise well, while bush fruits are pretty good, and Strawberries plentiful, but suffering from want of rain. Fly and blight have been plentiful, and the majority of fruit growers have had to wash their trees frequently in order to keep them clean. The Apple is daily becoming more important amongst fruit crops in orchards, and bush fruits are decidedly one of the safest investments for market growers. I may add that Rhubarb was affected by some unusual kind of disease after it had started well into growth, and in April was scarcely procurable. It has now, however, recovered, and is growing freely.—J. G., *Hants.*

Thinning and shouldering Grapes.—Allow me to thank "W. I. M." for his kindness in answering my question as to wire for shouldering Grapes. As regards forked sticks, I may say that I do not rest contented with a Birch stick with a natural fork, as I presume your correspondent wishes me to understand he used at one time, and which I consider rather a clumsy tool; on the contrary, I make a neatly forked stick from a piece of good label wood, and I am satisfied that the bunch or shoulder may be held more firmly and brought into position more easily with this than with a pointed stick. I never find the fork in the way, as I always take care to make it small enough to avoid that.—JOHN C. TALLACK, *Prideaux Place.*

A house with a north aspect.—Having charge of a good lean-to house 100 feet long and 15 feet wide, with a north aspect, originally built and still used for the winter storage of choice vegetables, I would be glad of information as to what other uses it can be put, particularly with regard to fruit culture, for which it might be suitable. It is unheated, and, with the exception of four months in summer, gets little sun. It is still desired for winter vegetables as before. In summer I have been growing Tomatoes in it, but Peaches or Grapes would be more useful if it could be made available for their growth.—INQUIRER.

*** We think as the house is in a warm Surrey district, and no clay near, the panes large, and structure excellent, that it would make a good late Peach house, but shall be glad of our fruit-growing readers' opinion on the matter.—ED.

INDOOR GARDEN.

CHOROZEMAS.

AMONGST the large number of hard-wooded greenhouse plants in cultivation few are more effective than these, and what is important in their case is the ease with which they may be grown. The great bar to the popularity of the major portion of New Holland plants is that, although not always of really difficult culture, they require considerable knowledge of their nature and great attention to watering and other cultural details before they can be satisfactorily grown, and when a hard-wooded flowering plant does not get the treatment it requires, it presents an even more miserable appearance than soft-wooded plants do under similar circumstances. But almost all the Chorozemas are as easily grown as a Cytisus or any hard-wooded greenhouse plant of a similar free-growing nature, and with a modicum of skill and a fair amount of attention, they may be grown into attractive specimens. One error that many make with Chorozemas is in pruning back hard after flowering. They are impatient of the knife, and if cut in severely, they generally flower too sparingly to render them effective. When done blossoming, only about one-third of the wood made the previous year should be cut away, and as in this way the plants are apt to become lanky, they should be untied and a portion of the branches bent down as low as possible, tying them to sticks inserted round the edge of the pot.

AFTER PRUNING diminish the supply of water; water when the soil becomes nearly or quite dry, and give the foliage a good washing with the syringe, getting the water to the undersides of the leaves, as sometimes they are liable to be infested with red spider, which if allowed to work its will causes the foliage to drop. When young growths have pushed from the old wood and are an inch or so in length, any plants requiring more pot room may be shifted. Chorozemas are not so particular as to soil as many hard-wooded plants; they will grow well in good peat, and most of them will do equally well in light fibrous loam. The pretty little Henchmanni must, however, have good fibrous peat to grow it well, as it is rather a delicate-rooted sort, and not vigorous generally. It is a lovely plant, and worthy of all good care. Whatever soil is employed plenty of sand should be mixed with it, as it is very important that the soil be maintained sweet and free. If there is any doubt as to the quality of the loam, add some peat to it and increase the amount of sand. A little decomposed leaf-mould is an acceptable addition to the compost but it must be two years old and well sweetened, Give good drainage and pot firmly, using the soil in a moist condition, and avoiding heavy waterings. Young plants which are to be grown along as quickly as possible should be potted the first week in April, and be kept rather close for a time to encourage root action.

BUT BEWARE OF CODDLING at any time; it is the ruin of this class of plant. They like plenty of air in mild weather throughout the year, and are more impatient of confinement than almost any kind of flowering plant in cultivation. A little shade may advantageously be given on very hot days, but only just enough to ward off the fiercest of the sun's rays, for the greater portion of these New Holland plants inhabit regions where they get a large amount of sweet pure air and sunshine. When growth is completed, which it should be by the beginning of August, let the plants have the benefit of some six weeks' exposure in a sunny, but if possible rather sheltered place, so that the wood and foliage may become thoroughly ripened by winter. The sun, night dews, refreshing rains, and invigorating atmosphere of early autumn are just what Chorozemas rejoice in, and by the enjoyment thereof they gather a store of strength and vigour, which declares itself the following spring in a delightful show of lovely flowers. It is, indeed, only by a

SYSTEM OF GENEROUS CULTURE, combined with full exposure on the completion of growth, that the decorative worth of these fine hard-wooded plants can be realised. The difference between a sparsely-bloomed specimen and one crowded with flower is very great, for it is not so much the individual blooms, pretty though they are, which excite admiration as the effect which they produce in quantity. One species, viz., Hendersoni, is a valuable winter-flowering kind; it commences to bloom in December, continues to flower uninterruptedly through the winter, culminating in a blaze of colour in March. This is an excellent kind, and does not seem to be much known as a winter-blooming plant. The best kinds are cordatum, splendens, Lawrenceanum, varium, elegans, angulare, Henchmanni, and Hendersoni.

J. C. B.

IVY-LEAVED PELARGONIUMS.

As basket plants, Ivy-leaved Pelargoniums are of great value. They do well suspended in a cool greenhouse, where, if kept watered, they flower freely and continuously. In raised stone beds they are equally useful; when planted near the edges, the branches hang down over the sides and make a very effective display. They are also of great service for planting against low wooden trellises and for similar positions. By a little ingenuity they may be turned to good account in various ways and with satisfactory results. The following include the best double varieties in cultivation, viz, Abel Carrière, beautiful soft magenta, with dark pencillings on the upper segments, flowers of large size, bold and showy; Jeanne d'Arc, one of the finest varieties yet introduced, colour pale lavender-rose, large double flowers, extra fine: La Rosière, soft satiny rose, paler on the margins, very free and distinct; Congo, pale lilac, flushed with rose, very fine, free and distinct; Comte

Horace de Choiseul, rich rosy mauve, very fine, flowers very large and fully double; Madame Crousse, delicate rose, very pleasing, the upper petals marked with maroon, very fine, but not so fully double as some others; and Eurydice, bright rosy mauve, shaded red, flowers large and very double, extra fine. All the foregoing are well adapted for growing in pots as specimens for exhibition and decorative purposes.

The following are characterised by a good trailing habit of growth, and are therefore suitable for culture in beds or for baskets against trellises, &c.—viz., Gloire d'Orleans, rich crimson-magenta, flowers very double, and produced with wonderful freedom, habit dwarf and short-jointed—this is one of the most valuable varieties in cultivation; Mons. Pasteur, rich magenta, very fine and striking, excellent habit; Mrs. Moore, white, bordered with lilac and crimson, very free, and excellent habit; Galilee, beautiful soft lilac, very pleasing in colour; A. F. Barron, lilac-rose, flowers large and very full; Madame E. Gallée, pure white, very large and double, one of the very best; Astrée (Lemoine) a new variety of a very pleasing shade of lilac-purple, extra fine; and Perle, soft lilac, very pleasing, a fine double variety of great beauty.

Some of the single-flowered varieties are very pretty, though they are less durable than the double forms; but to many they possess more grace and beauty than do the latter. A few of the best will be found in Masterpiece, which produces trusses of large size, the flowers of a beautiful rich magenta-crimson; Beauté de Lyon, bright purplish scarlet, large trusses, very fine, free and effective; Madeline Reiterhart, cerise-pink, very fine trusses; and Mrs. H. Cannell, deep mauve-purple, large trusses, very fine and striking.

R. D.

RAISING SEEDLING PELARGONIUMS.

WITH regard to Mr. Murphy's inquiry about Pelargoniums (p 490), I may say that I have been in the habit of raising seedlings of the florist section for many years, and have been pretty successful on the whole (witness Maid of Kent and Dresden China), but it is very rarely indeed that any bloom under a year from the sowing of the seed. I have had plants in bloom in October from seed sown in March, but it is quite exceptional. My practice is to sow in March in seed-pans in fine soil. The seeds are placed 2 inches apart. For each seed a small hole is made an inch deep with the end of a pointed stick; the hole is then filled with silver sand and moistened. Take the seed by the feathery appendage and press it into the sand half way down, cover slightly with fine soil, place a piece of glass over the pan, and put it in a cool greenhouse; hardly a seed misses. When two leaves are developed, prick off into 3-inch pots. As soon as these pots are full of roots, pot off into 5-inch pots in soil not too rich, and plunge in Cocoa-nut fibre in a cold frame till there is any danger of frost, when they must be removed to a greenhouse. The plants are thus kept sturdy and robust and flower about thirteen months after the seed is sown. They want plenty of water, and must be kept clear of green fly. I cannot understand how Mr Murphy has "no difficulty in saving seed," unless he allows bees to get at the flowers then, good-bye to successful hybridising. I never allow an insect in the house where I keep my plants for hybridising, and to get a seed at all have to use the pollen artificially. If a bee finds its way in, all the blown flowers will drop their petals, and any amount of useless seed is the result. For the summer I have a second door to the house, covered with fine thread netting, so that the outer door can be left open for ventilation. Every window which can be opened is covered in the same way, and, practically, I never see an insect inside the house, unless one happens to be bred in the plants. I have said the seeds are to be sown separately 2 inches apart. This is in order that the young seedlings may be transplanted without any injury. In fact, they do not feel the removal. In saying "where two leaves are developed," of course I mean two "rough" leaves, not the cotyledonous ones. If raising striped-flowering Pelargoniums the seedling plants should never be watered with manure water till they have bloomed. A high diet will cause the flowers to become "selfs," as is often the case with Carnations, and it is well to keep such seedlings for a second bloom, as they will sometimes break like a Tulip.

Windermere. A. RAWSON.

LESCHENAULTIA BILOBA MAJOR.

ALLOW me to thank Mr. Balchin for directing attention to the merits of this Leschenaultia, of which it may truly be said that no fairer flower has ever been grown in English gardens. Nothing can better illustrate the folly of fashion in gardening than the neglect into which so many lovely hard-wooded plants have fallen of late, and of which this pretty blue-flowered Leschenaultia is a noteworthy instance. Speaking on this subject to a good plant-grower lately, and deploring the fact of so many fine hard-wooded greenhouse plants being so neglected now-a-days, he remarked that many fail to grow them satisfactorily, and therefore prefer other things which are equally showy and which give less trouble to manage. I am afraid that in this statement there is much truth, and that the plants which were the pride and glory of a bygone generation, and which were the main tests of cultural ability, have had at last to yield place to others which, although they may exceed them in mere showiness, can no more compare with the choicest hard-wooded plants in intrinsic merit than a Paris Daisy can compare with a Camellia. Take, for instance, Erica Cavendishi, Pimelea spectabilis, or Chorozema Henchmanni; what soft-wooded plant can excel these in attractiveness? and there is just sufficient difficulty in their culture to impart a zest thereto and to render a well-grown specimen a thing to be justly proud of. Let us hope that ere long such plants as these will again take the place to which they are entitled. With respect to Leschenaultia biloba, anyone may grow it who will give it good peat with plenty of silver sand in it, good drainage and abundance of pure air, avoiding drought, overwatering, and overpotting. Coddling is often the cause of failure in the culture of this plant, and the same may be said of L. formosa and Baxteri, both lovely plants when well managed, and indeed of the large family of New Holland plants generally. It is useless attempting to grow them in stuffy lean-to greenhouses; they pine there and ultimately die. An airy span-roofed structure is the place for them, but better still a frame where they can get the full benefit of the soft shower, balmy breeze, and strengthening sunshine. J. C.

Byfleet.

Begonia Lynchiana—A coloured plate of this Begonia was given in THE GARDEN last year under the name of B. Roezli. It appears that a Begonia Roezli had been in existence long before the introduction of this new kind, and Sir Joseph Hooker has therefore altered the name of the latter to B. Lynchiana, in compliment "to the indefatigable superintendent of the Cambridge Botanic Gardens, who has raised that establishment to a high degree of scientific value and of beauty." Mr. Lynch was exceptionally successful in the management of this Begonia, some of his plants bearing panicles of rich red flowers almost a foot in diameter. Along with our figure of this plant will be found the details of Mr. Lynch's mode of culture, and to this we refer those who would wish to become acquainted with the character and requirements of what is unquestionably one of the very finest of winter flowering Begonias.

A NEW WORK ON BRITISH FUNGI, with illustrations by Mr. Worthington Smith, is about to be published by Messrs. Blackwood. It is to be in two 8vo volumes, and will contain full descriptions of all British Hymenomycetes (chiefly Agaricini, Mushrooms, and Toadstools), with habitats, seasons of growth, &c. Edible and poisonous species will be specially noticed and commented on.

GARDEN FLORA.

PLATE 416.

LÆLIA ANCEPS AND VARIETIES.*

NEARLY fifty years ago Lælia anceps was quite a favourite with the Orchid growers of a past era, and if perchance they possessed in times past the darker tinted form, which first flowered with the late Mr. George Barker (a noted Orchid amateur at Birmingham, who died in 1845), they were quite content, since these were for many years the only two varieties in cultivation. The typical Lælia anceps is well known in gardens. There are portraits of it in *Paxton's Magazine*, vol. iv., t. 73, and in the old *Botanical Register*, t. 1751, and also in the *Botanical Magazine*, t. 3804, The perianth segments are lilac-purple, the lip being blotched with crimson-purple at its apex, and streaked also with lines of purple within a yellow throat. Its flowers are produced in January, two to six on a slender arching stem, and that they last in beauty for several weeks is an additional recommendation. The variety known as Barkeriana is figured in "Flore des Serres," t. 1100, and in the *Botanical Register*, t. 1947, and it is also represented in the centre of our present coloured plate (see No. 5). As we have already said, these two forms represented the plant in our gardens for many years, but in 1868, or perhaps it was in 1867, Mr. Dawson, of Meadowbank, was lucky enough to bloom a lovely variety having a white perianth, and the lip also white, but blotched and lined with purple. This variety was so distinct from its congeners, and came so unexpectedly into notice, that it excited a good deal of attention, and, like other beauties, it received much flattery at the time from artists and gardeners alike. It is the No. 1 of our plate, and is even yet as rare as it is beautiful. After the advent of this pale beauty Orchid growers felt satisfied, and all of us thought that as in Lycastes, so in Lælias, we had reached the *summum bonum* of our desires. Now, although Mr. Dawson was the first to flower the variety, which will long remind us of his name, it was really introduced by that veteran Orchid importer, Mr. Stuart Low, of Clapton, and he made no secret of its having been discovered by his collector, Mr. Tucker. We were all quite satisfied, and paid court to the new beauty, seeing that she was the princess of her race; but one fine morning Mr. Bull, of Chelsea, met us with that mysterious courtesy which is his manner when he desires to impress one with the sterling value of "a grand new thing;" and then we were ushered into a private Orchid house, and enjoyed an introduction to a pure white Lælia anceps, the one now known, but by no means abundantly so, as L. anceps alba. Reichenbach the younger in describing this new form in January, 1879, says that "a word to recommend such a variety might be like carrying owls to Athens." It is simply a spotless beauty—a sort of Galatea among flowers—although a botanist might say that it is simply an albino—a milk-white roe instead of a mottled hind. This variety is not represented amongst the bevy of beautiful forms on our plate, but if you will please look at No. 2 in our coloured illustration and imagine those few little streaks of colour absent from the lip, you will get a tolerably correct idea of what Lælia anceps alba really is. Since the year 1879,

* Drawn from plants in the collections of Baron Schroeder, The Dell, Egham; Mr. Lee, Downside, Leatherhead, and Mr. Percival, Birkdale, Southport.

however, large quantities of the typical plant have been imported from Mexico, and among them other varieties (pale, flesh, or rosy) have appeared; indeed, since the date named we have averaged at least one new form every year. Of these L. a. Percivalliana is distinct and effective, its perianth segment being white, delicately flushed with rose of the tenderest hue, while the lip margins are heavily painted with vivid violet-purple, and there are also some purplish streaks and dots on the disc or in the throat, as shown in our sketch No. 3. L anceps rosea is also a very milk-white flower, its lip margins only being suffused with rosy lilac, and again there are a few streaks on the golden disc of the lip. Lælia anceps Hilli is another dainty form, smaller and more shapely than is the rosy variety last alluded to, and the lateral lobes of the lip are more fully expanded, being snow-white with a lilac bordering. The last variety illustrated at No. 7 in our plate is L. a. Veitchi, which has white perianth divisions, now and then with the slightest suspicion of rosy flushing, and the largely developed lobes of the lip are of a soft lilac tint, delicately pencilled with purple in a way which reminds one of the pencilling of that rare old Cattleya maxima, now, alas! so rarely to be seen.

The accompanying illustration is as instructive as it is interesting, showing, as it does, at a glance the main distinctions of form and colour which exist in the case of this old-established species of Lælia in our gardens. The range of colour in Orchids is most perplexing, but at any rate it is quite safe to assume that of any species of Orchid having rosy purple blossoms we may hope at some time or other to obtain pure white or albino forms. This has been verified already in Cattleya, Lælia, Lycaste, Maxillaria, and Odontoglossum, and also in Dendrobium and Coelogyne. Nearly all Orchids have a golden or yellow blotch on the disc of the lip, and this very rarely vanishes entirely, but in the case of Dendrobium Dearei the blotch is of a delicate green colour, reminding one of the colour on the petals of a Snowdrop; indeed, there doubtless is a deep-laid law or principle here which seems like the lingering of old memories, since no doubt all blossoms were originally green, and then developed upwards in the colour scale, through yellow, white, rose, red and purple, until the highest note in flower colouring is struck in that sonorous chord of "true blue," which is as yet so rare. No less an authority than Grant Allen tells us that blue is emphatically the highest note in floral colouring, and so we now know the reason why the "florist proper" has sighed so long for blue Dahlias and for blue Roses, and by the same token since geologists tell us that Orchids are very modern among flowers generally, we can all the more readily understand why green-flowered species are so common among them, and why blue as a colour among their blossoms is as yet so rare.

F. W. B.

Deutzia gracilis after flowering.—It is a mistake to place plants of these in the open air immediately after blooming, as some do. They should remain in the greenhouse where they have flowered until they have made their young growth, and then they may be placed in the open air to ripen it. Mr. Hudson, of Gunnersbury House, has some of the finest plants we have seen of this Deutzia, and this is how he treats them. They make a luxuriant summer growth, and are covered with blossoms in spring. It must surely be a mistake to take plants from a warm, moist heat in April, as some have done, and without subjecting them to any intermediate stage, so as to harden them, to stand them out at the end of April exposed to all the rigours of the easterly winds and cold nights we have invariably to experience at that season of the year. Therefore it is best to keep them in warmth to make their growth, and then expose them to ripen and mature it.—R. D.

SEASONABLE WORK.

FLOWER GARDEN.

GOLDEN MONEYWORT.—This is a yellow-leaved sport, obtained from the common Moneywort which grows wild in British meadows; hence it may justly be classed as a weed, but it is also an excellent plant for moist and shady places in the rock garden, and for carpeting the ground beneath the taller plants, the appearance of which is improved by an undergrowth of deep golden yellow, a colour which this plant retains throughout the season. We have used it for edgings and groundwork in the open flower garden, but, being a shade-loving plant, it gets rusty in bright, sunny weather, and is therefore not to be relied upon for such positions—at least not in the southern counties; northwards it would no doubt prove as useful for this purpose as it does in the south for undergrowth and rockwork. It is readily propagated by division at any season of the year.

SHRUBBERIES.—Owing to the multiplicity of operations that at this season demand attention, shrubberies are apt to get neglected, and Nettles, Thistles, Dandelions, and other weeds allowed to run to seed. Of course, this only happens in places where labour is restricted, and where something must be left undone; though, taking into consideration the after-consequences, such weeds as these should not be overlooked, for even if time for hoeing or hand-weeding cannot be spared, they may very quickly be prevented from seeding by roughly going over them with a rip-hook till such time as proper attention can be devoted to the work; then the plants should be cleared of all seed vessels and dead branches, irregular growths shortened back, and suckers removed. Clematises and other climbers should be secured to their supports. Ordinary Pea sticks, placed in a slightly leaning triangular form, make excellent supports for shrubbery climbers. Lately moved plants should be re-mulched, and if necessary soaked with water. Turf verges should be closely cut, and any vacant spaces near the front planted with such biennials as Snapdragons, Canterbury Bells, and Sweet Williams.

MIXED FLOWER BORDERS.—The most showy and most useful flowers on our borders at the present time for vase furnishing are Pyrethrums and Columbines, the yellow and bronze-coloured flowers of the latter being the most novel and pleasing. The Pyrethrums, both single and double, range in colour from deep crimson to pure white, and in a cut state keep fresh for a longer period than any other flowers with which we are acquainted; their merits are such as to justify their extended culture. These and many others now need staking and tying, but it should be done as loosely as the safety of the flower-stems and plants will admit of. Weeds should be kept down and the surface soil broken, particularly about Dahlias, Hollyhocks, and sub-tropical plants lately planted for autumn effect. Old-established plants do not need these details of culture; indeed, many thrive best when left for years in an undisturbed state or with only such attention as to curtailment of growth as shall prevent their injuring adjoining plants. As is the case with many plants this year, Asters, Stocks, and Phlox Drummondi are suffering from the attacks of aphides; they should therefore be syringed with soap-suds two or three evenings in succession, and then well washed with clear water. Owing to the dripping weather, slugs are also extra active, especially amongst annuals; the best bait for them is bran, to which they go readily, and may be caught in the act of feeding any time after dusk or very early in the morning. Plenty of soot and lime thrown about does much to keep them at bay, but rain soon renders both inoperative; hence our partiality for the bran baits.

GENERAL WORK.—This consists in pegging down bedding plants and freeing them from useless flowers, mulching with Cocoa fibre the smaller plants, and keeping the ground about the larger kinds open by frequent stirring. Calceolarias, Violas, and Verbenas enjoy a rich mulching of cow manure or horse droppings; such coverings keep them in vigorous growth and bloom during the hottest weather. Clipping edgings and groundwork of Sedums, Herniaria, Mentha, and the like will also now be engaging attention, also turf edgings and verges, mowing, weeding, and after rain rolling walks.

INDOOR PLANTS.

CLIMBING ROSES.—Where Roses are trained on the roofs or back walls of conservatories or greenhouses they are often found to thrive well for a few years and then to get into a stunted, weak condition, making little growth, and equally unsatisfactory in flowering; frequently the cause of this is an insufficiency of manure regularly applied as the roots exhaust it. When Roses are grown under glass, the extra warmth they receive, and the consequently much longer period in each year they are kept on in a growing state, tend to tax the roots proportionately more, and unless the soil is kept constantly supplied with the requisite enriching materials the growth necessarily becomes weak, rendering the plants an easy prey to insects that invariably attack weak growth. Another cause of insufficient bloom is the want of enough thinning out of the weak shoots, whereby the energies of the plants, instead of being directed to the support of a moderate number of shoots that would grow to a size able to produce a crop of flowers, are spent in the production of weak, useless wood unable to bloom. Roses when grown indoors, as they are in the open air, are gross-feeding plants, that, moreover, generally are subjected to a free use of the knife, and to avoid their getting into the condition described must have very much more manure given them than would be sufficient for almost and other kind of plants cultivated under glass, any after the principal flowering is over they should have all the useless wood cut out and a considerable portion of the old strong shoots annually well shortened back; in this way they make through the summer new wood that will not fail to flower the ensuing season. With that favourite climber Maréchal Niel it is more necessary to follow this treatment yearly than in the case of most others. One of the most successful growers of this variety, who has the roof of a very large house completely covered with several plants, cuts them all back each spring after blooming almost as close as Vines in winter after they are pruned. As regards this splendid Rose, under all conditions, either where grafted, budded, or on its own roots, it is so short-lived, that it becomes necessary to put in young plants at intervals of three or four years, so that they may take the place of those that go off. In winter, before growth begins, is the best time to add new soil and manure, but where the plants are at all weak they should now at once be assisted by heavy top-dressings of manure, over which for appearance sake 1 inch of fine soil may be spread; this will be washed down to the roots in the process of watering, which, with diligent attention as regards keeping them clear from insects, will maintain the requisite strength.

PELARGONIUMS.—Zonal varieties wanted for flowering in winter should be so treated as to insure the pots getting well filled with roots, and the whole growth thoroughly matured before autumn; this is of much more consequence than studying to get the plants large, as if at all in a soft, over-vigorous condition they will run off to leaf-growth as soon as subjected to warmth in place of flowering. To avoid this, all young stock for winter blooming should be at once moved to the pots they are intended to occupy and free growth encouraged, after which they ought to be placed out-of-doors in an open situation under the full influence of the sun, and kept there until there is danger from frost. The earliest flowered portion of the stock, such as the London market

growers cultivate, should as soon as they have bloomed be fully exposed out-of-doors, so as to ripen up the growth previous to heading them back; if this be done in good time they will break into growth, and can be repotted sufficiently early to admit of their gaining the needful strength before autumn.

SALVIAS.—These, if grown in pots, ought to be moved into those they are to flower in; the size the plants are required to grow to will determine the amount of root room they should have. The pots ought to be plunged in ashes, choosing a position where they will be sheltered from rough winds, but still where plenty of light will reach them; stop the shoots as often as may be found necessary, and never allow the plants to want for water, otherwise the foliage is sure to be injured.

AZALEAS.—The growth of these must now be regulated. If those that flowered first are wanted to bloom next season earlier than hitherto, and the buds are not yet prominent, they must be kept for some time longer in a house or pit in which a close atmosphere can be secured in the after part of the day by closing the ventilators early. Such plants as bloomed later should now be encouraged to make growth by placing them where a sufficient temperature can be kept up. Syringe freely every day when the house is closed to keep down thrips, and if these or red spider cannot be kept under by syringing with clean water alone, the plants should be dipped or syringed with Tobacco water, which, although taking more time than fumigating, is nevertheless much preferable, as we have never been able to use as much Tobacco smoke as would destroy the thrips without injuring the leaves. All that have bloomed late and are in want of more root room should now have a shift. Azaleas do not begin to make root until after they have pushed a good amount of shoot growth, and just after this has commenced is much the best time to pot them. They do with considerably less root space than most hard-wooded stock, but like to be encouraged either with manure water or some of the concentrated manures now so much used.

OLEANDERS.—The individual blooms of these easily-grown plants much resemble those of perpetual flowering Carnations, and are little inferior to them for cutting, a purpose for which they are in every way adapted. Their erect habit of growth is somewhat against them, but where large, well-furnished specimens exist with suitable treatment they can be turned to good account. Large examples of this description should now be placed out-of-doors in a sunny position, where their further growth will be somewhat checked. If treated in this way, and supplied with water enough to enable their bloom buds to set, shoots taken off with about half a-dozen joints will strike readily and make nice flowering stock in 5-inch or 6-inch pots. Young plants propagated from small shoots and grown on in little pots should now also be fully exposed to the sun in the open air. Unless Oleanders are so managed there is no way of insuring their blooming satisfactorily, as they keep on growing and do not get their growth properly ripened. Medium sized examples that have bloomed late and that are required to be kept low and bushy may now be well shortened back, and as soon as they have broken afresh should, if necessary, receive a shift. They will thrive in any kind of soil, but moderately strong loam seems to encourage a disposition to flower.

CAMELLIAS.—The earliest flowering plants are best grown in pots, as thus treated they can be moved about as occasion requires in order to accelerate or retard their blooming. Any that have already got their buds as far advanced as may be desirable should be placed in cooler quarters, but until in this condition they must not be moved out of warmth, as when once the excitement consequent on their being in heat is stopped they will not bear forcing subsequently; therefore, it is well to note their condition. All that had their growth retarded by late flowering should have sufficient shade to protect their young tender leaves from sunshine. Syringe freely once a day, and see that the roots are kept well moistened, a matter to which it is necessary to pay particular attention.

TABLE PLANTS.—Plants naturally fit for use in this way are by no means plentiful. As a rule these disposed to keep to a single stem, such as the smaller-leaved Aralias, Palms, Draccenas, and others of a like character, are the most suitable, and when too large for this purpose there should always be sufficient successional stock to take their place. Amongst Pandanus, P. Veitchi is most liked; where plants of it are nicely variegated and not too large it is very effective, but, owing to its being unable to live out of heat except in summer, it is not so useful as others more hardy. It is, however, easily increased, as it produces suckers freely when it has attained a moderate size. It is not well to allow the suckers to get too large before taking them off from the old plants, as if their leaves have got long and erect, they never make such good examples as when struck small. Suckers will root freely treated in the way in which Pines are managed; slip them off from the parent plants, strip a few of the bottom leaves off, and insert them in small pots filled with ordinary loam, with or without bottom heat. There are one or two other species that answer well for this kind of decoration whilst in a small state, of which P. javanicus variegatus and P. Vandermeerschi are the best; they require similar treatment to P. Veitchi.

CUTTING BACK HARD-WOODED PLANTS.—There are some hard-wooded plants that require a free use of the knife every season immediately after they have done flowering, otherwise they soon get into such a loose, straggling state as to be worthless. Amongst these are Polygalas, Pimeleas, Dracocephalum gracile, Epacrises, Tetratheca verticillata, Diosmas, Correas, Acacias, and others possessing a similar habit—plants, in short, that annually make shoots of considerable length, and which, if a good part is not well cut back, cannot be kept within bounds. From one-half to two-thirds the length of shoots made last summer should be removed, after which the plants ought to be encouraged to make growth by placing them in a house or pit where they can be kept closer than in an ordinary greenhouse and be syringed overhead in the evenings.

SOLANUMS.—The berry-bearing kinds of these are most useful when managed so as to induce them to come on in succession. If a portion of the stock has been treated as already directed, they will now be furnished with fruit that will have sufficient time to become fully coloured by the end of September, from which time to the close of the year they are most serviceable for associating with the comparatively few flowering plants that can then be had in bloom. Those later in flowering will follow the first, and if well attended to, will colour their berries towards the close of the year. To have these Solanums in presentable condition, their leaves must be in a healthy green state, as if at all deficient in this respect they are uninviting in appearance; to insure this, as the pots are now full of roots, they must have unremitting attention in the way of supplying water, and they should also have liquid manure once a fortnight.

KITCHEN GARDEN.

THE cutting of Asparagus must soon be stopped, and the beds will be much benefited by a good soaking of manure water. Beds that have been much cut should now be encouraged by every means to make good growth, for on this depends their ability to keep up in years to come their producing powers, both as regards quantity and quality. Asparagus often gets worn out much sooner than it otherwise would do through suffering neglect after cutting has ceased. Advancing crops of Carrots should be again looked over to see that they are not left too thick, especially the main sowing. Turnips also will require attention in this respect; few crops suffer so much as this if allowed to stand too closely together, as when in this state they run to leaf, forming bulbs that are not only small, but very poor in quality. Thin the main crop of Beetroot before the plants get so large as to interfere with the growth. Some Colewort seed should now be sown; these will be useful for planting thickly late in the season after other crops are cleared off. Where dwarf French Beans are held in particular estimation a few more may at once be sown; these should occupy a south border, under the shelter of a wall, where, by a slight additional protection from September frosts, they will frequently go on bearing longer than those grown on more open situations. Autumn-planted Cabbages that have been cut and the stools left to produce a crop of sprouts should, where the land is at all poor or of a light character, have a good soaking with manure water, by means of which, in addition to thinning out the shoots to some two or three to each stool, they will make small, useful heads, that will come in through the autumn. Keep the hoe going on all favourable occasions amongst advancing crops of every kind.

FRUIT.

VINES.—When all the Grapes have been cut from the early Vines, examine the inside borders, add a little fresh mulching if they have suffered from the weight of the crop, and keep the roots moderately supplied with diluted liquid to start a flush of laterals, but guard against carrying feeding to an excess that will force a vigorous growth, and so exhaust the Vines after the wood is ripe. Keep the strongest laterals pinched to balance the flow of sap, and preserve all the old foliage by good syringing every evening, or as often as the state of the weather may render atmospheric moisture necessary.

SUCCESSION HOUSES in which the Grapes are ripening may have more air by night and by day, with just sufficient fire-heat to keep the minimum temperature at 60°, and when the berries have attained their full size, the afternoon closing may be discontinued, particularly where the colouring process is not going on satisfactorily. If this house contains Madresfield Court Muscats, see that the borders are moist, but not wet, mulch well with some loose non-conducting material, and allow all the laterals and leaders to grow until after the Grapes are cut. The biting north and east winds having kept the external temperature so low as to necessitate sharp firing, spider has become more plentiful than agreeable, and so rapidly does it spread under the bright and now powerful sun that vigorous measures must be taken for keeping it in check. As almost everyone dreads the use of sulphur, timely sponging with soapy water, the application of clean soft water through a good syringe every night where it can be applied without touching the Grapes, and generous culture, separately or combined, while helping the crop will tell most decidedly against the enemy.

LATE HOUSES.—Muscats, Lady Downes, and other kinds which frequently scald during the stoning process must be closely watched until they are considered safe. Up to the present time the weather has not been too warm, and constant firing to maintain a medium temperature has been favourable to the Grapes, as we have not had sudden fluctuations; but any rapid change or disturbance of the atmosphere may bring on the usual fermentation of the pulp surrounding the kernels, in which case it will be well to continue a high night temperature, with diminished atmospheric moisture to prevent the berries from getting cold, and to maintain a steady heat of from 76° to 80° through the day, by keeping the pipes warm, and by increasing or decreasing the ventilation.

MELONS.—A few seeds of favourite kinds may still be sown and grown on in pots for filling up the different compartments in which fruit is now swelling off and ripening. All the green-fleshed kinds do best when plunged in fermenting material placed over the bottom-heat pipes, as the roots are then entirely under control, and a flush of fire-heat when they are in flower will always insure a good set, and a continuous circulation

when the fruit is ripening will greatly enhance the flavour. For standing on kerbs in Pine stoves, or where it is inconvenient to plunge, we always give preference to scarlet-fleshed kinds, as they can stand more dry heat and are less subject to red spider. They, however, require more feeding from the first, and to counteract the drying influence of hot-water pipes over which they are often placed, shallow trays made of wood and about 2 inches deep are placed under the pots for the reception of a few handfuls of rich compost and the partial retention of liquid manure as it passes away from them. We mention trays advisedly, as roots ramify and feed better in them than they do in saucers in which the liquid remains and soon becomes stagnant. An old Melon grower has said that all Melons are good when properly grown, and he might have added three-fourths of the Melons now sent to our shows are so thoroughly changed in colour and character, that they cannot be recognised by their raisers. Change of colour is, of course, due to the presence of two or more kinds—perhaps not in the same house, but in the same garden—and deficiency in flavour may generally be traced to an excess of cold water about the roots through the swelling stage and want of bottom-heat when the fruit is ripening. If the grower of Melons would guarantee a true stock, he must not grow more than one kind. If he would have his fruit always good he must hold the elements of heat, air, and water entirely under his command, and the latter condition is in no other way so certainly and easily secured as by the adoption of the pot system.

CUCUMBERS.—Where the bottom-heat is obtained from hot-water pipes and fermenting material combined, the latter should be renovated with fresh fermenting leaves when the plunging thermometer denotes a fall to 80°, and the night temperature of the house cannot be maintained without having recourse to sharp firing, at all times injurious to a moisture-loving plant like the Cucumber; but never more so than when the powerful midsummer sun strikes suddenly upon the roof before the pipes have had time to get cool. If the pots or beds are well drained it is hardly possible to over-water, or to give the foliage too much atmospheric moisture, provided the liquid for the one and the pure water for the other is applied at or a few degrees above the mean temperature of the house. As the plants will now be producing fruit at every joint, overcropping must be carefully avoided, at least if they are to be kept on bearing throughout the summer; but where they are shortly to be removed for Melons a flush of fruit may be taken before they are destroyed. Where manure is plentiful, and frames which have been used for forced vegetables are now at liberty, a few lights under good management will give an abundant supply of excellent fruit until the early autumn-sown plants come into bearing. Instead of pulling down and rebuilding the beds, we dig out a trench 2 feet in width the whole length of the frame, a little nearer to the front than to the back, fill in with a few barrow-loads of the best fermenting material we have at hand, and turn the plants out on small mounds of maiden loam. A new lining is placed to the front; we cover early every night, and adopt the market grower's system of shutting up about 3 p.m. with sun-heat and plenty of moisture. If straight fruit is required, glasses may be used.

NOTES FROM WILTON HOUSE.

AT Wilton House much that is instructive and much that is uncommon may be found. I do not, however, wish it to be understood that the gardens, long under Mr. Challis's care, are unique; there are plenty of places where there is more glass and more valuable plants, but there are none with which I am acquainted where, under great difficulties, the demands of the establishment are better understood and anticipated. The position is much too low and flat for horticultural work to be carried on with advantage. For instance, although a good and convenient water supply is what we all desire, we should not care to have much of our soil water-logged, with its inevitable ill effects on everything planted in it.

GRAPE GROWING, though not exactly a speciality at Wilton, is an important matter, and the crops before they are greatly interfered with are well worth a long journey to see. The earliest supply is obtained in low half-span-roofed forcing houses, the Vines being rooted in small inside borders. In one compartment they are planted in a mixture of brick-bats, mortar rubbish, large bones, and charcoal, not a particle of soil being added, and in this extraordinary mixture they seem to be quite at home. They were in May carrying heavy crops of well finished bunches, and have done so previously for fifteen years: in fact, both the wood and the produce were, in my opinion, superior to those of Vines growing in ordinary borders in the next compartments. They receive abundance of water at the roots, and were at one time annually top-dressed with good manure, but the latter has been discontinued without any apparent injury being sustained by the Vines. Mr. Challis has had the dreaded Phylloxera to contend with, and has apparently successfully stamped it out, not, however, without destroying the infected Vines and clearing out the borders, besides taking other well-known precautions. There is a winged form of this pest which is capable of travelling many miles; therefore, none of us can be sure that we are safe from its attacks. As may be expected, every imaginable experiment was tried before total destruction of the Vines was decided upon, but nothing short of total immersion of the borders for a space of three days proved effective, and which may be safely done when the roots are not in an active state. In order to accomplish this the borders must necessarily be enclosed tank-fashion, and this idea has assumed a practical shape at Wilton. The last house replanted has two borders, thus enclosed within cemented walls and floored; therefore, Mr. Challis is able to thoroughly saturate them whenever that may be desirable either with pure water or with liquid manure, and without the aid of watering-pots. Some of the vineries previously overrun by Phylloxera have been replanted for four years. There are now no mixed houses here—that is to say, each variety has a house to itself. There are compartments respectively filled with Black Hamburgh, Madresfield Court, Muscat of Alexandria, Mrs. Pince, Lady Downes, and Black Alicante, and a more even or better lot of bunches in every case it would be difficult to find. Particularly good are the Muscats of Alexandria, not merely on the roof, but, what was more astonishing, also on the high back wall. Throughout the house the set was perfect, owing partly to the perfect health of the Vines, and also to a perfect system of ventilation. Much more air is admitted both on the front and top of the house than I have been accustomed to see given, and I must confess to feeling slightly staggered at the results. Probably there is no house of Mrs. Pince Grapes in the country to equal that at Wilton. The bunches are generally long, tapering, and evenly set, and the foliage much more robust than is usual with this Grape. That they will colour well and be of first rate quality I have not the slightest doubt. Madresfield Court, again, is remarkably fine, and cracking seldom occurs, this, as in the case of Mrs. Pince, being probably partly due to the free ventilation. Black Alicante and Lady Downes are both in grand condition, and the former especially succeeds admirably on the by no means greatly favoured back walls. It is true the houses are lofty, and this also may account for the success which attends the pot culture of Tomatoes along with the Vines. Strong single-stemmed plants of Vick's Criterion are placed at a good distance apart along the back wall of one vinery, and although they do not have the benefit of much light or sunshine, yet they bear heavily for several months. Probably but few other varieties would succeed in such a position, and it ought to be added that it is from the laterals that the fruit is taken.

THE PEACH HOUSES, both as regards construction and the rapidity with which they were furnished, are probably unique. They form part of an extensive range, are three-quarter span-roofed, and about 15 feet high at the ridge, which is directly over the pathway, the back walls being 12 feet high. The trellises are led across the house; they extend to the roof and over the pathway to the back wall. They are about 5 feet apart, and in nearly every instance are covered with one plant. Mr. Challis now regrets that he did not have double trellises with the trees planted back to back, those experimentally planted singly having succeeded so well. The plan of having double trellises is much more economical than the ordinary curvilinear trellis, although the back walls are in both cases furnished with trees. With this method of training, however, the houses must be lofty, otherwise the trees near the front would require extensive stopping and frequent root-prunings to check strong growth. The trees planted at Wilton were maidens—that is to say, had made but one shoot from the bud, and had not been pruned. These the first season formed excellent branching growth, were cropped freely the next summer, and continued to spread and bear well, so that in about three seasons the whole of the trellises were well furnished. The first to be gathered was Early Beatrice, this being followed by Early Louise, both rather small sorts. At the time of my visit the invaluable Hale's Early was fast ripening, abundance of air being admitted, and other varieties spoken highly of were Dr. Hogg, which was extra fine, Stirling Castle, and Grosse Mignonne. Amongst Nectarines were Lord Napier, Rivers' Orange, and Elruge. Mr. Challis is fond of Royal George, Noblesse, Exquisite, Walburton Admirable, and Barrington Peaches, and Violette Hâtive, Pine-apple, and Victoria Nectarines for late work, the varieties ripening in the order here given.

PINE-APPLES are grown in the simplest manner imaginable, yet with the best results. A long narrow span-roofed pit about 100 feet long, with hot-water pipes for bottom-heat, and a single hot-water pipe round for top-heat, is kept closely planted, the old plants that have fruited being replaced with rooted suckers whenever and wherever required. Sometimes a little fresh turfy loam is added, but recently no fresh soil has been given, and yet there is no apparent decrease in the size of the fruits. They are treated like ordinary stove plants, receiving shade during hot weather, abundance of air, and but little fire-heat. Ripe fruits are nearly always available, and all I saw were fully developed, and quite good enough for exhibition purposes. The varieties grown include one that was years ago sent from Burmah to Wilton, and is not generally known in this country. It is somewhat in the way of Black Jamaica, and is particularly valuable for the winter supply, as during the dull cold months of winter the quality is all that could be desired in a Pine-apple. Last winter about thirty fruits of it were ripened, and there were several swelling off at the time of my visit. Neither this variety nor Mr. Challis's method of culture should be confined to Wilton.

ORCHIDS are also grown well and in goodly numbers at Wilton, and these again receive a drier atmosphere and more air than is usually accorded them. The result is very sturdy, floriferous growth, the plants when in flower not sustaining any injury from removal to the mansion, for which purpose they are mainly grown. They naturally require much moisture at the roots when growing freely, and I noticed particularly what strong feeding roots the Cattleyas, Vandas, &c., were forming. A specimen of Cattleya Mossiæ with twelve spikes bearing upwards of thirty-six very fine blooms was noteworthy, and I also observed a particularly valuable form of C. Mendelli. A grand mass of Dendrobium pulchellum and specimens of Vanda suavis and V. tricolor were also prominent features. At the end of one of the houses Cereus grandiflorus, or Night-blooming Cactus, was furnished with several large flower buds, one of which was expected to expand about 8 o'clock the same evening. This variety is of the easiest culture, and, considering what an object of interest it is in any neighbourhood in which it happens to flower, the wonder is that so few are to be met

with. Mr. Challis has also a large batch of seedling Lapagerias, resulting from a supposed cross between the white and red varieties. It is to be hoped several of them may possess some of the colour of both parents.

CONSTRUCTION OF THE HOUSES.—The contrast between the old and new ranges of houses is very striking. The former are nearly flat-roofed, have enough timber in them to build four times the number of modern structures, with sash-bars and squares of glass innumerable. Such roofs with their dead weight required substantial walls, and it must be conceded that the workmanship was good in the days when such houses were constructed; in fact, modern builders are not always so particular as they might and ought to be. All the new houses at Wilton are glazed on the imperishable system, and after a pattern designed by Mr. Challis. The glass, which covers the whole of the woodwork, is in large perfectly-fitting squares, resting on light crossbars or purlins, and is held firmly in position by copper clips, and a single square can be taken out and renewed at any time from the inside. The sides of the squares butt together, while the ends underlap and overlap each other, the clips preventing too close fitting, and insuring a free outward run for the drip as well as inlet of fresh air. In the case of many closely putty-glazed new houses these contingencies are overlooked, and drip and burning have both to be contended with in consequence. W. I. M.

NOTES.

The Edelweiss in India.—On the evening of the 9th inst. Mr. Graham gave a short account before the Royal Geographical Society of his adventures on some of the Sikkim Himalayan peaks. In describing the route between Bora and Gongri allusion is made to trees at 10,000 feet among the snow and "Rhododendrons in a thick impervious jungle even higher." But the botanical interest of Mr. Graham's journey is centred in the discovery of the Edelweiss on the eastern glacier of Kabru. This is Mr. Graham's own statement: "On the 6th we finally started, and made our way up the eastern glacier of Kabru. On its banks we met with immense quantities of Edelweiss; the climbers flower and success was prophesied accordingly." There can be but little doubt of this plant being nearly if not quite identical with the Swiss species, since the celebrated Grindelwald guides, Emil Boss and Ulrich Kaufmann, accompanied Mr. Graham, and would not be likely to mistake a plant so familiar to them as is the Alpine Edelweiss. These men were also with Mr. Green when he found the New Zealand Edelweiss (Helichrysum grandiceps) so plentifully on Mount Cook, and as they at once saw that it was different from the Swiss plant, we may infer that the Indian plant is, if not precisely the same, very close in its resemblance to the European species. Dr. E. P. Wright kindly drew my attention to this discovery, and those of our readers interested in mountain climbing may find full particulars of Mr. Graham's journeys in the *Pall Mall Gazette* for the 10th inst. When we realise the fact that there are peaks on the Himalayas varying from 29,000 feet altitude, and that 1100 at least of these peaks are over 20,000 feet in height, it opens up a most agreeable vista to the lover and cultivator of alpine vegetation What treasures in the way of hardy plants must not linger among these rock fastnesses and grow on the moraines and fringes of the glaciers on these snowclad peaks! After what Mr. Green has told us of New Zealand mountains and Mr. Graham of those of North India, the world seems quite young to the lover of alpine vegetation.

Colville's Bride Gladiolus.—This milk-white Sword Flower seems famed to become as fashionable as the white Roman Hyacinth, and it is really so beautiful either as grown in pots in the greenhouse or as planted at the foot of sunny walls in the open air, that no flower lover can afford to neglect its culture. It is now four years since Mr. Hartland, of Cork, sent me six bulbs of this variety, which were planted on a warm border close down in front of a low greenhouse wall; a hole was made with a bar of iron a foot deep, a handful of sand was thrown in, then a bulb, then more sand, and the hole was filled with earth. These six bulbs are now represented by as many great clumps of many bulbs each just now throwing up great sheaves of flower-spikes. The typical species, G. Colvillei, is also a pretty plant with red flowers, but as a contrast to The Bride we prefer the free-growing species from Constantinople with its purple-shot crimson flowers.

"Leaves of gold."—I quite agree with those who believe that many of the silver-splashed shrubs are less ornamental than are their green-leaved types. I know how lovely Acer Negundo and purple Clematis can be when tastefully combined, but many shrubs and trees with white variegation have anything but a healthy effect if too freely used. To my mind those shrubs and trees having their foliage suffused with a golden hue are far more pleasing—nay, even those which, like the purple Beech, contrast so well with Laburnums and Guelder Roses in the early summer time. For warm and sunny effects golden-leaved Ivy, Oak, Poplar, Elder, and Laburnum are alike most effective, and on dull days they light up their vicinity like "sunshine in a shady place." But even these must not be used too lavishly, lest undue familiarity should breed contempt. Carefully used in sheltered nooks amid green-leaved shrubs and trees and on fresh, green turf, they enable us to add warmth and light in the happiest and most permanent way.

Dianthus alpino-barbatus.—This is a very effective plant, sent to me as the result of a cross effected between Dianthus alpinus and a variety of D. barbatus (common Sweet William). It is of neat habit, in this respect somewhat closely resembling the latter parent, rarely exceeding a foot in height. Its flowers are freely produced on erect panicles varying from few-flowered ones 2 inches or 3 inches high to those nearly a foot long bearing many flowers. The flowers are nearly as large as those of D. alpinus, and the third day after their expansion they acquire the same rich, rosy hue, but their peculiarity is in opening pure white, then on the second morning changing to pale peach or rose colour, which deepens on the third day, as already noted. It is very neat and effective, and its history would be very interesting if known.

Linaria pallida.—A good collection of Linarias would afford much pleasure to its owner, but of all the numerous forms this is at once the most dwarf and showy of all those known to me. It is a rapid grower, creeping along the ground in all directions, and it is now a mass of conspicuous lilac-purple blossoms. It will grow anywhere on rockwork or in the open border, and is readily divided if needs be. The lilac-flowered L. alpina is a pretty little annual species for sowing on old walls or on dry, sandy borders, as also are L. maroccana, L. aureo-reticulata, and L. versicolor. Even our native Butter-and-Eggs (L. vulgaris), and especially its peloroid form (with five spurs to each flower instead of one), should find a place on wall tops, or among the stones in outlying waste places near the garden.

Iceland Poppies.—Few summer blossoms are more gay than are these as seen sparkling in the hot sunshine. The pure white and a rich vermilion-tinted variety are both most beautiful, but even the yellow-flowered type is beautiful. They are of all Poppies the neatest and most floriferous, and are easy to raise from seed sown at any time during spring, summer, or autumn. On dry warm soils they are quite at home, and even become naturalised. Our own plan is to save seeds only from the white and vermilion varieties, but we always have amongst the resulting seedlings a large proportion of the typical yellow kind. If their flowers are cut early every morning soon after expansion, they endure fresh and fair several days in vases indoors.

Spanish Iris.—Seeing that the flowers of this Iris are so lovely in form and colouring, the wonder is that they are not more generally met with in all warm and sunny gardens. There are white, yellow, and blue varieties, others purple, and some with rich bronzy tints quite indescribable, except in colour, by a Fantin or a Muckley. Mixed bulbs cost 10s. per thousand, and are worth double the money for their flowers alone. They flower in June and July, or after the old tall cottage garden Tulips and latest Narcissus have departed, and so they are most seasonable for tall bowls and vases. Either alone or arranged with late-blooming bearded Iris, like I. pallida or I. Victorine, they are alike most effective, but never prettier than when poised in the golden sunlight on their slender, Reed-like stalks.

The Time of Roses.—I see the colour, soft and pure as the lining of a sea shell, already showing in the buds of my favourite old Rose Céleste, and dainty fresh Moss Roses diffuse again their grateful odours. There are also pale golden clusters on the Austrian Brier, and that old crimson China by the porch is a dream of colour, just as the Woodbine which peeps from among its crimson blossoms bears just now the sweetest of all memories at eventide. Fortune's yellow is a mass of buds and flaunting petals. Gloire de Dijon peeps in at the windows every morning long ere its owner is awake, and every trellised fence and arch, and every "Ivied wall with Clematis entwined" are again prepared to pay their annual red Rose rental, with ample interest to boot. Yes; the time of Roses has of a truth come to us, and the garden is a sweet Rose bower from morn till vesper time.

Resting Orchids.—There has been a good deal written, at one time or other, concerning the "resting" and "drying off" of orchidaceous plants, and there are some species which will not succeed for long unless so treated. Pleiones, Dendrobiums, and Calanthes are examples; but there is a large proportion of species that do not require—even although they may withstand—a period of absolute repose. It is more to the point to grow Orchids in small, light, span-roofed houses, where they may occupy positions near to the glass, and so obtain full advantage of sunlight and air. Plants so grown flower freely without any of that "resting" or "ripening" process to which the Orchid growers of the past attached so much mystery. Give Orchids plenty of sun-light, air, and moisture, especially atmospheric moisture, and abundance of flowers will be the result.

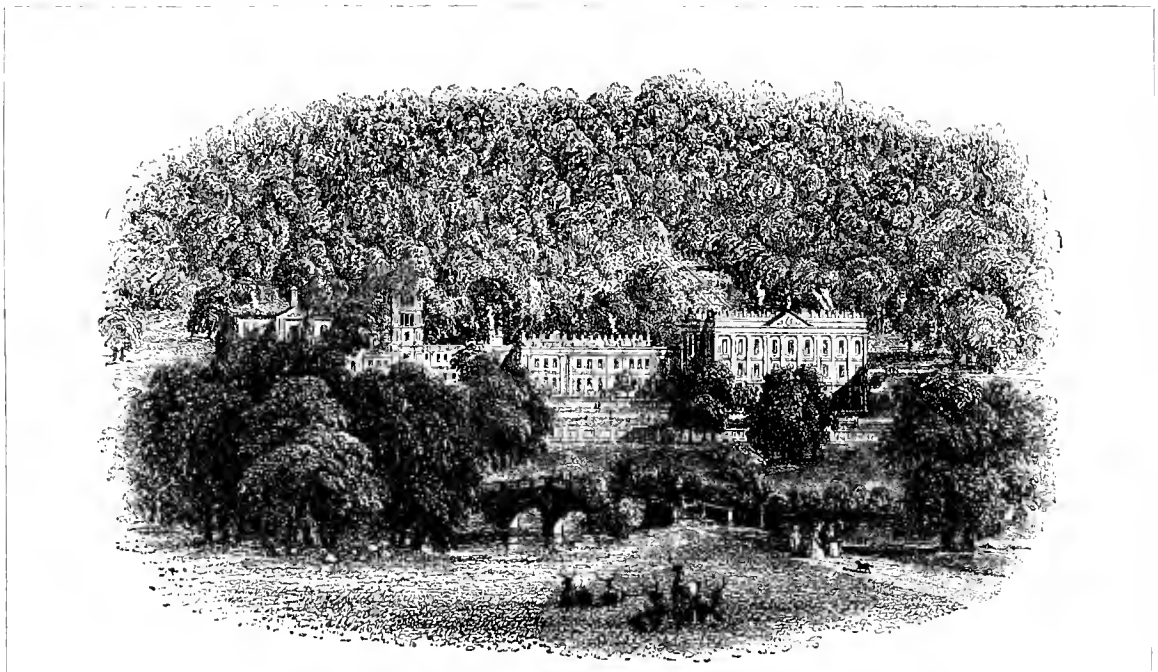
Parochætus communis.—Of neat and pretty little trailing plants for a window or cool greenhouse, I have one now in my mind's eye that is of all things to be desired. I allude to the blue-flowered Shamrock (anent which English name I am confident, having had it direct from the maker thereof), or, as it is known by the botanist, Parochætus communis. For the benefit of those who do not know the plant under either of the above names, I will liken it in habit to a plant of white Clover, also supposing that instead of the bossy heads of many white flowers, only one blossom is produced at each axil of the creeping stem, and that one blossom of the size and colour of the Chick Pea or Chickling Vetch, yclept Lathyrus sativus in Latin, as opposed to the vulgar tongue. Now, small blue Sweet Pea-like flowers borne on slender stalks 2 inches or 3 inches above a Clover-like tuft of trefoil leaves, is, as I take it, a great, if somewhat old-fashioned, rarity; and as such I hereby most heartily commend it to all who care for plants of interest apart from bold colour effects.

Root cuttings.—Cuttings of the root often give better results than other means of propagation. Three plants just occur to me that may readily be increased by cuttings made of their fleshy roots. Their names are Senecio pulcher, Stokesia cyanea, and lastly, that beautiful fair maid of autumn, Anemone japonica alba. The mode to follow is to dig up the roots from November to February, cut them into 1½-inch lengths, and insert them in pans of sandy earth, which may be placed near the light on a shelf in a cool house. Nearly all rare Anemones and many other plants

succeed well propagated in this way. When leafy growth and roots are produced, pot off in May, and place in a close frame for a few days; and finally, give air on fine days, and plant out in the end of June or earlier. In this way it is easy to keep up a stock of sturdy, young, free-blooming plants for cut bloom, or for border or conservatory decoration. VERONICA.

NATURAL BEAUTIES OF CHATSWORTH.

HUNDREDS of people who visit Chatsworth never fully realise the grandeur of its natural scenery, inasmuch as they generally confine their attention to the house and that portion of the gardens that immediately surround it. But in order to realise the landscape beauty of the place the visitor must get right away in the park beyond the river, and from the rising ground there view the house and its surroundings as seen against the magnificent wooded hill which rises up somewhat abruptly behind them. This view is represented by the accompanying illustration—one not often depicted. The artist in this case must have occupied a position beyond the river such as that just described, and as we looked upon Chatsworth on a fine day last autumn from about the same spot we thought the scene before us one of surpassing grandeur The densely-wooded hillside had just begun to assume rich and varied autumn tints, and the water from the cascades glistened in the sunlight and enhanced the effect, while the silvery Derwent occupied the valley in the middle distance The richness of the natural landscape associated with Chatsworth helps, in a great measure, to neutralise the formality of the garden design about the house. One of the greatest beauties of the Chatsworth home landscape is a picturesque group of Lebanon Cedars, which occupy a rising slope above the Derwent, and which may be seen to good advantage from the walk leading from the kitchen garden towards the mansion. These Cedars are as fine as any we know; but on the whole Chatsworth is not so rich in fine tree growth as one would expect such a place to be.



Chatsworth from the park, beyond the Derwent.

NOTES FROM PILRIG PARK.

AT this season of the year Messrs. Dicksons & Co.'s nurseries at Pilrig Park, Edinburgh, are unusually gay with Violas and Pansies amongst other early flowering plants, and it is remarkable what real progress is made in these two specialities year by year as regards size, substance, and regular markings. The markings and perfume of the Violas are becoming so blended with the rich velvety colours of the Pansy, that it is not now uncommon to find individual plants with both characteristics interwoven in such a manner that all the commendable points of Pansy and Viola are perpetuated. For example, one of this year's seedlings bears four clearly marked tints of colour—gold, black, crimson, and white; Skylark, a creamy white Viola, has a distinct blue margin, rendering it one of the loveliest flowers one could wish for; Merchiston Castle, another Viola, is of a deep ruby red, with a fine white line round each petal; Viola Distinction is lavender, blotched with plum colour on the lower and upper petals; Viola Greta is quite a gem, with golden eye and rays of maroon on the lower petals, but paler blue above. These are four of the most beautiful Violas it has been my good fortune to see, and to them, perhaps, may be added Viola Glow, an almost crimson-mauve, with deep golden eye shading off into streaks of bronze, and sweetly scented. In one part of the nursery a striking effect is obtained by lines of V. alba odorata and V. Ajax. Pansies, however, give us richer and deeper colours, and they are here (the birthplace of scores whose names are household words amongst Pansy lovers) of all sizes up to 3 inches in diameter. Equally good Pansies could only be grown in the south by planting deeply in shaded spots, avoiding the use of raised beds. The following are the names of two dozen of the best varieties, viz.: Gold-digger, Jas. Dobbie, Silverwing, Mrs. General Grant, Tom Adie, Garnett, Bob Montgomery, General Grant, Mrs. Murray Jardine, Mrs. Jas. Donaldson, Campbell Bannerman, L Dawson, Evelyn Bruce, Mrs. McComb, Miss Donaldson, and Thunder. Show kinds: Isa Smith, Burcott, Mrs. Wm. Wilson, white selfs; Rev. J. Morrison, purple self; Pilrig Model, somewhat similar; Robt. Black, deep blackish purple: Argo, mauve; Mrs. J. Anderson, white lip, black blotch, purple edge.

EDGINGS TO WALKS are made with white Cornish Heath (Erica vagans alba), and whilst speaking of Ericas I may mention a golden variety of E. vulgaris, which had each branchlet of pale green prettily tipped with golden yellow. Sheets of the honey-scented Iberis sempervirens superba were frequently alternated with beds of Myosotis dissitiflora. One large bed of Dodecatheon Meadia was in full flower, and Scilla hyacinthoides was sending up hundreds of beautiful large white Bluebell-shaped flowers—in short, a large-flowered white Wood Hyacinth. For noble, finely-cut foliage there are here some seedling Artichokes, which quite rival in artistic beauty either Acanthus latifolius or Papaver bracteatum. A finely-varied collection of Primula cortusoides was in bloom, and P. rotundifolia was just opening its blossoms. These plants are intermixed with P. sikkimensis, and all of them must be pretty hardy, for they have stood out all winter unprotected. A white variety of Saxifraga ligulata and a bed of Narcissus Bulbocodium lead up to the crowning point of all, viz., thirty square yards of Saxifraga Wallacei—a sheet of snowy bloom. It may not be generally known that this valuable variety was raised by Messrs. Dicksons, and is therefore veritably at home. R. A. H. G.

Horsforth, near Leeds.

GARDEN IN THE HOUSE.

TABLE PLANTS.

ONE of the first considerations of the dinner-table decorator should be to select plants which contrast well with surrounding objects. At the great show at Manchester during the Whitsun week prizes were awarded for six table plants, and the judges selected collections containing such plants as Pandanus Veitchi and Cyperus alternifolius variegatus, two plants that can be made to look well either in the library or drawing-room, but not, ac-

cording to my experience, on the dinner-table. I fail, indeed, to see how such albinos could be otherwise than unsatisfactory placed on a white cloth surrounded by glistening glass or silver. Probably in making their award the judges were allured by the variously-coloured wickerwork that surrounded the pots—appendages which would not be tolerated on the majority of dinner-tables, on which the plants are usually plunged in china or silver vases. I admit that the plants were well grown and even in size, the latter, however, being no recommendation in the case of table plants; height can only be determined by circumstances. For instance, at times, and with a table set for twenty or more, some of the plants which we use are not 6 inches high and are usually green, but for a table intended for less than half that number they are often 12 inches or more. If a table for twenty is destitute of candelabra, plants from 18 inches to 24 inches are best. Uniformity in the plants is, however, a disadvantage, and sometimes exceedingly perplexing, involving turning them out of their pots and reducing the ball. Pairs of varied height facilitate matters, and whether the plants are arranged on the sides or in a row down the middle of the table, the taller ones should be in the centre. Uniformity, therefore, need not have concerned the judges, such details being regulated by the wants of the decorator. The chief point for the judges' consideration in this case should have been the fitness of the plants for the purpose for which they were intended, and I think I have proved that they were by no means the best that could have been selected, but rather the worst.

W. P. R.

PLANT ARRANGEMENT AT EXHIBITIONS.

IT was not without reason that visitors to the last horticultural exhibition organised by the French National and Central Society of Horticulture were agreeably surprised to observe that a complete change had been effected in the arrangements thereof, and that the rules of art and good taste so seldom observed on such occasions had influenced in a marked degree the disposition of the various groups of plants of which it was composed. Whilst the society was obliged to hold its exhibitions in the Palais de l'Industrie, the rectilinear disposition of the permanent borders designed to contain the sculpture and horticultural products did not allow of any special arrangements, but lately it has had the good fortune to have placed at its disposal a position worthy of it and of horticulture generally. The happy idea was also conceived of confiding the design and formation of the exhibition gardens to M. E. André, who, as was apparent, had made the most of the situation.

In provincial exhibitions in France the arrangements are sometimes carried out in the open air either in an old-fashioned garden or one created for the purpose. The energies of local landscape artists, having free scope, manage to produce some charming and graceful effects. In this category must be placed the garden designed by M. André around the Pavillon de la Ville at the late exhibition, where the skill of the artist was shown in the ingenuity of his resources, and when, as has been happily expressed, "he made a garden out of nothing." It is not, however, to the exterior arrangement of exhibitions we wish now to call attention, but to the interior, in a covered garden, such as an exhibition represents. We call to our aid the flora of the Tropics, in which the form or manner of growth of vegetation is so different from our own. Palms with spreading, majestic leaves; Ferns with lace-like fronds cut in a thousand different ways, whether arborescent or herbaceous; terrestrial or epiphytal Orchids, children of the air, inexhaustible as regards form and colour; Bromeliads, in which rigid outlines exclude neither grace nor brilliancy; Gesnerads, which in our hands have become a hundred times more beautiful than in Nature, and so many admirable families that we may not mention here, now impart a new charm to those old, but already attractive, exhibitions, where justly triumph Roses, Azaleas, Rhododendrons, Pinks, Camellias, and many other beautiful plants which delighted our forefathers. Well, these materials skilfully used are the means by which decorative art may be applied to modern plant exhibitions. This art ranks near to architecture, and this exhibition has furnished us with a very successful application of it.

J. C. B.

GARDEN DESTROYERS.

APHIDES ON FRUIT TREES.

NOT only has the parching dry east wind robbed the earth of most of its moisture and caused vegetation to suffer seriously thereby, but it seems to have brought upon us shoals of insects, as scarcely a tree, shrub, or plant of any description has escaped, and many are so infested that their growth is quite crippled, every leaf and young shoot being distorted or curled. Currant bushes of all kinds—red, white, and black, are almost poisoned by aphides, but fortunately they occupy principally the points of the fresh growths, and as these can be well spared now, the best way is to nip them off and drop them in a basket, to be carried away to a fire and there burned. By doing this the greater portion of the aphides will be removed, as they cannot very well work on the old, hard leaves. Peaches and Nectarines, Plums, and other fruit trees cannot be so easily dealt with, as, though many of the young shoots may and should be taken off, there are others that it is necessary to preserve; these are shoots in the right situations for laying in and for filling up gaps on the walls. In such cases they should be cleared from insects and then nailed or tied where wanted, in order that they may continue their growth. The first thing, however, is to remove the fore-right shoots or breast-wood, as these are useless, and by taking them off now, which should be done to within two or three joints of their base, the buds left plump up and ripen better than if too much shaded. There are many insecticides, all good in their way for killing aphides, but when used largely they become expensive, and instead of applying them gardeners resort to clear water. This is only effectual when it can be applied with force, as from a garden engine, a continuous stream from which playing on the undersides of the leaves for a minute or two will dislodge the aphides and wash them off. As the leaves of Peaches and Nectarines are more tender than those of Plums, it is better to attack the aphides on them by dusting the points of the shoots with Tobacco powder, which may be done quickly by means of a distributor. If the Tobacco dust does not kill immediately, it greatly disconcerts the enemy, and while thus surprised a washing from the engine or syringe soon settles matters. The worst of all aphides to deal with is the black aphis, which infests Cherries; the only way of annihilating it is to have a strong decoction of Tobacco, and dip the ends of the shoots in it, but as the black fly is oily, and repels water, it is necessary to have a little soft soap in the steep, as that makes the juice of the Tobacco to penetrate, and helps to kill the fly. The same mixture is also effective on Roses, and is quite safe if not used too strong. Another capital insecticide for Roses is nicotine soap, which, as its name implies, has the active properties of Tobacco in it. Used as directed on the bottles, it kills green fly, and a washing afterwards leaves the Roses quite clean. A more troublesome insect among Roses than green fly is maggot, which coils itself in the leaves in such a manner that the only way of dealing quickly with it is to crush it.

S. D.

The Amortiser Insecticide.—As many may not yet have had an opportunity of testing this new and useful preparation, a few facts respecting it may not be out of place in the pages of THE GARDEN. It was brought under my notice last year when visiting a neighbouring amateur, who especially recommended it for destroying the Gooseberry caterpillar and for clearing Roses of maggot and green fly; and on using it I found that not only these, but also all other insect pests are sure to die if the plants or trees are once dipped or syringed with it. I have employed it this year upon some of the most tender stove and greenhouse plants and Ferns, and find it the most effectual preparation I ever used. It thoroughly cleanses plants of thrips, green fly, red spider, and scale in its young state, and also mealy bug if once touched with it. But to make sure work of the latter I find Wells' patent spray diffuser to be the best thing to apply it with, as this pest so protects itself that dipping or ordinary syringing does not reach it. What I consider the great point in favour of this insectitude is that when diluted for use it does no harm to either tender foliage or flowers. It is cheap, too, and pleasant to use, as it has a pleasant perfume. It is, I consider, a decided improvement on nicotine soap.—W. MANNING, *Margery Hall, Reigate Hill.*

KITCHEN GARDEN.

THE POTATO AS A FIELD CROP.

IN this part of South Hants Potatoes are extensively cultivated as a field crop, and very well they are now looking. The soil being light and sandy, the tubers turn out clean and bright, and last year we had scarcely any disease; consequently, although prices have been low, the crop was fairly remunerative. There is therefore a very large acreage under Potatoes this year. The routine of culture is to plant in fresh soil, such as after Turnips or other root crops fed off by sheep during the previous winter or after some cereal crop, but the main point on which all cultivators seem to be agreed is to thoroughly pulverise the soil, and in this way it is surprising what fine crops are produced on even the poorest soil. In close proximity to where I reside a large tract of very poor common or waste land has been broken up and cultivated as a means of utilising pauper labour. The ground is dug over three or four times during the winter, and every particle of weed, such as Couch Grass and Gravel Bine, is picked out. In March it is again dug over, and the sets are laid in in lines 2½ feet apart, and under such conditions, even with the smallest quantity of manure, a very fine crop of Potatoes is produced, so that after supplying all inmates in the union, or home of industry, as it is termed, a large quantity is annually sold. This is a better system than that usually followed in utilising superabundant labour. On farms where the object is to minimise manual labour, the cultivation is done with the plough. The ground is first broken up deeply and roughly in order to expose it to the action of the frosts and rains of winter. Then early in spring it is ploughed crosswise, and in March or April it is ready for planting. The sets are laid in in every third or fourth furrow by women or boys, while men with a cart follow, and place thoroughly rotten manure, ashes, or street refuse over them. They are then covered with the plough and the work is done. They are also moulded or earthed up by the plough, and workmen who are good hands will make the lines as true as they usually are in gardens done solely by hand labour.

DIGGING up the produce—just commenced in the case of Early Kidneys and such sorts as Early Rose, Early Vermont, and others of that type—is pushed on rapidly, and the ground is again cropped directly with Turnips or winter greens, for the Potato is one of the best of crops for cleaning the soil, and leaving it in good condition for the next crop. In this locality we get plenty of foreign competition; vessels coming direct from France and the Channel Islands glut our local markets with new Potatoes in the latter part of May and early days of June, but the quality as far as I have seen is inferior to that of home-grown crops, and our local growers do not relax their efforts or appear to dread the fullest amount of competition in the matter of Potato cultivation. The frosts of the last week in April cut the tops off the early crops, but by the first and second weeks in June good sized tubers were being dug up; therefore we may now look for a good supply of this invaluable esculent, which was never at any time so largely cultivated as at the present day.

AS TO VARIETIES, nearly all the smooth-skinned kinds are grown. Deep-eyed Potatoes, like the

Scotch Champion, are the only ones that do not find favour. The American Rose, that in some soils is very indifferent, is here one of the most popular Potatoes grown for early use; also Beauty of Hebron, Early Vermont, and others of that type that fill the basket well in a short time. Amongst kidneys none equals Myatt's Prolific, and for main crops Magnum Bonum is grown in enormous quantities. Last season the new American White Elephant was very well spoken of, and if it does as well this year, it will become a standard sort for field culture, as it produces enormous quantities of fine tubers, and their quality is all that can be desired.

Gosport. JAMES GROOM.

ASPARAGUS CULTURE IN AMERICA.

THE principal Asparagus-growing districts near New York are Lattingtown, Locust Valley, and Oyster Bay. There is a canning factory at Locust Valley, and vast quantities of Asparagus are put up there every year. A few days ago I paid a visit to Mr. Williams, at Lattingtown, and found him busy bonching his Asparagus. He is one of the oldest and most successful growers. He sells his earliest Asparagus in New York, but after the middle of May he sends most of it to the canning factory. His last returns from New York were 10s. per dozen for first quality—a price which pays well. He says that at 5d. a bunch Asparagus growing will pay a man who does his own work, but should he have to hire all or in part he does not think it would pay. There are small growers around here who net £60 to £80 a year off from two to three acres of Asparagus. It is a never-failing crop, and the same plantation keeps in good bearing condition for from twelve to twenty years. Mr. Williams' Asparagus is in rows 4 feet apart, and the plants are from 20 inches to 24 inches asunder in the row. The soil is a very sandy loam, soft and perfectly free from stones. It is undulating, but low-lying, and water can be reached anywhere on it by digging 5 feet or 6 feet deep; to this he attributed much of the success of his plantations. He applies no more manure than is made on his own farm, but admits that more manure would be an advantage, and recommends it for higher and drier land than his. In

RAISING YOUNG PLANTS FROM SEED, Mr. Williams recommends selected seeds raised on some distant plantation, and for planting he would use one-year-old plants. But he is satisfied that he gets better results from old plants cut up into many crowns, and set out as one would seedlings, than he does from seedlings. At any rate, this is what he has done and is now doing. For young plants he uses only the crowns that bear the largest stalks. Twenty-five years' practical experience has taught him that they are as sure to grow as seedlings, and he is absolutely sure of the sort of Asparagus he is to get from them—a point he is not so sure of when he raises his heads from seed. He has set out Asparagus at all seasons from October to June, and has had better success with his May plantings than any other. Although his present plantations are in rows 4 feet apart, he does not intend to set out any more so close as that, but will put them 6 feet apart. By this means he expects to get stronger crowns, stouter, and more stalks from them, and also to get a row of Potatoes or other catch crop between the lines of Asparagus. In preparing the land for a new plantation he ploughs and subsoils it, but does not go into any expensive preparation.

THE DRILLS are 8 inches or 9 inches deep, and nearly twice as much manure is applied as he would for an ordinary crop of Potatoes. The plants are then set so that the crowns shall be 7 inches or 8 inches beneath the surface level of the ground, and the drills are filled in. In his light sandy land it is all very well to fill up level at once, but in the case of heavy land it is better to cover, say, 3 inches to 4 inches deep, and after the plants have started fairly into growth to fill up flush with the ground level But why plant so deep? Mr. Williams said that he gets better and stouter stalks. He has to cut his Asparagus some inches under ground in order to get it long enough to bunch. Should he let it grow 7 inches or 8 inches above ground before he cuts it (and he must have it as long as that in order to be able to bunch it), the leafy tip would open out, and thus render it unsaleable; the base, too, of a 7-inch shoot cut off just above ground is no more fit to eat than one of the same length cut at 3 inches under ground, nor is it as tender. Mr. Williams sorts his Asparagus into three sizes, and discards all very small, crooked, and deformed shoots. In bunching, the tips of the shoots are all made even, and the butts are cut off even. The Asparagus season here generally begins about from the middle to the 25th of April, and Mr. Williams says he cuts close right up to the 3rd of July.—WM. FALCONER, in *Country Gentleman.*

Fern *v.* clubbing.—I note that Mr. Christison speaks of digging Fern into the ground to prevent the clubbing of Broccoli and other of the Brassicas, which, perhaps, it may do, but I would warn him and others of the great risk they run by so burying it in the soil, where it is almost sure to breed fungus, especially if the land in which it is dug be at all light and dry, as then it lies in an undecomposed state for a long time and becomes permeated throughout with mycelium, which spreads at a great rate and fastens on the roots of any plants it comes near. These it quickly throws out of health, and though they may live and grow, they seldom do any good. This I have found out from experience through using some Bracken for the protection of Celery during a winter when the Bracken, or a good deal of it, got knocked to pieces and was left and became mixed up with the soil, where it caused us a good deal of trouble, and spoiled that part of the garden for the rest of the year, and would have done so still longer had we not, when digging and turning the land, thrown much of it out. Cocoa-nut fibre was highly praised at one time, and many thought it an excellent thing to dig into the ground, but the evil effects from it soon became apparent, and most of its advocates gladly gave it up and were soon silent about it. As a plunging material or for mulching it is of great value, but those who understand its nature are very careful to clear it all off the ground when done with, and either to burn it or place it where it will be safe and rot. Where I have found Fern of great use is in littering down Strawberries, as it lies light, and therefore soon dries, owing to the air passing so freely among it; and not only is this so, but what is of equal or even more importance, is that it presents an unsurmountable obstacle to slugs, which cannot travel on it, as all points and parts where it breaks or splits up are sharp, and the slugs get pricked or cut and soon desert it.—S. D.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 24.

THE usual fortnightly meeting of the committees was supplemented on this occasion by the monthly exhibition of fruit and vegetables, held under the auspices of the Health Exhibition Committee; consequently the conservatory at South Kensington was well filled with exhibits. A great number of plants either new or rare were submitted to the committee, and not a few were certificated.

First-class certificates were awarded to

LELIA DOMINIANA ROSEA, a magnificent hybrid Orchid, one of the finest ever raised by Mr. Domioy, whose name it appropriately bears. The flowers are as large as those of a fine L. purpurata, to which its flowers bear some resemblance as regards the colour of the sepals, which are of a pale lilac. The lip is splendidly coloured, and very large, being over 2 inches across. It is of the deepest crimson-purple imaginable. A fine specimen of this beautiful and extremely rare plant was shown by Mr. Ballantine, from Baron Schroeder's garden, The Dell, Egham.

ODONTOGLOSSUM EXCELLENS—the rare and beautiful hybrid Orchid of which a coloured plate was given in THE GARDEN some time since. It is supposed to be a hybrid between O. Pescatorei and O. triumphans. The flowers are as large as those of the latter species; the sepals are white, broadly margined with yellow, while the broad labellum is heavily blotched with chestnut-brown on a white ground. This plant is unique in cultivation, and was shown by its possessor, Sir Trevor Lawrence, from his celebrated collection at Burford Lodge, Dorking. The plant bore a long, arching spike, carrying eight expanded flowers and three buds.

ODONTOGLOSSUM CITROSMUM ALBUM.—Of this very lovely Orchid an exceptionably fine plant was shown by Mr. Daines, gardener to Mr. Soper, 283, Clapham Road. The specimen was large and well grown, and bore from one of its new growths two flower-spikes about 2 feet in length, and carrying no fewer than thirty-two lovely pure white and deliciously scented blossoms.

ANGULOA RUCKERI SANGUINEA.—A variety of this noble Orchid having the interior of the blossoms wholly of a deep blood-red colour, which renders them very handsome. It was shown by Mr. De B. Crawshay, Rosefield, Sevenoaks, who also showed the typical A. Ruckeri in flower for comparison.

ODONTOGLOSSUM ALEXANDRÆ VEITCHIANUM.—The marvellous variety that was exhibited the week previous by Messrs. Veitch at the Regent's Park Show under the name of O. Alexandræ mirabile. It was shown on this occasion by Baron Schroeder.

ODONTOGLOSSUM WILLIAMSIANUM.—A new species recently named by Prof. Reichenbach, and is supposed to be a cross between O. grande and O. Schleiperianum. It is very similar to a fine variety of O. grande, the flowers being as large and as handsomely marked. The broad petals are half yellow and half reddish brown. Mr. B. S. Williams, of Upper Holloway, after whom it is named, showed a fine plant of it with a massive erect spike bearing about a dozen flowers.

LELIA PURPURATA ATROPURPUREA.—A variety remarkable for the intensely deep and rich colour of the labellum, the lobe of which is widely expanded and exquisitely frilled. The sepals are of a deep lilac, which with the rich lip renders the variety extremely attractive. Mr. B. S. Williams.

DROSERA AURICULATA.—A curious little Sundew. It has slender stems furnished with tiny round leaves beset with glandular hairs. It is a most interesting addition to the list of cultivated Droseras. Shown by Messrs. Veitch.

CROTON FLAMBEAU.—A very handsome variety, and a real addition even to the already large number of cultivated Crotons. It has long, narrow leaves, which gracefully recurve on all sides. Their colour is a bright yellow, netted and veined with crimson. It will prove a valuable decorative plant. Exhibited by Mr. B. S. Williams, Upper Holloway.

RHODODENDRON PRESIDENT.—One of the Javanese race, having massive trusses of large and perfectly circular flowers of thick substance and of a reddish orange colour flushed with pink. Shown by Messrs. Veitch.

PHILODENDRON GRANDIDENS.—A species possessing extremely handsome foliage. The leaves are long and somewhat heart-shaped, the largest being about 15 inches in length. They are of a velvety bronze-green, while the mid-rib and veins are whitish. It seems to be of a climbing habit of growth. Shown by Messrs. Veitch.

PRIMULA CAPITATA.—The plant to which the certificate was awarded represented what is known as Hooker's variety of the beautiful Himalayan Primrose. The flower-heads are dense and of an intense purple colour. Exhibited by Mr. Llewelyn, Penllergare, Swansea.

ROSE SUNSET.—A new Tea-scented variety, distinct from any other in cultivation. The flowers are large, full, finely shaped, of a rich apricot colour, and most deliciously perfumed. It is highly spoken of by critical rosarians as a coming Rose, and no doubt it will soon become popular. Exhibited by Messrs. W. Paul & Son, Waltham Cross.

PELARGONIUM PURPUREA.—A show variety—the perfection of what an ideal show Pelargonium should be. The flowers are large, symmetrical in shape. The lower petals are rich carmine, the upper maroon, and the centre white. Shown by the raiser, Mr. E. B. Foster, Clewer Manor, Slough.

PINK PICTURATA.—An extremely fine variety, having large flowers with the petals white, and broadly edged with rose-purple like a heavy-edged Picotee. Shown by the raiser, Mr. Fellowes.

VERBENA STRIATA.—A very fine and pretty variety. The trusses are large, and the flowers are striped with white and pink, rendering them highly attractive. Shown by the raiser, Mr. Stacey, Dunmow.

BEGONIA HER MAJESTY.—A single-flowered tuberous variety, having large and symmetrically shaped flowers with white petals, flushed and edged with a delicate pink. One of the most beautiful sorts yet raised by Messrs. Laing, of the Stanstead Park Nurseries, Forest Hill, who exhibited it.

BEGONIA TOREY LAING.—A tuberous variety with single flowers of large size, perfect shape, and good substance. The colour is yellow suffused with orange-red, a colour much wanted among tuberous Begonias. Shown by the raisers, Messrs. Laing and Co.

ANTIRRHINUM ROWSHAM PET.—A most singular, yet pretty, variety of Snapdragon, different from any we have seen. The flowers are unlike the ordinary forms in shape, having short petals and protruded stamens; they are thickly set on erect spikes, and their colour is a deep crimson.

Besides the certificated plants, there were numbers of other interesting novelties exhibited, among them being some from Mr. B. S. Williams, which included a few fine Amaryllises and varieties of Cattleya Triange, those named conspicua and Neville being the most noteworthy. Mr. H. M. Pollett showed Odontoglossum vexillarium Pollettianum, a variety remarkable for the broad white margins to the rosy petals, rendering it distinct and beautiful. He also showed O. l'escatorei punctatum, which, however, did not possess much to distinguish it from ordinary forms. A group of very fine new tuberous Begonias came from Messrs. Laing. Mr Turner, of Slough, showed a collection of cut blooms of new Carnations and Picks, as well as some pot plants of the same. Of these Minerva, Hebe, and Ensign were strikingly beautiful. A numerous gathering of cut Roses came from the well-known Rose raiser, Mr Bennett, of Shepperton. These included several dozens of trusses of the very lovely Lady Mary Fitzwilliam variety, which won the admiration of everyone on account of the soft pink of its large well-formed flowers. The best sorts among the others were Earl of Pembroke, dark crimson, Princess of Wales, Mary Bennett, and Cleopatra, the latter an exceptionally fine new Tea variety remarkable for the breadth and great substance of its petals. There were also some fine seedlings shown by Mr. Bennett, which show good promise. Mr. Soper, Clapham Road, showed a new Coleus named Clapham Beauty. It has large leaves of a bright carmine-red margined with yellow, rendering it distinct and beautiful. Mr. Noble showed from his nursery at Bagshot a group of large Rhododendrons, which included some of his new hybrid varieties. A bronze medal was awarded. A collection of varieties of Odontoglossum crispum came from Messrs. Sander & Co., St. Albans. These showed a remarkable variation in the colouring of the flowers, particularly as regards the spots and blotches on the petals. In some the markings consisted of minute dots, while in others the petals were heavily blotched. There was again a great exhibition of cut hardy flowers, which filled one-half of the conservatory. These were from Mr. Ware, who was awarded a silver-gilt medal; from Messrs. Barr & Son, awarded a silver Banksian medal; from Messrs. Veitch, awarded a bronze Flora medal; and from Messrs. Hooper, who were awarded a bronze medal. Messrs. Ware's display represented, we imagine, every kind of hardy flower now in season that is of value either for its beauty or interest; to enumerate even the best of these would make a long list. Messrs. Veitch's collection included fine collections of English Irises, Pyrethrums, Gladioli, &c. Bearded Irises and Cape bulbous plants were the principal features in Messrs. Barr's group, and Messrs. Hooper's Paeonies were greatly admired.

Fruit committee.—There was not much of importance placed before the committee. The chief exhibits included three uncommonly fine bunches of Duke of Buccleuch Grape from Mr. Roberts, of Gunnersbury Park, who thinks highly of this variety. The bunches were large, also the berries. The committee desire to see it again later on. Several seedling Melons were sent, among them being Benham Beauty from Mr. Howe, of Benham Park. The committee considered the fruit of it shown on this occasion very good. Some Melons were also sent by Mr. Ross and Mr. E. S. Miles, and a fine fruit of the Goodwood Melon, weighing over 14 lbs., was exhibited by Mr. H. Parr, Givon's Grove, Leatherhead. It was not cut, so we could not judge of its quality. It would do well for a large children's party, but is too large for ordinary use. Mr. Bolton, of Coombe Bank, Sevenoaks, sent a branch of his new Gooseberry, called Bolton's Prolific, heavily laden with fruits. It is said to be extremely productive, as the early foliage always protects the blossoms. Messrs. Veitch exhibited fourteen varieties of early Peas and examples of Early Queen and Early Rocca Onions.

FRUIT AND VEGETABLE SHOW.

THIS was a larger and more excellent one in every respect than that held a month ago. Some of the best gardeners from various parts of the country entered the competition, and throughout the whole show there were none but high-class productions Of the four collections of eight sorts of fruit, the finest came from Lady Somerset's garden at Eastnor Castle, Mr. Coleman, as usual, showing very fine examples. He had two bunches each of Black Hamburgh and Foster's Seedling Grapes, both very fine; a good-sized Queen Pine, Bigarreau Cherries, Royal George Peach, Lord Napier Nectarine, Brown Turkey Figs, and Blenheim Orange Melon. The next best collection, from Lord Carington's gardener, Mr. Miles, was likewise a fine one, and was scarcely inferior. He had some very fine Gros Colmar Grapes, a Queen Pine weighing 6¼ pounds, Lord Napier Nectarine, Royal George Peach, and Scarlet Premier Melon. Some good bunches of Buckland Sweetwater Grapes, Stirling Castle Peaches, Frogmore Early Cherries, and Elruge Nectarines were the most noteworthy dishes in the third collection from Preston Hall. Among the seven pairs of Pines shown the best came from Mr. Rolls' gardener, Mr. Coomber, while Mr. Miles had two weighing respectively 5¼ and 6¼ for the second prize, and Mr. Baker's gardener, Mr. Fry, had an excellent pair for the third place.

GRAPES were particularly fine on this occasion The class for baskets of one kind of 12 lbs. weight was represented by four, and an uncommonly fine basketful of Black Hamburghs, perfect in every respect, took the first prize. This was from Mr Tavener, at Liphook, who also showed the finest two bunches of Black Hamburghs in the class for black Grapes among eight competitors. The show of white Grapes was not such a fine one, and though there were some fine bunches, several of them were not ripe. Foster's Seedling, from Mr. Herrin, of Chalfont, took the first, Buckland Sweetwater the second, and Foster's third. Mr. Roberts, of Gunnersbury, showed in this class two finely-finished bunches of white Tokay.

STRAWBERRIES were not so numerous as might have been expected, there being three classes provided for them. Among five exhibitors of three dishes Mr. Sharpe, of Chertsey, was first, with fine fruits of Empress Eugénie, Marguerite, and Sir Joseph Paxton. The second prize sorts were Duc de Magenta, President, and Sir Joseph Paxton, from Leigh Court, and the third were Vicomtesse Héricart de Thury, Sir Joseph Paxton, and President. It speaks well for the Sir Joseph Paxton variety that it should have been shown by each exhibitor. There was a class for the British Queen or other variety of a similar class, but there were but three dishes shown, and one of these was disqualified as not representing the British Queen class. The Dr. Hogg variety was shown for the second prize in this class, while Mr. Roberts took the first with a fine dish of British Queen. Among eleven dishes shown in the class for Strawberries of any other variety Sir Charles Napier sort won the first prize, President the second, and Marguerite the third. Other sorts shown in the class included three new ones from Mr. Laxton, viz, King of the Earlies, The Captain, and Forman's Excelsior—the latter from out-of-doors being very fine.

CHERRIES were better than usual. Among four sets of two dishes Mr. Roberts was first with Elton and Black Tartarian, Werder's Early Black and Elton were second, and Black Circassian and Elton third. The finest among the ten single dishes was Governor Wood. Figs were rather numerous, and in every case the Brown Turkey variety was shown.

PEACHES AND NECTARINES were a good class and a numerous one, there being seventeen dishes shown, the best being exceptionally fine fruits from the Marchioness of Camden's garden at Bayham Abbey. The sort shown by Mr. Johnstone was labelled Early York, but many questioned the correctness of the name, as the fruits were so enormous. Royal George took the second and Gros Mignonne the third prizes, while other sorts shown included Early Alfred, Stump the World, Feton de Venus, Noblesse, Violette Hâtive, Bellegarde, and Royal George. There were also seventeen dishes of Nectarines, the best being fine fruits of Violette Hâtive, the second Elruge, the third Pitmaston. Elruge was shown by six competitors, other sorts being Murray, Lord Napier (shown by five), and Pine-apple.

MELONS.—The best fruit selected from the seventeen shown was Victory of Bath, from the Earl of Leven and Melville's gardener (Mr. Mowbray); Best of All was second, and Hero of Lockinge third. Other sorts in the competition were Eastnor Castle, Chalfont Hybrid, Victory of Chalfont, Dickson's Exquisite, Benham Beauty, and Blenheim Orange. In the miscellaneous class were some fine examples of Bananas, some Citrons, and an excellent half-a-dozen fruits of Queen Pine-apple from Mr. Baker's gardener (Mr. Fry), of Haydon Hall, Eastcote.

Vegetables.

Collections of ten kinds were shown by five exhibitors, Mr. Miles, of Wycombe Abbey, being, as usual, first on the list. His collection was a very fine one, the sorts being White Naples Onion, Lady Paget Potato, Nantes Horn Carrot, Stamfordian Tomato, Moore's Cream Vegetable Marrow, Canadian Wonder Bean, Pride of the Market Pea, Erfurt Cauliflower, and Asparagus. In the second collection from Mr. Waterman were fine dishes of Telegraph Pea, Moore's Cream Marrow, Early London Cauliflower, White Tripoli Onion, Canadian Wonder Bean, and Early Munich Turnip. In the other collections the following were noteworthy, viz, Stratagem and Telephone Peas, Veitch's Ashleaf Potato, Tender and True Cucumber, and Leviathan Bean. Among twelve dishes of Potatoes, Woodstock Kidney took all the prizes, which speaks highly for this excellent sort. Of Cauliflowers, which were shown by eight, the best was Early London, while Walcheren took the second and third prizes. The best dish of Tomatoes, some twenty, was Trophy, Criterion and Stamfordian being the next best In the class for three dishes of Peas there were five exhibitors. The best set was from Longford Castle, which included Stratagem, Telephone, and Telegraph. The next best, from Mr. Muir, were Giant Marrow, Paragon, and Telegraph, while Little Gem, Telephone, and Telegraph were third. The best dish containing half a peck was of the Stratagem variety from Margam Park, while Duke of Albany and William I sorts were second and third. Mr. Muir, of Margam, was also first with a collection of Peas, which included ten dishes, prominent among them being Telephone and Telegraph; Broad Beans were shown by six.

The best two sorts were Seville Longpod and Leviathan, while other successful sorts were Aquadulce and Seville Longpod. Kidney Beans were shown only by three, all being of the Canadian Wonder variety. Nantes Horn was the winning variety of Carrot. Cucumbers were poor; among the eleven braces the judges could not find one good enough to which to award the first prize.

SPECIAL PRIZES.—On this occasion the prizes offered by Messrs. Webber & Co., of Covent Garden, for the best packed boxes of fruit were competed for. The conditions of the competition were that one box of Grapes not less than 14 lbs., one box of Peaches not less than twenty-four, and one box of Strawberries not less than 2 lbs, were to be sent to South Kensington by rail and delivered by the railway company's servants. There were three competitors, and, singularly enough, each adopted one style of packing; therefore it may be inferred that it is found to be the best. Mr. Turton was awarded first prize, Mr. Coleman second, and Mr. Eldridge third. There was but one competitor for the prizes offered by Messrs. Wheeler & Sons, Gloucester, for six heads of their new Kingsholm Cos and Tom Thumb Lettuces. This exhibitor was Mr. Muir, of Margam Park, who showed excellent samples of these varieties.

Scientific committee.—Mr. A. Grote in the chair.

Photographs of Araucaria imbricata (male) *and Chamærops excelsa.*—Mr. Farrant, of Ballamoor, Isle of Man, sent excellent photographs of these trees. The former was the one alluded to in the last meeting, and bearing an extraordinary number of male catkins. The latter, Mr. Farrant says, has flowered profusely and continuously for the last ten years, and has never been affected by the severest frost.

Sphærella Taxi.—Mr. Boscawen sent specimens of Yew attacked by this fungus about six years ago. It has now travelled as far west as Dorset, and is destroying the Yew trees at Sherborne.

Æcidium convallariæ.—Mr. Worthington Smith exhibited specimens of this fungus, new to England, and which was seriously injuring the Lily of the Valley in Westmoreland, and which he thinks is very likely to spread to cultivated Lilies.

Potato disease.—Mr. Laxton, of Bedford, reported the first and very early appearance of the Potato disease at Bedford.

Double white Rocket.—Mr. Loder exhibited a fine white specimen for contrast with the lilac-tinted variety grown on the Continent.

Dianthus alpinus crossed with D. barbatus.—He also exhibited blossoms of this hybrid, which at first were white like the female parents (a white var.), and then turned to deep crimson subsequently. D alpinus crossed by D. superbus was shown by Prof. M. Foster, in which the silky appendages of the petals had almost entirely disappeared. Mr. Lowe remarked that some starved specimens of D. alpinus were not distinguishable from D. deltoides.

Irises.—Prof. M. Foster exhibited a large and interesting series of Irises, the results of his crossings, &c. Of original species were I. kumaonensis (?), but not the typical bright blue. It belonged to the Dietes section, and seemed allied to I. nepalensis. It had roots like that of Hemerocallis. I. plicata crossed by I. variegata var. The produce differed very materially from both parents. Seedlings of I. ochroleuca, mostly lilac-tinted, but a few were yellow, like the type. I. variegata (yellow) crossed by I. pallida. One seedling was pure white, quite unlike the parents.

Iris hexagona.—Mr. Lynch sent a specimen of this species from Florida, and which flowered for the first time at Cambridge. It had long sepals, greenish externally, and lilac petals.

Monstrous Antirrhinum.—Mr. James King, of Rowsham, Aylesbury, sent some remarkably malformed Soapdragons, called the Rowsham Pet, and which received a second-class certificate. It showed a tendency to be polypetalous, but with a multiplication of parts of the corolla as well as of the stamens. It was abortive, but propagated by cuttings. It was referred to the Rev. G. Henslow for further examination and report.

Clematis.—Mr. Noble sent a Clematis called Proteus, which, after producing very double flowers at the end of June, rests for a month and then flowers again, as is the habit with other kinds, but differs from the latter in bearing single blossoms only. This was the case in 1883.

A list of awards will be found in our advertising columns.

ORCHIDS.

ORCHIDS AT UPPER HOLLOWAY.

THERE is now, and has been for some time past, quite a floral exhibition in Mr. B. S. Williams' nursery, at Upper Holloway. The large collection of Orchids of course contributes principally to the display, though the recent spell of warm weather has impaired the show of flowers, hot sunshine soon telling upon the delicate texture of Orchid blooms. An Orchid lover may, however, find much to interest him, even now though the flower-tide is on the wane. The Cattleyas this season have been particularly fine everywhere, and still there are a few first-rate later-flowering varieties in the collection here. Amongst these two are worthy of special mention; these are named Nevillæ, remarkable for its rich and very distinct colouring. The sepals and petals are a deep rose, inclined to a reddish tint, while the interior of the lip is of a warm orange-yellow. The whole flower is large, and strikes one as being something distinct as soon as it is seen. The other is conspicua, which has an unusually broad and shallow labellum rich in colour. There are numbers of the Warneri variety of C. labiata, which, when seen represented by the original form is one of the loveliest of all Cattleyas. Mr. Williams possesses duplicates of the specimen to which the name was originally given, and this is now in bloom. It is indeed a lovely form with large spreading flowers of the deepest lilac, with a white blotched lip. This is the finest in flower in this collection, and we doubt if it can be surpassed, though some approach it in point of size. Another noteworthy Cattleya in flower is the new C. Gaskelliana, which is said to be a variety of C. labiata, flowering after the Warneri varieties and before the typical autumn flowering kinds. This variety is certainly abundantly distinct from any other Cattleya, and if it maintains its habit of flowering in July and August, it will be a real gain, as it will thereby enable the Orchid grower to produce Cattleya flowers the whole year through. Mr. Williams has several plants in flower, but no two are alike, and one is much superior to others, having large, finely formed flowers with delicate lilac sepals and a bold lip blotched with lemon-yellow on an amethyst ground, pencilled with whitish veins. There are plants of it here just bursting their flower-sheaths, so that there will be a succession of bloom for some time to come. Among the numerous representatives of C. Mendeli one called pallida attracted us on account of the delicate tone of its flowers and the exquisite fringing of the lip. Lælia purpurata and its varieties still make a beautiful show, as there are huge specimens carrying massive spikes of bloom. There are some two or three varieties of superlative merit; one is named atropurpurea, and this, we consider, has the finest and richest coloured labellum of any we have seen, being over 2 inches across and of an intense purple-crimson—in fact, almost black towards the centre. Mr. Williams prizes it highly, as he has never seen it before this year. Another is Yates' variety, which is remarkable for the unusually large lip, with the lobe of a pale lilac veined with purple. The variety Brysiana is also in bloom; it is distinct not only in colour, but in form also. Still another remarkable variety of L. purpurata is albo-lilacina, which received a certificate at the last Regent's Park show; it is now almost past, but there is still sufficient to show its singular colouring.

The East Indian Orchid house is now redolent with the delicious aromatic perfume of the various Vandas and Aerides in bloom. Of Vandas we have never before seen such an array of bloom, as most of the grand specimen plants are carrying spikes, some with over a dozen flowers. There are some exceptionally fine forms of V. tricolor just now in flower, as well as of V. suavis. A pretty little plant is V. testacea, a new species imported with V. cœrulescens, and flowered here for the first time last year. It has the growth of V. cœrulescens, but the flowers are only half the size and of a peculiar buff colour, exactly the colour of the flowers of Lilium testaceum. The noble V. Batemanni is in bloom, having a tall erect spike of its handsome flowers. The perfume from the crowds of spikes of Aerides odoratum is almost overpowering, and among other species of Aerides may be seen crispum and its fine variety, Lindleyanum. The rare A. Houlletianum, one of the handsomest of all Aerides, will be in bloom in the course of a week or so, as there is a long spike with plump flower-buds. A. Larpentæ, also a rare and lovely species, may be found in full beauty, together with various other species of Aerides and Saccolabium. The East Indian house owes much of its attractiveness to several flowering specimens of Vanda teres, which is grown and flowered very successfully here. The plan adopted in growing it is to keep the plants in a hot and perfectly unshaded house and continually syringed with water—the very opposite to the treatment usually accorded to the plant. The pots are plunged in Moss, with which they are also surfaced, so that the roots are never dry. This plan has been highly successful also with V. Hookeri, the near ally of V. teres. Of the latter species even small plants about 2 feet high are carrying spikes of flowers which for loveliness have few rivals among the whole tribe of Orchids. Those who possess plants of V. teres that never flower should submit them to Mr Williams' course of treatment.

Cypripedium ciliolare, Curtisi, and superbiens may be seen in flower side by side, and though they strongly resemble each other at a glance, they are abundantly distinct upon close inspection. The best of the three is undoubtedly the oldest species, C. superbiens, though the other two possess peculiar characteristics—for instance, the beautiful minute spotting upon the recurving sepals of C. Curtisi renders the flowers most attractive. Numerous other Lady's Slippers may be seen in bloom, and in the same house are the evergreen Calanthes, C. veratrifolia and Dominii, both of which have been in bloom for a long time; the spikes of C. veratrifolia first commenced to expand their flowers folly three months ago, and even now there are numbers of buds to expand at the tips of the spikes. Such a continuous flowerer and noble-leaved Orchid is of great value in a garden. The Odontoglossums and Masdevallias at present in flower do not include any of special note, except a fine form of M. ignea, remarkable for large size and brilliant colour.

THE BIRD'S-NEST ORCHIS.

(NEOTTIA NIDUS-AVIS)

IN THE GARDEN of last week (p. 495) "B.," in referring to some notes of mine on the Bird's-nest Orchis, says: "It appears to us that, notwithstanding Mr. Webster's assertion that it is not parasitic, its refusal to grow under any conditions other than those under which it grows naturally goes a long way in support of Bentham and others who maintain that it is parasitic."

The late Charles Darwin, in one of his delightful works, dwells at considerable length on the Bird's-nest Orchis, and in a foot-note attached we read as follows: "This unnatural, sickly-looking plant has generally been supposed to be parasitic on the roots of the trees under the shade of which it lives, but according to Irmisch ('Beiträge zur Biologie und Morphologie der Orchideen,' 1853, s. 25) this certainly is not the case."

Mr. Malan, of Cheam, than whom few have studied our native Orchids more carefully, writes

to me as follows: "The opportunities of observing this most curious plant are certainly few and far between, for, besides its acknowledged scarcity, it does not always reappear in those peculiar localities where it professes to grow. I have as yet only been able to find it in one place, namely, in a small Oak (not Beech, as is generally supposed) wood near here. The soil there is hard, cold, uncompromising clay, which after a short absence of rain becomes cracked and on the surface like stone. I cannot say that I have been able to observe the Bird's-nest Orchis very accurately, for those plants which I placed in pots did not thrive, nor did others, which I transplanted when just above ground, ever increase. I cannot say either that I have found them attached to the roots of trees, for the specimens above mentioned were free in the clay. The spot where the flowers grew in 1880 was entirely destitute in 1881, and also in 1882. But quite in a separate part of the same wood both this summer and last many fine single plants were to be observed."

For my own part, I could never detect any parasitical attachment either, although the plant is perhaps most frequently fonnd beneath the shade of the Beech or Oak—the tannin matter from the decayed leaves being, in my opinion, the great secret of its growth in such places. The peculiar appearance and disappearance of this plant, referred to above, and which has long been a source of comment, is, I am happy to say, no longer a mystery, for a careful examination of the root-stock reveals the following facts: that the fleshy fibres of which the root is composed, though dead at the base or end which had been attached to the old plant, are alive at the other end, and gradually push forth young fibres.

The plant dies after flowering, but is thus capable of reproducing a new plant from the point of each of its fibres after they have fallen apart, the extreme point becoming eye or shoot, which increases in bulk under ground till it comes to the flowering age, when it pushes up vigoronsly, dies, and spawns again in the same extraordinary manner. Although omitted by Bentham, Hooker, Smith, and Loudon (I have not Babington), the Marsh Epipactis is propagated in a similar manner to the Neottia. Regarding the habits of many of our native Orchids, we are yet in the twilight of uncertainty, although the researches of Darwin and other eminent men have finally set at rest the question of fertilisation, which was so long a mystery.

In the same notes your correspondent, in dealing with the genus Neottia, says: "These are leafless plants with brown stalks and flowers, and are supposed to be saprophytic, *i.e.*, to grow only on the decayed roots or stems of other plants, as do the Monotropas and Orobanches." Now this is surely a mistake, as the Orobanche major, with which I am well acquainted, certainly subsists on living, not dead, matter. A. D. WEBSTER.

QUESTIONS.

5212.—**Tea Roses.**—Would someone kindly give me the names of six of the most suitable Tea Roses for planting out in a Rose house to force in winter? Kiudly also say if they would be best on their own roots or otherwise. I purpose throwing the house open in summer.—ENQUIRER.

5213.—**Rose cuttings for epring flowering.**—Would Rose cuttings struck within the next few weeks be available for forcing to produce bloom next March and April? If so, a few hints from some rosarian as to the best mode of bringing them on would be much esteemed.—ERNEST B.

5214.—**Gas water v. wireworm.**—The ground here is very much infested with wireworm. Might I soak any portion of it with water from the gasworks, digging it well in? If so, how long must the ground so dressed be left before it would be safe to plant anything? Perhaps some of your readers will kindly answer these questions.—A. R. W.

5215.—**Eucharis amazonica.**—In forming a bed for this, ought the hot-water pipes to be covered over before putting in the soil? and if so, what is the best material for the purpose? Had the pipes better go through the soil of the bed? If any of your readers having experience would kindly help me in this matter, I should be greatly obliged. I may add that I purpose planting out the bulbs in the bed. —ENQUIRER.

5216.—**Eucharis insects.**—I thank "G. S. S." for his answer respecting this plant. I have examined the bulbs, and find them to be full of the insects to which he refers. I have plunged them in water for fifty hours, and have used sulphur over the bulbs, but each of no avail. If "G. S. S." can give me any further information on the subject, I shall be extremely obliged.—J. S.

Monstroue Foxglove.—I send you a sport of Nature which you may think worthy of notice in THE GARDEN, viz., the flowering stem of a Foxglove with a Canterbury Bell-like flower on the apex.—SOUTH HILL.

*** Not an uncommon occurrence, especially this year. Another correspondent ("Ravensdale") sends us several examples of the same kind of monstrosity, one having the terminal flower 4 inches across, perfectly cup-shaped and white. This is the result of the fusion of several flowers together.—ED.

Gloxinias (*Holme*).—Nos. 1 and 4 are good varieties and worth naming; the others are no better than older sorts in commerce.

Names of plants.—*T. F.*—1, Thalictrum aquilegifolium; 2, Corydalis lutea.——*G. T. F.*—1, 2, next week; 3, Colutea cruenta; 4, Buddleia globosa.——*De B. C.*—1, Ornithogalum latifolium; 2, Chrysobactron Hookeri; 3, Geranium sanguineum; 5, Melittis Melissophyllum.——*D. D.*—1, Galium aparine; 2, Œnanthe crocata; 3, Listera ovata; 4, species of Picris.——*W. Spencer.*—1, flower withered; 2, Campanula isophylla; 3, Veronica Teucrium; 4, Geranium sanguineum.——*F. H. Lloyd.*—1, Muscari comosum; 2, Gasteria verrucosa; *S. W. C.*—Inula glandulosa.——*A. Elder.*—1, Allium Moly; 2, send when in flower; 3, Ixia crateroides; 4, Fuchsia procumbens; *E. Molyneux.*—1, Iris ochroleuca; 2, Cotyledon Umbilicus.——*K. A. S.*—Iris sordidum or Thunderbolt; Deutzia scabra; Erigeron philadelphicum; Campanula muralis.——*Bittern*—Astrantia major.——*G. A. Stones.*—Pernettya mucronata.——*R. C. L.*—Can you send a fresh (not dried) specimen of No. 1? 2, Polygonum Bistorta.——*W. W.*—1 Erigeron mucronatum; 2, Iris Xiphioides (Spanish Iris) 3, Sisyriochium convolutum; 4, Geranium pratense; 5 Viburnum plicatum; 6, Polystichum coniifolium.——*J. Crook.*—Phyllocactus creuatus——*E. M G.*—1, Ailanthus glandulosa; 2, Tilia platyphylla laciniata; 3, Cupressus Lawsoniana.——*W. Allan.*—Knapweed, Centaurea nigra.——*S. K.*—Cratægus Crus-galli var. ovatifolia——*Mrs. A. C. Pirie.*—Lychnis dioica fl.-pl.——*W. D* (*Prestonfield*).—1, Diosma ericoides.——*J. C. O.*—1, Anemea phyllitidis.——*G. A. W.*—Decidedly Cypripedium barbatum not C. Veitchi.